






THE J. PAUL GETTY MUSEUM LIBRARY



Digitized by the Internet Archive
in 2018 with funding from
Getty Research Institute

<https://archive.org/details/journalofroyalin2189roya>

THE ARCHITECTURAL JOURNAL

BEING THE JOURNAL OF

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS

VOL. II. THIRD SERIES, 1895

PRINTED BY
SPOTTISWOODE AND CO., NEW-STREET SQUARE
LONDON

JOURNAL

OF

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS

NOVEMBER 1894—OCTOBER 1895



VOLUME II. THIRD SERIES

LONDON
No. 9, CONDUIT STREET, HANOVER SQUARE, W.
1895

INDEX TO VOLUME II. THIRD SERIES.

The names of the authors of the principal Contributions are printed in black type.

A

- Académie des Beaux-Arts, Paris: French Students' drawings criticised, 128; M. Chedanne's drawings lent by the French Government, 144; Correspondence between the Comte Delaborde, the President, and M. Chedanne, 145; Summary of M. Chedanne's Report on the Pantheon, 175; Centenary of the Institut de France, 621.
- Academy Architecture*, 626.
- Academy of Arts in Rome, The British: E. J. Poynter on, 182.
- Academy of France at Rome, 185; its Establishment by Louis XIV. and Colbert, 186; The Ecole des Beaux-Arts, Formation of, *ib.*; Course of Study at, *ib.*; The *Grand Prix de Rome* Competitions, 187.
- ADDRESSES, PRESIDENTIAL: Opening of Session, 1; to Students, 161; Presentation of Royal Gold Medal, 553.
- Africa: The South African Association, 216; Ruined Cities of Mashonaland, 508. *See* Egypt.
- Aitchison, Professor: Chinese Architecture, 61; EDITIONS OF VITRUVIUS WANTING IN THE INSTITUTE LIBRARY, 321; Acoustics of Buildings, 372; THE USE AND ABUSE OF MARBLE FOR DECORATIVE PURPOSES, 401; Sound in its relation to Buildings, 372, 423.
- Aldwinckle, T. W.: FEVER HOSPITALS, 265, 312.
- ALLIED SOCIETIES.—Certificates of Alliance issued to, 535; R.I.B.A. Prize Drawings lent for Exhibition to, 218; Examinations at, 655.
- BIRMINGHAM: W. Henman's PRESIDENTIAL ADDRESS, 34; F. R. Farrow's Paper, PREPARATION FOR THE INSTITUTE EXAMINATIONS, 106; E. R. Taylor's Paper, ARCHITECTURAL EDUCATION, 225; H. R. Appelbee's Paper, THE PREPARATION OF DRAWINGS FOR THE INSTITUTE PRIZES AND STUDENTSHIPS, 227; T. W. F. Newton's Paper, THE SMALL COUNTRY HOUSE, 349; Officers, 428.
- BRISTOL: Officers, 572.
- CARDIFF: New President, 263.
- DUBLIN: Officers, 522.
- DUNDEE: Circular issued to District Architects, 319; Prize Competitions for Students, 573; A. N. Paterson's Paper, SOME PRINCIPLES OF DECORATION IN MARBLE, MOSAIC, SCULPTURE, PAINTING, 152.
- EXETER: Officers, 572; J. Jerman's Address as retiring President, 573.
- GLASGOW: Officers, 28; Annual Report, 33; Memorial to the Municipal Authorities, 105; T. L. Watson's Paper, GLIMPSES OF FOUR GREAT PERIODS OF ITALIAN ART, 157; W. J. Anderson on Classic Architecture and the Italian Renaissance, 252; Alex. McGibbon's Lectures on Mediaeval Architecture, 317; W. J. Anderson on English Gothic, 399; New Chair of Architecture at the Glasgow and West of Scotland Technical College, 420, 652; Curriculum, 675.
- LEICESTER: Exhibition of Students' Drawings, 393; S. Perkins Pick's REVIEW OF WORKS SUBMITTED FOR THE SOCIETY'S PRIZES, 393; Officers, 572.
- LIVERPOOL: H. Hartley's PRESIDENTIAL ADDRESS, 31; P. H. Rathbone's Paper, ARCHITECTURE AS A NECESSARY ELEMENT IN NATIONAL ECONOMY, 193; The School of Architecture and Applied Arts, 601, 635; T. G. Jackson's Inaugural Address, 636; Officers, 572.
- LEEDS AND YORKSHIRE: Officers, 428.
- MANCHESTER: J. Holden's PRESIDENTIAL ADDRESS, 28; E. A. Claremont's Paper, ELECTRIC LIGHTING (illustrated), 258; J. D. Sutcliffe's Paper, COMBINED WARMING AND VENTILATION OF PUBLIC BUILDINGS, 314; H. Bloomfield Bare's Paper, PHILADELPHIA: AN ARCHITECT'S NOTES IN AN AMERICAN CITY, 394; Officers, 522.
- NEWCASTLE: J. Oswald's PRESIDENTIAL ADDRESS, 98; F. E. Caws's Paper, THE ARCHITECT, 102; Officers 1895-96, 393; J. M. Moncrieff's Paper, THEORETICAL AND PRACTICAL NOTES ON BEAMS, COLUMNS, AND ROOF TRUSSES, 428; Visit to Stockton, 483; Prizes offered by the Northern Association, 677.
- NOTTINGHAM: Officers, 428; Letter from Council of, *re* Building Contracts, 465.
- SHEFFIELD: Opening Meeting, 33; Officers, 428.
- YORK: Officers, 135; Annual Dinner, 195; F. W. Bedford's Paper, SOME ACCOUNT OF THE ARTS IN SICILY AND SOUTHERN ITALY, 344.
- Alma Tadema, L.: Vote of Thanks to President, 15; Simplicity in Architecture, 243; The Use of Marbles, 416, 451; Art Training, 623.
- America: AN ARCHITECT'S NOTES IN PHILADELPHIA [H. Bloomfield Bare], 394.—Arrangement of Avenues and Streets, 395; Building Materials, *ib.*; Tin roof coverings, *ib.*; Galvanized iron shams, *ib.*; Joinery, 396; A Typical block of Offices, *ib.*; Street paving, *ib.*; General use of Smokeless Coal, 397; Labour-saving Con-
- trivances, *ib.*; Fixtures, *ib.*; Frame-Houses, *ib.*
- Anderson, J. Macvicar, on Trade Unionism, 81; his Addresses to Students, 161; The late Ewan Christian, 313.
- Anderson, W. J.: The Influence of Classic Architecture upon the Renaissance of Italy, 252; A Series of Cathedrals (review), 340; English Gothic Architecture, 399.
- Appelbee, H. R.: THE PREPARATION OF DRAWINGS FOR THE R.I.B.A. STUDENTSHIPS AND PRIZES, 227.
- Appellate Tribunal, The. *See* TRIBUNAL OF APPEAL.
- Apprenticeship, Conference on, 557, 576.
- Arbitrations, The Architect and. *See* LEGAL POSITION OF ARCHITECTS, &c.
- Archæology and Geology in relation to Architecture, 163.
- ARCHITECT, THE: His Training and Development [F. E. Caws], 102.
- ARCHITECT'S (AN) NOTES IN AN AMERICAN CITY [H. Bloomfield Bare], 394.
- Architects' Benevolent Society: Forty-fifth Annual Meeting, 351; Annual Report, *ib.*; Income Account and Balance-Sheet, 352.
- Architects' Certificates, 505; Awards. *See* LEGAL AND LEGAL POSITION OF ARCHITECTS, &c.
- Architects, Leading, of the Past Three Centuries in Great Britain, 8, 133.
- Architects and the Glasgow Municipal Authorities, 105.
- Architects' Registration Bill: First Reading, 331; Petitions and Statement against, 376, 445.
- ARCHITECTS, SOME THOUGHTS ON THE TRAINING OF [T. G. Jackson], 636.—What is Architecture? 636; The System of Apprenticeship, 637; Defects in an Office Training, 638; Ancient and Modern Architects, *ib.*; Isolation of the Architect from the other Arts, 640; Study of the History of Architecture, 641.
- ARCHITECTURAL ASSOCIATION (LONDON): The Curriculum 1894-95 [F. R. Farrow], 24; Memorial in 1855 in favour of Examination, 137; Arthur Cates on the origin of the 1855 Memorial, 188; The Curriculum and the Institute Examinations, 556; The Institute Grant for educational purposes, 480, 481, 582; The Revised 1895-96 Curriculum, 651; Time-Tables of Classes for Probationers and Students, 671.
- Architectural Education. *See* EDUCATION AND EXAMINATIONS.
- Architecture: A Profession or an Art? 5.
- ARCHITECTURE AS A NECESSARY ELEMENT IN NATIONAL ECONOMY [P. H. Rathbone], 193.

- ARCHITECTURE AT THE EXHIBITIONS OF THE ROYAL ACADEMY [R. F. Chisholm], 664.
- Architecture, British, Permanent Gallery of: Mr. Seth-Smith's Proposal, 7, 446.
- Architecture, Christ in: review of Archdeacon Farrar's book, 453.
- "Architecture for the Public," 587, 633, 670.
- Architecture, Geology and Archaeology in relation to, 163.
- Architecture, Individuality in. *See* ARCHITECTURE, SIMPLICITY IN; and STYLE, INDIVIDUALITY, AND NATIONAL TRADITION.
- Architecture, Influence of Literature on. *See* LITERATURE.
- Architecture in London: *The Daily Chronicle* on, 386; Mr. Barr Ferree on, 630; *The Quarterly Reviewer* on, *ib.*
- Architecture, Mediaeval: Alex. McGibbon's Lectures on, at Glasgow, 317.
- Architecture, National. *See* STYLE, INDIVIDUALITY, AND NATIONAL TRADITION.
- Architecture, Old Masters in, Drawings by, 166.
- Architecture, Pre-Conquest. *See* PRE-CONQUEST ARCHITECTURE.
- ARCHITECTURE, SIMPLICITY IN, THE VALUE OF—
- I. [Halsey R. Ricardo]—Individuality in Architecture, 229; Influence of Modern Requirements and Practices, 230; The Della Robbia head, 232; Ornament, 233.
- II. [Basil Champneys]—Retinence and Self-restraint characteristic of English art, 233; St. Catherine's Chapel, Abbotshury, 235; Chequers Court, Bucks, 236; Spurious Originality, *ib.*; The unique aim, 237; Plan, section, and elevation, one conception, 238.
- III. [F. C. Penrose]—Sequence of Architectural Development, 238; Definite aim in the use of Ornament, 239; Advantages of a well-ordered and simple Plan, *ib.*; Economy of Ornament, 240; Method of working out a Design, 241.
- Discussion*: Howard Ince, 241; H. H. Statham, 242; Alma Tadema, 243; H. W. Primrose, 244; Wm. Young, *ib.*; Wm. White, 245; E. R. Robson, *ib.*; Basil Champneys, 246.
- Architecture, Walter Savage Landor's references to, 24.
- ART COMMITTEE: annual report, 445; Deputation to the London County Council *re* New Bridge at Vauxhall, 445, 582; Election, 550; Members appointed by the Council, 556.
- Art Training, L. Alma Tadema on, 622.
- Ashbee, H. S.: Chinese Architecture, 64.
- Ashpitol Prize 1894. *See* PRIZES AND STUDENTSHIPS.
- Assessors in Competitions, A Hint to, 18.
- Associateship, Lists of those who have qualified by Examination for (1863-94), 142; (1894-95), 124, 417.
- Assouan Dam Project. *See* PHILE.
- Aston Union Competition, 256.
- Athens, British School at: Memorial to Lord Rosebery, 534; Meeting on behalf of, at St. James's Palace, 583; Its work, 584; Its poverty, *ib.*
- Atreus, Treasury of, 527. *See also* MYCENE.
- Auditors' report, 477; Recommendations for clearing off Deficit, 480; Election of Auditors 1895-96, 550.
- Awards and Certificates. *See* LEGAL POSITION OF ARCHITECTS.

B

- Babb, Henry R.: Architectural Education at Plymouth, 72.
- Baber, I. Colborne: Description of remains of Chinese Temples, &c., 46; his book of travels, 66.
- Babylonia and China—Civilisation, 68.
- Balance-Sheets, 448.
- Balfour, R. Shekleton: Description of his Tour in Wiltshire and Somersetshire as Pupil Student 1894, with Map and Sketches, 387.
- Barry, Charles: Election of the Royal Gold Medalist 1895, 344.
- BARRY, SIR CHARLES, MR. WOLFE, AND OTHERS: SOME OBSERVATIONS ON THE NOTES OF FOREIGN TRAVEL LEFT BY A. E. STREET, 73.
- Barry, Sir Charles: Designs for the Parliament House, 10; Other Works, 11; Eulogy of, 630.
- Bath, Fred.: Building Contracts, 465.
- BEAMS, COLUMNS, AND ROOF-TRUSSES, THEORETICAL AND PRACTICAL NOTES ON J. M. MONCRIEFF, 428. Pasley's Experiments on Brick Cantilevers, 429; Tests of Brickwork Beams, 430; Hugh Leonard's Experiments on full-size Footings, 431; Column Foundations in Chicago, 432; Timber Beams and Framed Floors, 433; Steel and Iron Joists, 434; Columns, 435; Tests of Roof-Trusses in common use, 437; Collar Beam Roof-couple, 438.
- Bedford, F. W.: SOME ACCOUNT OF THE ARTS IN SICILY AND SOUTHERN ITALY, 344.
- Bedford Technical School, 668.
- Bilson, John: The East End of Durham Cathedral, 546.
- Birch, G. H.: Memoir of Ewan Christian, 331.
- Birmingham Association. *See* ALLIED SOCIETIES.
- Birmingham, London, and the Unemployed: Mr. Joseph Chamberlain on Municipal Government, 251.
- Blashill, Thomas: The London Building Act 1894, 122.
- Blore, Edward, 11.
- Botton, A. T.: THE INFLUENCE OF LITERATURE ON ARCHITECTURE (Prize Essay 1895), 561.
- Boui, G., and the Mosaics of Parenzo Cathedral, 219.
- Bonomi, Joseph, and his son, 548.
- Booth, A. C. Bulmer: Forgotten Staircases, an old Story, 27.
- Boussac, Hippolyte: his Letter *re* Philæ Reservoir, 622.
- Boyes, H. C.: Building Contracts, 466.
- Brickwork Tests: Pasley's Experiments, 429; Hugh Leonard's Experiments in Calcutta, 430, 593; Science Committee's Experiments, 448. *See also* BEAMS, &c.
- Bridgen, T. E.: obituary notice, 335.
- Bridges over the Thames, 4; Proposed New Bridge at Vauxhall: Art Committee and the L.C.C., 445, 478, 582.
- Brindley, W.: Ancient Roman Marbles (review), 130; THE USE AND ABUSE OF MARBLE FOR DECORATIVE PURPOSES, 415; Marbles in *San ta Sophia* (review), 543.
- Bristol Society. *See* ALLIED SOCIETIES.
- British Academy of Arts in Rome: E. J. Poynter on the, 182.
- British School at Athens. *See* ATHENS.
- Brock, E. P. Loftus: The Church of St. Mary Overie (review), 150.
- Brodie, C. H.: District Surveyors, 95; Architects' Certificates and Awards, 214; The Annual Report, 481.
- Brooks, James: Nomination as Royal Gold Medalist 1895, 258; Elected, 343; Some of his Works, 344; Presented with the Medal: President's Address, 553; His Reply, 554; Proposed Class of "Craftsmen R.I.B.A.," 598.
- Brown, Professor Baldwin: SOME CHARACTERISTICS OF PRE-CONQUEST ARCHITECTURE, 485; "Architecture for the Public" (review), 587; Reply to Mr. Statham, 670.
- Bruce, W. Wallace: District Surveyors, 92.
- Brydon, J. M.: REVIEW OF THE WORK SUBMITTED FOR THE PRIZES AND STUDENTSHIPS 1895, 168; M. Chedanne's Drawings, 182; Proposed Class of "Craftsmen R.I.B.A.," 597; The Municipal Buildings of Edinburgh (review), 658.
- Budapest Congress: Report of the Institute Delegates, 16.
- Builders, Institute of: Letter *re* Proposed Form of Contract, 466.
- BUILDING CONTRACTS.—Special General Meeting to discuss the Revised Paper, 460; Full text of the proposed Form of Agreement and Schedule of Conditions, *ib.*; Letters from Nottingham Society, Arthur Cates, Fred. Bath, S. R. J. Smith, L. Sugden, and the Institute of Builders, 465; E. T. Hall's Summary of Suggestions from Allied Societies and members, 511.
- Discussion*: Aston Webb, 464; Statement by H. C. Boyes, 466; H. Dawson, 468; G. T. Hine, 470; Prof. T. Roger Smith, *ib.*; Wm. Woodward, 471; Lacy W. Ridge,

- 473; C. Forster Hayward, *ib.*; Wm. Emerson, 474; T. H. Watson, *ib.*; J. Douglass Mathews, *ib.*; Alex. Payne, *ib.*; A. W. Tanner, *ib.*; E. T. Hall, 475.
- Resumed Discussion*: Wm. Emerson, 511; E. T. Hall, *ib.*; T. H. Watson, 516; C. Forster Hayward, *ib.*; C. Stanley Peach, *ib.*; Lewis Solomon, 517; G. H. Fellowes Prynne, *ib.*; Alex. Payne, 519; W. H. Seth-Smith, 519; Wm. Woodward, 520; G. T. Hine, *ib.*; T. M. Rickman, 521; Vote of Thanks to Practice Committee, *ib.*
- Resolutions approving the new Form, &c., 522; Issue of the New Form, 582.
- The Heads of Conditions, clauses 18 and 20, and the Court of Appeal, 505; Sanction to issue of, withdrawn, 522.
- See also* LEGAL POSITION OF ARCHITECTS.
- Building in Philadelphia, 394.
- Building Law. *See* LEGAL, LONDON BUILDING ACT, and PARLIAMENTARY.
- Building of Towns, HER STÜBBEN on, 627.
- Building Trades Exhibition, 448.
- Bulmer, G. B.: Remarks at the York Society Annual Dinner, 195.
- Buls, Ch.: Description of the old "Broodhuys," Brussels, 622.
- Burke Downing, H. P.: Ancient English Homes (review), 632.
- Burlington-Devonshire Collection: Some of the Drawings described, 166; The Deed of Trust, 183; List of the Drawings as contained in Schedule to the Deed, 184; Reproduction and Description of Drawing "City of Rome in 1562," 648 *et seq.*
- Burrows, H. W.: SOUND IN ITS RELATION TO BUILDINGS, 353, 374.
- By-laws *re* "Craftsmen R.I.B.A.," Proposed, 596.
- Byzantine influence in Romano-British work, 504.
- C**
- Cairo, Stanley Lane-Poole on, 342.
- Calcutta, Foundations for Buildings in, 593.
- Cardiff Society. *See* ALLIED SOCIETIES.
- Carôe, W. D.: DISTRICT SURVEYORS IN LONDON: The Recent Falling-off of Candidates in the Statutory Examination for the Office of District Surveyor, 86; Reply to the Discussion, 95; Thomas Sandby, R.A., and Inspiration, 257.
- Cates, Arthur: Report of Institute Delegates at the Budapest Congress, 16; Architectural Publication Society's Presentation to, 77; his work in the Examinations, 140; The A.A. Memorial 1855, 188; The Revised Conditions of Contract, 465; Appointment of the Statutory Board of Examiners, 483; Strassburg and its Buildings (review), 506; Cologne, New and Old (review), 656; London's Improvidence, 657.
- Cathedrals of England and Wales, 340.
- Caws, F. E.: THE ARCHITECT, 102.
- Certificates and Awards. *See* LEGAL POSITION OF ARCHITECTS.
- Ceylon: Architectural Remains at Anurâdhapura, 456.
- Chamberlain, Mr. Joseph, on Municipal Government, 251.
- Charles, B. A.: Museum of Materials in Vienna (review), 23.
- Charles, Ethel: Roman Remains at Old Buda (review), 69; Stübben on Sanitation and Building of Towns, *Résumé* of, 590.
- Chedanne, G.: Correspondence *re* Loan of his Drawings for Exhibition, 144; The President's reference to the Drawings, 168; J. M. Brydon on, 170; Summary of his Report to the Académie des Beaux-Arts, 175; Reply to the Vote of Thanks, 179; His Delineation and Restoration of the Pantheon, 180; List of the Drawings, *ib.*; Mr. Phené Spiers's Description, *ib.*
- CHINA, NOTES UPON THE ARCHITECTURE OF [F. M. Gratton].—Chinese Art, 37; Architectural Remains, 38; Buildings in the Sixteenth Century, 39; Materials and Design, 40; Cities and Wall, *ib.*; Temples, 42; Temple Front, Island of Pootoo, 43; Description of Buddhist Monastery near Canton, 44; Plan, 45; Beamless Temples, *ib.*; "Bonze" Monasteries, *ib.*; Bronze Temple and Bronzes, *ib.*; Bells, 46; Images, 47; Palaces, *ib.*; Benevolent and Philanthropic Institutions, 48; Guilds, *ib.*; Courtyard of Fokien Guildhall at Ningpo, 49; Plan of the Bankers' Guild at Shanghai, 50, 427; Pagodas, 50; Soochow Pagoda, 52; Towers and Pavilions, *ib.*; Baby Towers, 53; Official Residences, *ib.*; Tea-houses and Gardens, *ib.*; Pawnshops, *ib.*; Tea-house in Shanghai, 54; Chinese Forts, *ib.*; Memorial Arches and Gateways, *ib.*; Mausolea and Tombs, 55; The Ming Tombs, Pekin, 37, 55; Gateway and Front of the Chun-Tsiang-Cha at Pekin, 56; Bridges, 57; The "Marble Bridge" near Pekin, 58; General Notes, *ib.*; Remains and Proofs of Distinctive Architectural Style, 59.
- Discussion*: Wm. Simpson, 59; T. Watters, 60; Professor Aitchison, 61; Sir Henry Howorth, *ib.*; R. Phené Spiers, 63; H. S. Ashbee, 64; Wm. Woodward, *ib.*; Illustrations and Authorities quoted, 66.
- China, The Great Wall of, and the Ming Tombs, 96; Sections of Wall at Kupei Kow, *ib.*
- Chinese Civilisation and Babylonia, 68; Chinese Sense of Architectonic Harmony, 71.
- Chisholm, R. F.: Architecture at the Exhibitions of the Royal Academy, 664.
- "Christ in Architecture": Archdeacon Farrar's book, 453.
- Christian, Ewan, Death of, 313; J. Macvicar Anderson on, *ib.*; vote of condolence, 314; Memoir, 331; Letter from Miss Christian, 377; Request of books to the Library, 655.
- CHRONICLE.—The Budapest Congress: Report of the Institute Delegates, 16; The Opening Meeting 1894-95, 16; The November Examinations; Number of Applicants, 17; THE KALENDAR 1894-95, 17; The late Léon Palustre, 17; The late Charles Herbert Cooper [A.], 18; A Hint to Competition Assessors, 18; Additions to the Library, 18, 67, 78, 129, 185, 220, 253, 335, 379, 421, 538, 655; Helmingham Hall, 19, 421; The Intermediate Examinations, Results, 65, 375; Probationers' Testimonies of Study: Concession to the Royal Academy Architectural Students, 65; Mr. Gratton's Paper on the Architecture of China, 66; The late Frederick Hemings [A.], 66; District Surveyors in London, 77; *The Dictionary of Architecture*: Presentation to Mr. Arthur Cates, 77; The Philæ-Assouan Dam Project, 77; Ancient Paintings: a Competition, 78; The Examination for Candidature as Associate R.I.B.A., Results, 124, 417; The Ashpitel Prize 1894, 125; The Preliminary Examinations, Results, 125, 418; The Tribunal of Appeal, 127; Technical Education in London, 127; The Académie des Beaux-Arts (Institut de France), 128; The late Herbert A. K. Gribble [A.] [H. A. Gough] 128; The Voluntary and Obligatory Examinations 1863-94: Lists of Passed Candidates, 142; The Prizes and Studentships: Annual Exhibition, 144; A Special Exhibition of Drawings, 144; The late William Gratus Coward [F.] [J. Horbury Hunt], 145, 216; The late James Murgatroyd [F.] [John Holden], 146; "The 'Antiquary,'" 147; The Pantheon at Rome: M. Chedanne's Delineation and Restoration, 180; R. Phené Spiers's Description of M. Chedanne's Drawings, 180; The British Academy of Arts in Rome, 182; The Prizes and Studentships, 183; The Burlington-Devonshire Collection, Deed of Trust, 183; The Spring Examinations, 216, 375, 416; The South African Association, 216; A Teaching University for London, 217; The Condition of London Railway Stations, 218; Proposed Overhead Motive Power for Electric Tramways, 218; The Prize Drawings at Allied Centres, 218; Pierre Manguin, 1815-69, 219; Parenzo Cathedral

- and its Mosaics, 219; Prices of Materials in 1776, 219; District Surveyors in London: Right to Private Practice: The County Council's Reply, 250; The Hungarian Architects and Engineers, 250; The Eighth General Meeting, 250; Birmingham, London, and the Unemployed, 251; The Glasgow School of Art, 252; *Greek Studies*, 253; The late Ewan Christian [J. Macvicar Anderson and G. H. Birch], 313, 331, 377; The Ninth General Meeting, 313; The London Building Act 1894: Regulations of The Tribunal of Appeal, 330; Architects' Registration Bill, 331, 376; The late Edward Graham Paley [F.], 334; The late Thomas Edward Bridgen [F.], 335; The Prizes and Studentships 1895-96, 377; The late Ernest Turner [F.], 378; The late Hubert Alfred Gregg [A.], 379, 421; The Twelfth General Meeting, 419, 451; A New Chair of Architecture, 420; J. B. Papworth and Sir M. Digby Wyatt, 420; The late Arthur Lett [F.], 420; International Sanitary Exhibition in Paris, 420; The Church of St. Clement Danes, Strand James Cubitt], 451; The late Gordon Macdonald Hills [A.], 452; The late Alfred Hayles Clark [A.], 453; The Architectural Association Sketch-Book, 453, 506; The Institute Heads of Conditions, clauses 18 and 20, and the Court of Appeal, 505; Visit of German Architects and Engineers, 505, 536, 556; The German Edition of Vitruvius 1796, 506; Recent Papers on Hospitals, 506; The British School at Athens, 534, 583; The Annual Elections, 535; Admission Fees to the Examinations, 535; Allied Societies' Certificates of Alliance, 535; The Modified Reservoir at Philæ, 535; The Art of Ancient Egypt Exhibition, 536; "Drain" or "Sewer," 538; A Proposed New Class of Members, 539; The Sixteenth General Meeting, 556; The Standing Committees 1895-96, 556; The Architectural Association Curriculum and the Institute Examinations, 556; Conference on Apprenticeship, 557; Recent Books relating to Egypt and Africa, 557; Proposed New Bridge at Vauxhall: Deputation to the London County Council, 582; The new Form of Agreement and Schedule of Conditions for Building Contracts, 582; The Grant to the Architectural Association, 582; The Examinations 1895-96: alteration of fees and dates, 583; Recent Explorations at Jerusalem [Wm. Simpson], 585; Plans and Models of Dairies Competition, 585; The late Thomas Chatfield Clarke [F.], 586; The late August Reichensperger [Hon. Corr. M.], 586; Reappointment of a Competitions Committee, 587; The Schedule of Practice and Charges, 587; "The Building of Towns," 587; L'Institut National de France: Centenary of its Foundation, 621; The Modified Reservoir at Philæ, 621, 653; The Old "Brood-huys," Brussels [Ch. Buls], 622; Mr. Alma Tadema [H.A.F., R.A.], on Art Training, 623; The late Richard Morris Hunt [Hon. Corr. M.], 624; The late Henry Clutton [F.], A. E. Johnson [F.], and George Knowles [F.], 625; The Healthiness of "Flats," 626; *Academy Architecture*, 626; The Liverpool School of Architecture, 626; The Architectural Association: its Revised Curriculum, 651; Education in Edinburgh and Glasgow, 652; The "Curves" of the Parthenon, 652; The Old Cathedral of Geneva, 653; The late James Piers St. Aubyn [F.], 653; The late John Colson [F.], 654; Examinations at Allied Centres, 655.
- Claremont, E. A.:** ELECTRIC LIGHTING, 258.
- Clark, A. H.: obituary notice, 453.
- Clarke, Max: Sound in its relation to Buildings, 426.
- Clarke, Somers: The Modified Reservoir at Philæ, 535.
- Clarke, T. Chatfield: obituary notice, 586.
- Clarkson, S. Flint: The London Building Act 1894, 135.
- Classic Architecture, Influence of, on the Italian Renaissance, 252.
- Classical Antiquities (review), 220.
- Classical Influence in the Architecture of the Indus Region, 190.
- Clutton, Henry (Hartwood): obituary notice, 625.
- Cockerell, C. R., and the Greek Revival, 11.
- Cole, R. Langton:** Acoustics of Public Buildings, 373; The London Building Act (review), 383.
- Collins, H. H.: District Surveyors, 90; The London Building Act 1894, 117.
- Cologne, New and Old: a Lesson for London, 656.
- Colson, John: obituary notice, 654.
- Columns. *See* BEAMS.
- Competitions: A Hint to Assessors, 18; at Manchester, 29; Terms of, at West Ham and Aston Union, 256; Reappointment of a Competitions Committee, 587.
- Contracts, Building. *See* BUILDING CONTRACTS.
- Contributors &c.. List of, xix.
- Cooper, C. H.: obituary notice, 18.
- Council, Annual Report of, 441; Election 1895-96, 550; Voting List, Motion to publish names of members proposing nominees for Council, 551; Discussion, *ib.*
- COUNTRY-HOUSE, THE SMALL** [T. W. F. Newton], 349.—Ground Plan, 350; various rooms, *ib.*; Fittings, Woodwork, &c., *ib.*; Externals, 351; Brickwork, *ib.*
- Coward, W. G.: obituary notice, 145, 216.
- Craze, J. D.:** Cairo (review), 342. "Craftsmen"; Proposed New Class of subscribing Members, 539; Suggested By-laws governing, 596; Declaration, *ib.*; Discussion, *ib.*; Further consideration deferred, 601.
- Crane, Walter: Simplicity in Architecture, 250.
- Cruciform Churches, Origin of, 497.
- Cubitt, J.: The Church of St. Clement Danes, Strand, 451.

D

- Dairies, Plans and Models of, Competition, 585.
- Daumet, H.: President's letter to, *re* M. Chedanne's drawings, 145.
- David, Abbé: extracts from *Journal de Voyage en Chine*, 38, 55.
- Davis, J. F.: Description and Plan of Buddhist Monastery, Canton, 44.
- Dawson, H.: Building Contracts, 468.
- DECORATION, SOME PRINCIPLES OF, IN MARBLE, MOSAIC, SCULPTURE, PAINTING, &c. [Alex. N. Paterson], 152.—Definition of "Decoration," 152; Beauty, Fitness, and Truth the dominant ideas, *ib.*; A Guiding Mind essential, *ib.*; Surface Form and Colour, *ib.*; Truth in Colour, 153; Convention, *ib.*; Right in Form, *ib.*; Restraint, *ib.*; Proportion and Shade, *ib.*; Truth to Construction, *ib.*; Marble, *ib.*; Mosaic, *ib.*; Monumental Painting, *ib.*; Sculptured Decoration, 155; Plasterwork, *ib.*; Other Materials and Methods, 156.
- Delaborde, The Comte Henri; Letter *re* M. Chedanne's Drawings, 145.
- Design. *See* ARCHITECTURE, THE VALUE OF SIMPLICITY IN.
- Design and Practice, Old and New Methods of, 7.
- Devon and Exeter Society. *See* ALLIED SOCIETIES.
- Dickie, Archibald C.: his Explorations at Jerusalem, 585.
- Dicksee, Bernard: District Surveyors, 94.
- Dictionary, The, of Architecture:* Presentation by Architectural Publication Society to Arthur Cates, 77.
- Diploma in Architecture, Lance's Essay on, 137; Origin of the Architectural Association's Memorial in 1855, 188.
- Dircks, R.: A Northumberland House (review), 20.
- District Surveyors: Paucity of Candidates for the Statutory Examinations, 4, 27; General Meeting on, 77. *See* W. D. Carøe's Paper.
- DISTRICT SURVEYORS IN LONDON: The Recent Falling-off of Candidates in the Statutory Examination for the Office of District Surveyor [W. D. Carøe], 86; The L.C.C. and the Declaration, *ib.*; Statistics of the

- Statutory Examination before and after Declaration, 87; Possible Abuses, *ib.*; Emoluments, *ib.*; Conditions of Appointment, 88.
- Discussion*: Professor T. Roger Smith, 88; J. Douglass Mathews, 89; T. H. Watson, 90; H. H. Collins, *ib.*; Benj. Tabberer, 91; H. H. Statham, *ib.*; Alex. Payne, 92, 95; C. Forster Hayward, *ib.*; W. Wallace Bruce, *ib.*; John Marsland, *ib.*; Edwin T. Hall, 93; Lacy W. Ridge, 94; Bernard Dicksee, *ib.*; Wm. Woodward, *ib.*; W. Hy. White, 95; C. H. Brodie, *ib.*; W. D. Carøe, *ib.*
- Suggested Conference with the L.C.C., 97; A Plea for Private Practice: the County Council's Reply, 250.
- Downes, Dr.: Fever Hospitals, 311.
- Draughtsmanship: Advice to Young Students, 162.
- Drawing, Reviews of books on, 383.
- Du Halde's book on China, 59.
- Dundee Institute. *See* ALLIED SOCIETIES.
- Durham Cathedral, Recent Discoveries at East End of, 546; Plan, 547.
- Dynamics and Statics, New books on, 508.
- E**
- Echernier, Casimir, The late, 668.
- Edinburgh: Education in, 652; The Municipal Buildings of, with plan, 658.
- EDUCATION, ARCHITECTURAL.—The A. A. Curriculum, 24, 651, 671; at Manchester, 30; School of Architecture and Applied Arts at Liverpool, 32, 601, 635; at Birmingham, 34; Plymouth School of Art, 72; An Architect's Education, 102; Free Technical Education in London, 127, 196; History of the Institute Examinations, 137, 188; British Academy of Arts in Rome, 182; Academy of France at Rome, 185, 224; The Ecole des Beaux-Arts, 186; A Teaching University for London, 217, 642; Paper on, by the Head-master of the Birmingham School of Art, 225; New Chair of Architecture at Glasgow, 420, 652; Dundee Prize Competitions, 573; Architectural Training forty years ago, 577; Grant to the Architectural Association, 582; L. Alma Tadema on Art Training, 623; T. G. Jackson on the Training of Architects, 636; Edinburgh and Glasgow, 652; The Science and Art School, Maidstone, 667; University Extension College, Reading, 668; Technical School, Bedford, *ib.*; Course of Study at the A. A. for Probationers and Students: Time Tables, 671; Syllabus of Curriculum at the Glasgow and West of Scotland Technical College, 675; Prizes offered by the Northern Association, 677.
- Egypt: Proposed Archaeological and Scientific Survey of Nubia, 77; Appointment of Committee, 444; Art of Ancient Egypt Exhibition, 536. *See* PHILÆ.
- Egypt and Africa, books on, 557: H. M. Tirard's, 149; G. Maspero's, 336; Flinders Petrie's History, 557; J. Theodore Bent on the Egyptian Obelisk, 558.
- Elections, The Annual, 550; Suggestions *re* Nominations for Council and Standing Committees, 551, 552.
- ELECTRIC LIGHTING [E. A. Claremont].—Battery and Circuit and Ohm's Law, 258; Lines of Force or Magnetism, *ib.*; Series Dynamo, 259; Shunt Dynamo, *ib.*; Compound Dynamo, *ib.*; Transformer, 260; Five-wire System, *ib.*; Motive-power, *ib.*; Tree and Distributing Wiring, 262; Cut-out System, 263.
- Electric Tramways, Proposed Motive Power overhead, 218.
- Emerson, Wm.: Acoustics of Public Buildings, 374; Building Contracts, 474, 511.
- Essay Medal, The. *See* PRIZES AND STUDENTSHIPS.
- EXAMINATIONS, THE, FOR ADMISSION TO CANDIDATURE: AN HISTORICAL NOTE, 137.—Lance's *Du Diplôme d'Architecte*, 137; J. W. Papworth's Paper, and Discussion, 19 Nov. 1855, *ib.*; The A. A. Memorial, *ib.*; Proposals for a Voluntary Examination, 138; Discussion of, and Resolutions, *ib.*; Number of Applications and Results, *ib.*; Limited Success of the Voluntary Examination, 139; Revision of By-laws, *ib.*; By-law XIV. passed, *ib.*; Obligatory Examination decided upon, 140; The Architectural Examinations Committee, *ib.*; "Design" to have Prominence in the New Programme, *ib.*; Constitution and Members of the Board of Examiners, *ib.*; Mr. Arthur Cates's Work, *ib.*; The New Charter, *ib.*; Power to grant Diplomas, *ib.*; Recommendations of the London 1877 Conference of Architects, 141; The New Scheme of Progressive Examination, *ib.*; The Allied Societies, *ib.*; Provision under Section 3 of Charter *re* Examination of Fellows, *ib.*; Effect of the new Regulation for carrying into effect By-law 3, *ib.*; Decrease in the number of Fellows, *ib.*; Preponderance of Associates, *ib.*
- Lists of Candidates who passed the Voluntary (1863-81) and the Obligatory (1882-94), 142.
- — — SESSION 1895-96: Supplement to the above, 577.
- — — Number of Applicants (Autumn), 17; John Holden on, 30; at Glasgow, 33; Wm. Henman on, 34; Probationers' Testimonies of Study: Concession to R. A. Students, 65; J. Oswald on, 99; F. R. Farrow on Preparation for, 106; PRELIMINARY (Lists of Probationers), 125, 418; INTERMEDIATE (Lists of Students), 65, 375; FINAL (Lists of men qualified for candidature as Associate), 124, 417; Statistics, 2, 124, 125, 127, 442; The President's remarks on, 161; The Spring Examinations, 216, 375, 417; Increase of Fees and change of dates, 535, 583; The A. A. Curriculum and, 556, 651; Sketch of, 577; at Allied Centres, 655.
- Experimental Research: Fund for, 135; The Science Committee and, 374.
- F**
- Falkener, Edw.: French Architectural Education, 224; Sound in its relation to buildings, 423.
- Farrow, F. R.: THE A. A. CURRICULUM, 24; PREPARATION FOR THE INSTITUTE EXAMINATIONS, 106.
- Fellows: Decrease of, 141, 481, 483.
- Fergusson's Criticism of the Valmarina Palace, 167; his views as to the date of the Rotunda and Portico of the Pantheon, 181.
- Ferree, Barr, on "Architecture in "London," 630.
- FEVER HOSPITALS [T. W. Aldwinckle].—Infectious Diseases: Need of Isolation in treatment of, 265; Legislation regarding, 266; Gathorne Hardy's Act, *ib.*; The Metropolitan Asylums Board and its Work, *ib.*—Main principles governing Planning: Site, 268; Disposition of Buildings, *ib.*; Number of Beds per acre, 269; Plans of Hospitals suitable for groups of villages or small towns, 270; Extracts from the Local Government Board Memorandum, *ib.*—Plans and description of Hospitals not exceeding 100 beds: Heathcote Hospital, Leamington, 272; Willesden Hospital, 273; Grafton Street Hospital, Liverpool, 274.—Plans and Description of Hospitals exceeding 100 beds: Belvidere Hospital, Glasgow, 275; Moabit Hospital, Berlin, 276; London Fever Hospital, 277; Ladywell Sanatorium, 278; Epidemic Hospital, Copenhagen, *ib.*; Infectious Hospital, Budapest, 280; Northern Convalescent, Winchmore Hill, *ib.*; Park Hospital, Hither Green, *ib.*; Fountain Permanent Hospital, Tooting Graveney, 282; Brook Hospital, Shooter's Hill, 284.—Requirements: Entrances, 286; Porter's Lodge, *ib.*; Receiving Wards, *ib.*; Ward Pavilion, 287; The Main Ward, 288; Ward Furniture, 290; Ward Adjuncts, 291; Bathroom and Lavatory, Linen Store, Larder, Duty-room, Separation Ward, Ward Corridor, 294; Nurses' w.c., 295; Warming and Ventilation, *ib.*; Isolation Wards, 299; Airing Courts, Discharge Wards, Mortuary, 300; Accommodation for

- the Medical Staff, *ib.*; Kitchen and Stores, Nurses' Home, Male and Female servants, Laundry, 301; Disinfecting Apparatus and Destructor, 302; Students' Department, 303; Drainage, Lighting, Telephonic and Bell Installation, 303; Cost, 304. — Ambulance Stations, 305; Hospitals and Ambulance Organisation of the Metropolitan Asylums Board [*map*]; Land Service and River Service, 306; Removal and Distribution of Patients, *ib.*; The Brook Ambulance Station, Shooter's Hill, 307.
- Discussion*: P. Gordon Smith, 308; Dr. McCombie, 309; Dr. Goodall, 310; Edwin T. Hall, *ib.*; Dr. Downes, 311; T.W. Aldwinckle, 312. Finances, 448.
- "Flats," Healthiness of, 626.
- Fletcher, Professor Banister**: OBSERVATIONS ON THE LONDON BUILDING ACT, 109, 123; Architects' Certificates and Awards, 211; Acoustics of Public Buildings, 373.
- Florence, H. L.: Proposed Class of "Craftsmen R.I.B.A.," 599.
- Flower, A. S.**: Shropshire Churches (review), 70; Staircase Joinery (review), 148; The Corporation of London and its Public Works (review), 255.
- Forgotten Staircases: an Old Story, 27.
- Foundations for Buildings in Calcutta, 431, 593.
- Fowler, Charles: The London Building Act, 122.
- Frame-houses in the United States, 397.
- France: Loan of Drawings by the French Government to the Institute, 144; Vote of thanks, 179; Resolution, 192; French Architectural Education, 185, 224; An account of the Academy of France at Rome, 186; Superiority of French Architectural Drawings, 224; Centenary of the Institut de France, 621; Protest of the Société Centrale des Architectes Français against the Philæ Reservoir, 621, 653.
- Fund for Experimental Research, 135.
- G**
- Gardner, J. Starkie**: The Arts of the Netherlands: Ironwork and Smithing; review of J. J. Van Ysendyck's Work, 326.
- Garnier, Ch.: Letter *re* Philæ Reservoir, 621.
- Garstin, W. E.: Memorandum on the Philæ-Assouan Dam Project, 77, 535.
- Geneva, The Old Cathedral of: M. Viollier on, 653.
- Geology in relation to Architecture, 163.
- Gerbier, Sir Balthazar, Architect, 71.
- German Architects and Engineers, Visit of, 505, 536, 556; Review of books presented by, 556.
- Germany: Strassburg and its Buildings, 506; Cologne, New and Old, 656.
- Gibbs, E. M.: Opening Address at Sheffield, 33.
- Glasgow and West of Scotland Technical College: New Chair of Architecture, 440; Curriculum, 652, 675.
- Glasgow Institute. *See* ALLIED SOCIETIES.
- Glasgow School of Art: W. J. Anderson's Lecture on Classic Architecture and the Italian Renaissance, 252; A. McGibbon's Lectures on Mediæval Architecture, 317.
- Godwin Bursary, The. *See* PRIZES AND STUDENTSHIPS.
- Goodall, Dr.: Fever Hospitals, 310.
- Gough, H. R.: The late Herbert A. K. Gribble [*A.*], 123.
- Graham, Alex.: Proposed Class of "Craftsmen R.I.B.A.," 600.
- Grand Prix de Rome Competitions. *See* ACADEMY OF FRANCE AT ROME.
- Granger, Dr. Frank: The Influence of Literature on Architectural Development (review), 254.
- Grantham, R. F.: Public Works, New South Wales (review), 653.
- Cratton, F. M.**: NOTES UPON THE ARCHITECTURE OF CHINA, 37; An *erratum*, 427.
- GREECE, PRIMITIVE ART IN, AS TREATED BY GEORGES PERROT AND CHARLES CHIFFEZ (F. C. Penrose), 525. — Map of Troy, 526; The Treasury of Atreus, 527; Fragment of Ceiling from Domed Tomb at Orchomenus, 528; Restoration of Ceiling, 529; Gutta in C. Temple at Selinus, 530; Timber Decoration in Mycænan Palace, 531, 532. *See also* MYCÆNÆ.
- Greece, A Vision of, 539.
- Greek Studies*, 253.
- Green, Mowbray A.: his Architects' Certificate Forms, 254.
- Gregg, H. A.: obituary notice, 379.
- Gregory, Dr., Dean of St. Paul's: Vote of Thanks to President, 13.
- Gribble, H. A. K.: Exhibition of some of his drawings, 145; Obituary notice, 128, 135; Letter from his widow, 344.
- Grissell Medal, The. *See* PRIZES AND STUDENTSHIPS.
- H**
- Hall, Edwin T.: District Surveyors, 93; Architects' Certificates and Awards, 208; Fever Hospitals, 310; Building Contracts, 475, 511; The Annual Report, 482; Suggestions from Allied Societies, &c., *re* Building Contracts, 511.
- Hamilton, R. M.: The Prizes and Studentships, and Members in the Colonies, 427.
- Hansard, Octavius: Nomination of members to serve on the Council, 550.
- Hart, A. H.: Murray's Handbook of Rome (review), 222.
- Hartley, Henry**: OPENING ADDRESS at Liverpool, 31.
- Hayward, C. Forster: District Surveyors, 92; Building Contracts, 473.
- Hebb, John: Washing St. Paul's, 26; Tribunals of Appeal under 1844 and 1846 Building Acts, 189; Sir Balthazar Gerbier, Architect, 71.
- Helmington Hall Photographs, 19.
- Hemings, Frederick: obituary notice, 66.
- Henman, William**: OPENING ADDRESS at Birmingham, 34.
- Hewitt, Walter E.: The late Charles Herbert Cooper, 18.
- Highton, G.: The Technical School, Bedford, 668.
- Hills, G. M.: obituary notice, 452.
- Hine, G. T.: Building Contracts, 470, 520.
- Holden, John**: OPENING ADDRESS at Manchester, 28; The late James Murgatroyd, 146.
- Honorary Associates and Hon. Corr. Members, Classes of: Need of Development, 2, 3; Aston Webb on Hon. Associate Class, 596.
- Hopper, Thomas, and his principal works, 133, 134.
- Hospitals, Messrs. Henman and Aldwinckle's Papers on, and the *Lancet*, 506. *See* FEVER HOSPITALS.
- Houston, A. C.: Review of his Essay "Influence of Literature on Architectural Development," 254.
- Howard Lectures 1893, The, 19.
- Howorth, Sir Henry: Chinese Architecture, 61.
- Hungarian Architects and Engineers, The, 250.
- Hunt, J. Horbury: The late William Gratus Coward, 145.
- Hunt, Richard Morris: obituary notice, 624.
- I**
- Illustrations, List of, xvii.
- Ince, Howard: Simplicity in Architecture, 241.
- India: Classical Influence in the Architecture of the Indus Region 190; South Indian Buddhist Antiquities, 381; Remains in Coorg, 382; Architectural Remains, Ceylon, 456; Archæological Survey of N.W. Provinces and Oudh, 592; Foundations for Buildings in Calcutta, 431, 593; "Sacred Posts," 634.
- Inigo Jones: Remains of his Work in London, 8; Drawings by, in the Burlington-Devonshire Collection, 167, 185.
- Institut de France: Centenary, 621. *See also* ACADEMIE DES BEAUX-ARTS.
- Intermediate Examination, November 1894: Probationers who have become Students, 65, 375; Testimonies of Study: Concession to R.A. Architectural Students, 65. *See also* EXAMINATIONS.

Ireland, Royal Institute of. *See* ALLIED SOCIETIES.
 Iron, Steel, and Timber, 21.
 Isolation Hospitals. *See* FEVER HOSPITALS.
 Italy: The 1892, Palermo Congress, 19; The Porta Nuova, Verona, 75, 133; GLIMPSES OF FOUR GREAT PERIODS OF ITALIAN ART, 157; The Pantheon, 175, 180; The British Academy of Arts in Rome, 182; The Academy of France at Rome, 185; Parenzo Cathedral and its Mosaics, 219; Classic Architecture and the Renaissance, 252; SOME ACCOUNT OF THE ARTS IN SICILY AND SOUTHERN ITALY, 344; Sanitation at Rome, Naples, Palermo, and Florence, 590; MAPS, PLANS, AND VIEWS OF ROME, 645.

J

Jackson, T. G.: SOME THOUGHTS ON THE TRAINING OF ARCHITECTS, 636.
 Jerman, J.: Address at Exeter, 573.
 Jerusalem, Recent Explorations at, 585.
 Johannesburg, Growth of, 216; Architecture at, *ib.*
 Johnson, A. E.; obituary notice, 625, 669.
 Jones, J. H.: Review of his Essay "Influence of Literature on Architectural Development," 254.

K

KÁFIRISTÁN: Sir George Robertson's Report, 677; Origin and Physical Characteristics, 678; Villages and Houses, *ib.*; The One-Room House, 679; Houses of the Better Class, *ib.*; Houses of the Presun Káfirs, 680; A Káfir Tower, *ib.*; The Dancing Place and Gromma, or "Church," *ib.*
 KALENDAR, THE, 1894-95: Charles Lucas on, 17.
 Kerr, Professor: The Howard Lectures 1893 (review), 19; Architects' Certificates and Awards, 207; The Annual Report, 478; Proposed Class of "Craftsmen R.I.B.A.," 598, 625.
 Knowles, George: obituary notice.

L

Lanciani, Prof. R.: MAPS, PLANS, AND VIEWS OF THE CITY OF ROME, with especial reference to the Drawing of 1562 in the Burlington-Devonshire Collection, 645.
 LANDOR'S WIT, IN CONNECTION WITH ARCHITECTURE, 24.
 Law, Building. *See* LONDON BUILDING ACT, PARLIAMENTARY, AND LEGAL.
 Leaning, J., on Trade Unions, 83; Mr. Statham on the Building Act (review), 131; Safe Building (review), 422.
 Leeds and Yorkshire Society. *See* ALLIED SOCIETIES.

LEGAL:—

Allen v. London County Council: Building Line, 603; appeal, 642.
Badley v. Cuckfield District Council: Galvanized Iron Building, 575.
Battersea (Lord) v. Commissioners of Sewers: Ancient Lights, 643.
Bedford Court Mansions Case: Section 212 London Building Act, 264.
Bermondsey Vestry v. Williams: New Buildings on Old Foundations; Failure to give Notice to Vestry, 36.
Chastey v. Ackland: Light and Air, 576.
Crow v. Redhouse: Party-wall, 603; appeal, 644.
 "Drain" or "Sewer," 136, 538, 574, 643.
Goulding, Ex parte: in re Swinton and Pendlebury Local Board: Building Plans: Rejection by Local Authority, 160.
Hill v. Kaphan: Architect's Charges, 320.
Kershaw v. Taylor: "Drain" or "Sewer," 574; appeal, 643.
Kirk & Randall v. Hewitt: "Domestic Building," 484.
Lavy v. London County Council: Building Line: "Building, structure, or erection," 524; appeal, 604.
 Letting New Houses in Unfit Condition, 602.
Lloyd v. Milward: Building Contracts: Architects' Certificates, 505, 522.
 London Building Act 1894, Decisions under, 264, 320, 399, 400, 440, 484, 524, 603, 642, 644.
London County Council v. Davis: Street for Foot Traffic only, 602.
 ——— *v. Dixon*: District Surveyors' Fees, 602.
 ——— *v. Glielstein*: Timber Structure, Temporary or Permanent, 263, 320.
 ——— *v. Grover*: Party-Wall: External Wall, 400.
 ——— *v. Worley*: Building after Notice: Penalties, 576.
MaeLachlan v. Lister: Alterations to House: District Surveyors' Fees, 36.
Mathews v. Salt: London Building Act, 5, 212; Building used for Trade Purposes, 524, 576.
Pilbrow v. St. Leonard's Vestry, Shoreditch: Sewer: Drain: Premises within same curtilage, 136.
Redhouse v. Crow: Party-Wall: 440.
St. Mary's Vestry, Battersea, v. Hudson: Sanitary Requirements, 160, 196.
St. Leonard's Vestry, Shoreditch, v. Hyde: "Drain" or "Sewer," 574.
Shoolbred v. Wallen: Warehouse: Domestic Building: Air-space, 399.

Travis v. Utley: "Drain" or "Sewer," 574.

Watkins v. Crow: Party-Wall, 320, 440.

LEGAL POSITION, THE, OF ARCHITECTS IN RELATION TO CERTIFICATES AND AWARDS [J. A. Strahan, M.A., LL.B.].—Settlement of Disputes without going to Law, 197; by Certificate, *ib.*; by Arbitration, 198; The Architect as Certifier and as Arbitrator, *ib.*; *In re Carus-Wilson & Greene*, 199; Distinction between Arbitration and Certification or Valuation, *ib.*; Impartiality, 200; *Jackson v. Barry Railway Company*, and other leading cases, 201; Architect's Duties to the Contractor and his Employer, 203; *Le Lièvre & Dennes v. Gould, ib.*; Advantages and Disadvantages of both Methods of Settlement, 205; Architect's Decision should be final and conclusive, 206; Right of Contractor to appeal under Reference Clause, 207.

Discussion: Professor Kerr, 207; Edwin T. Hall, 208; Wm. Woodward, 209; Professor Banister Fletcher, 211; Wm. White, 212; T. M. Rickman, 213; C. H. Brodie, 214; Aston Webb, *ib.*: The Author's Reply, *ib.*

Leicester Society. *See* ALLIED SOCIETIES.

Leonard, Hugh: The Great Wall of China and the Ming Tombs, 96; his Brick-Testing Experiments in Bengal, 431; Foundations for Buildings in Calcutta, 593.

Lett, Arthur: obituary notice, 420.

LIBRARY.—Additions 1894-95, notice of, 18, 67, 78, 129, 185, 220, 253, 335, 379, 421, 538, 655; Editions of Vitruvius wanting, 321; Librarian's Report, 447; Baron von Le Coq's donation, 506; Ewan Christian's Bequest, 655; Annual Summary, 684.

Lighting. *See* ELECTRIC LIGHTING.

Lines, The Logic of, 147; A Correction, 223.

LITERATURE, THE INFLUENCE OF, ON ARCHITECTURE: Institute Prize Essay, 1895 [Arthur T. Bolton], 561.—Literature, defined as Thought, influences Religious Architecture, 561; Social Customs and Laws, moulded or created by Thought, influence Domestic Architecture, 564; The Pursuit of Progress and a consequent reaction influence Architecture, 567; Architectural Pantheism, 569; Modern Philosophy by a Theory of Utility influences Architecture, 570; On the idea of Art governed by elementary laws as comprehensive as those of Nature, 571.

—Review of the Premiated Essays on [Frank Granger], 254.

LITERATURE COMMITTEE: Annual

- Report, 446; Election, 550; Members appointed by the Council, 556.
- Little, Archibald: Description of remains of Chinese Temples, 46; Fêng-shui, 71.
- Liverpool School of Architecture and Applied Arts: Henry Hartley on, 32; Scheme of Education at, 601; Prizes, 602; Board of Direction, 626; Studios and Workshops, 635; T. G. Jackson's Inaugural Address, 636.
- Liverpool Society. *See* ALLIED SOCIETIES.
- Local Government Board, Memorandum by the, on the Housing of the Working Classes, 158.
- Logic of Lines, The: Mr. Stannus's *Meyer's Ornament*, 147; A correction, 223.
- LONDON: Mr. Joseph Chamberlain on its government, 251; The Corporation and its Public Works [Arthur S. Flower, 255; Its Architecture [R. Williams], 386; "Imperial "London," 627; Mr. Barr Ferree on its Architecture, 630; *The Quarterly Review* on "Londoners at "Home," 630; Overhead Wires in, 650; The Improvidence of, 657. *See also* LONDON COUNTY COUNCIL.
- LONDON BUILDING ACT, 1894, OBSERVATIONS ON THE [Professor Banister Fletcher].—Definitions, 109; Centre of Roadways, 110; County Council's Power to permit Deviation from the Act, *ib.*; Crescent Roadways, 111; Bressummers, *ib.*; Projections, *ib.*; Cubical Extent of Buildings, *ib.*; Roofs, *ib.*; Party Structures, 112; Sets of Chambers, *ib.*; Chimneys, Flues, and Shafts, *ib.*; Hollow Walls, 113; Openings and Recesses, *ib.*; Hoardings, *ib.*; Sheds, 114; Height of Dwelling-rooms, *ib.*; Lantern Lights and Windows, *ib.*; Backyards, *ib.*; Diagonal Line, 41st section, 115; Walls, *ib.*; Ventilation, *ib.*; Working Class Houses, 116; Rights of Building and Adjoining Owners, *ib.*; Questions on Section 212, *ib.*
- Discussion*: Prof. T. Roger Smith, 116; H. H. Collins, 117; John Slater, 118; Dr. Longstaff, 119, 122; C. Stanley Peach, 121; Charles Fowler, 122; Thomas Blashill, *ib.*; The Author's Reply, 123; S. Flint Clarkson, 135.
- Text-books on the Act. *see* REVIEWS; Regulations (*re* Appeals) made by the Tribunal of Appeal, 330; Regulations *re* Dwelling-Houses on Low-lying Land, 439; Legal Decisions under the Act. *see* LEGAL. *See also* LONDON COUNTY COUNCIL, TRIBUNAL OF APPEAL, and PARLIAMENTARY.
- Tribunals of Appeal under 1844 and 1846 Building Acts, 189.
- LONDON COUNTY COUNCIL, THE
—Free Technical Education in London, 196; The Condition of London Railway Stations, 218; Proposed Overhead Motive Power for Electric Tramways, *ib.*; District Surveyors in London: Private Practice, 250; Regulations under London Building Act *re* Dwelling-houses on Low-lying Land, 439, 440; Art Committee's Deputation *re* Proposed New Bridge at Vauxhall, 582; Practical work for, 650.
- Longstaff, Dr.: The London Building Act, 119, 122.
- Lovegrove, H.: The District Surveyors' Examination, 97; *London County Council v. Glickstein*, 320.
- Lucas, Charles: THE KALENDAR, 17; The late Léon Palustre, *ib.*; The late Casimir Echernier, 668.
- Lyon, Société Académique d'Architecture de: The late Casimir Echernier, 668.

M

- Macalister, R. A. S.: Statics and Dynamics (review), 508.
- McCombie, Dr.: Fever Hospitals, 309.
- McGibbon, Alex.: Mediaeval Architecture, 317.
- Maidstone Science and Art School, 667.
- Manchester Society. *See* ALLIED SOCIETIES.
- Manguin, Pierre, 219.
- Manning, M. P.: The Schedule of Practice and Charges, 595.
- MARBLE, THE USE AND ABUSE OF, FOR DECORATIVE PURPOSES—
- I. [Professor Aitchison] Distinctive Qualities of Marble, 401; Use by the Greeks and Romans, *ib.*; Sources of Supply in the Dark Ages, 403; Marbles for Columns, *ib.*; for Decoration, 404; Colours, *ib.*; Effects of Different Combinations, 405; In-laying, *ib.*; The Use of Flowered Marbles, *ib.*; Importance of Harmonising Colours, 406.
- II. [William Young] Marble in English Architecture, 407; Recent Development, *ib.*; Is it properly used? 408; Treatment of Wall Surfaces, 409; Colours, 411; Columns and Arches, 412; Marble Linings, *ib.*; Chimney-pieces, *ib.*; Should Colour follow Form? 413; Where to use Marble, 414.
- III. [W. Brindley] White Marbles, Degrees of Polish, 415; Treatment of Columns, monolith or jointed. *ib.*; Surface Decoration of Walls and Floors, *ib.*; Mouldings, 416; Chimney-pieces, *ib.*; Marbles for exterior work, *ib.*
- Remarks by L. Alma Tadema and George Simonds, 416, 451; Bibliography, 417; Exhibits &c., 419.
- *See also* DECORATION.
- Marbles, Ancient Roman, 130; at St. Sophia, Constantinople, 543.

- Marsland, John: District Surveyors, 92.
- Mashonaland, Ruined Cities of, 508.
- Materials, Right Use of, 164; Prices in 1776 of, 219. *See also* MARBLE.
- Mathews, J. Douglass: District Surveyors, 89; Building Contracts, 474.
- Measured Drawings Medal, The. *See* PRIZES AND STUDENTSHIPS.
- Mediaeval Architecture: Alex. McGibbon's Lectures on, at Glasgow, 317.
- Members: Lists of, elected during the Session, 98, 343, 551; Preponderance of Associates, 141; Decrease of Fellows, 141, 481, 483; Proposed class of "Craftsmen R.I.B.A.," 539, 596; Members elected, 690.
- Metropolitan Asylums Board. *See* FEVER HOSPITALS.
- Middleton, Professor: his Theory on the Construction of the Pantheon, 176, 182.
- Ming Tombs, Peking, 37, 55; The Great Wall of China and, 96.
- MINUTES OF GENERAL MEETINGS— I. (Ordinary) 1894, 5 Nov., 28; II. (Ordinary) 19 Nov., 72; III. (Business) 3 Dec., 98; IV. (Ordinary) 17 Dec., 135; V. (Business) 1895, 7 Jan., 191; VI. (Ordinary) 14 Jan., 192; VII. (Ordinary) 28 Jan., 225; VIII. (Ordinary) 11 Feb., 258; IX. (Ordinary) 25 Feb., 314; X. (Special and Business), 11 March, 343; XI. (Ordinary), 25 March, 393; XII. (Ordinary), 22 April, 428; Special (*re* Builders' Contracts), 29 April, 477; XIII. (Annual Meeting), 6 May, 477; Adjourned Special (*re* Builders' Contracts), 13 May, 522; XIV. (Ordinary), 20 May, 522; XV. (Business), 10 June, 550; XVI. (Ordinary), 24 June, 572; Special (*re* Proposed Class of "Craftsmen"), 8 July, 596; Sessional Statistics, 681.
- Moncrieff, J. M.: THEORETICAL AND PRACTICAL NOTES ON BEAMS, COLUMNS, AND ROOF-TRUSSES, 428.
- Monuments, Ancient, Injurious Treatment of, 5.
- Mosaic. *See* DECORATION.
- Mountford, E. W.: Vote of Thanks to the French Government, 179.
- Murgatroyd, J.: obituary notice, 146.
- Murray, Alex. S.: Classical Antiquities (review), 220.
- MYCENE, NOTES UPON THE SMALLER "TREASURIES" AT [Wm. Simpson], 611.—The so-called "Treasury of Atræus" as it was in 1877, 612; Tumulus, Bin Tepé, Sardis, 613; The Third Treasury, 614, 616; The Fourth Treasury, 615, 617; The "Treasury" style important in classification of Greek architecture, 619; Origin of the "Treasury" style, 620; Metal largely employed, *ib.* *See also* GREECE.
- Mycenian Palace: Timber construction, 531, 532.

N

NEFIELD'S (WILLIAM EDEN) DRAWINGS [R. Phené Spiers].—Collection of Drawings and Sketches presented to the Library, 605; Nesfield's Student career, *ib.*; Description of the Drawings, 606; Facsimile of a Pencil Sketch, 608-9.

NETHERLANDS, THE, ARCHITECTURE AND THE ARTS OF: J. J. VAN YSENDYCK'S GREAT WORK—

I. [J. Tavenor Perry] INTRODUCTORY: Architecture, 323.

II. [J. Starkie Gardner] THE IRONWORK AND SMITHING, 326.

Newton, T. W. F.: THE SMALL COUNTRY-HOUSE, 349.

Northern Association. *See* ALLIED SOCIETIES.

Northumberland House, A (review), 20.

NOTES, QUERIES, & REPLIES.—

St. Paul's Cathedral, 26; The Suggested Washing of St. Paul's [John Hebb], 26; The District Surveyors' Examination [T. H. Watson and H. Lovgrove], 27, 97;

Forgotten Staircases: an Old Story [A. C. Bulmer Booth], 27; The Chinese Sense of Architectonic Harmony, 71; Sir Balihazar Gerbier, Architect [John Hebb], 71; Architectural Education in the "Three

"Towns" (Plymouth, Devonport, and Stonehouse) [Henry R. Babb], 72; The Great Wall of China and the Ming Tombs [Hugh Leonard], 96;

The Porta Nuova, Verona, 133; "The British Architects of this Century," 133; Thomas Hopper [Augustus Rovedino], 134; Fund for Experimental Research [Science Committee], 135; The London Building Act 1894 [S. Flint Clarkson], 135;

French Architectural Education: The Academy of France at Rome, 185; The Examinations for Admission to Candidature: an Historical Note [Arthur Cates], 188; The London Building Act 1894 [John Hebb], 189; The Classical Influence in the Architecture of the Indus Region [Wm. Simpson], 190, 224; The Logic of Lines: Mr. Stannus's Revision of Meyer's *Handbook of Ornament* [Hugh Stannus and Paul Waterhouse], 223; Thomas Sandby, R.A.: His Lectures on Architecture, 223; French Architectural Education [E. Falkener], 224; South Shields and the Roman Wall [Joseph Oswald], 224; Competitions: Clauses of Two Recent Sets of Conditions, 256; Thomas Sandby, R.A., and Inspiration [W. D. Carøe], 257; "Frauds and Abuses at St. Paul's," 1712, 385; London Architecture [Robert Williams], 386; Sound in its Relation to Buildings [Professor Aitchison, Edward Falkener, William White, and Max Clarke], 423; The Pamphlet of Subjects for Prizes and Studentships, and Members in the Colonies [R. M. Hamilton and William H. White], 427; "Notes upon the Architecture of China," *erratum*, 427; Pre-Conquest Architecture [R. Phené Spiers], 545; The East End of Durham Cathedral [John Bilson and William White], 546, 595; Joseph Bonomi, A.R.A., Architect, and his son [Wm. Simpson], 548; Foundations for Buildings in Calcutta [Hugh Leonard], 593; The Schedule of Practice and Charges, clause 16 [M. P. Manning], 595; MM. Perrot and Chipiez and Mr. Penrose, 633; "Architecture for the Public" [H. H. Statham and Prof. Baldwin Brown], 633, 670; "Sacred Posts" in the East [Wm. Simpson], 634; Education in the Home District, 666; A short Account of the Foundation of the Science and Art School, Maidstone, 667; University Extension College, Reading [C. S. Smith], 668; The Technical School, Bedford [George Highton], 668; Société Académique d'Architecture de Lyon: The late Casimir Echenier [Charles Lucas], 668; The late A. E. Johnson [F.] of Melbourne [Lloyd Tayler], 669.

Nottingham Society. *See* ALLIED SOCIETIES.

Nubia, Proposed Archæological and Scientific Survey of, 77, 444.

O

OBITUARY.—Thomas Edward Bridgen, 335; Ewan Christian, 313, 331, 377; Alfred Hayles Clark, 453; Thomas Chatfield Clarke, 586; Henry Clutton, 625; John Colson, 654; Charles Herbert Cooper, 18; William Gratus Coward, 145, 216; Hubert Alfred Gregg, 379, 421; Herbert A. K. Gribble, 128, 135, 344; Frederick Hemings, 66; Gordon Macdonald Hills, 452; Richard Morris Hunt, 624; Arthur Ebden Johnson, 625, 669; George Knowles, 625; Arthur Lett, 420; James Murgatroyd, 146; Edward Graham Paley, 334; Léon Palustre, 17; August Reichensperger, 586; James Piers St. Aubyn, 653; Ernest Turner, 378.

Obligatory Examination, The (1882-1894): List of Passed Candidates, 142. *See also* EXAMINATIONS.

OPENING ADDRESS, PRESIDENT'S, I. Orchomenus, Ceiling of Domed Tomb at, 528, 529.

Oswald, J.: Presidential Address at Newcastle, 98; South Shields and the Roman Wall, 224.

Overhead Wires in London, 650.

Owen Jones Studentship, The. *See* PRIZES AND STUDENTSHIPS.

P

Painting. *See* DECORATION.

Paintings, Ancient: a Competition, 78. Palermo Congress, 1892, The, 19.

Paley, E. G.: obituary notice, 334

Palladio: Precedents and Principles, 12; Drawings by, in Burlington-Devonshire Collection, 166, 167, 184, 185.

Palustre, Léon: obituary notice, 17.

Pantheon, The, at Romæ: M. Chedanne's Drawings of, 145, 168, 170, 175; SUMMARY OF REPORT ON, TO THE ACADEMIE DES BEAUX-ARTS [R. Phené Spiers], 175; M. Chedanne's Researches, *ib.*; Old Theories upset, 176; Probable Date of the Building, *ib.*; Die-stamped Bricks discovered, *ib.*; The Rotunda and the Portico of Agrippa, 177; Old Foundation Wall discovered, 178; M. Chedanne's Delineation and Restoration of, *ib.*, 180; Description of the Building, 181; Fergusson's Views as to the Date, *ib.*

Papworth, Wyatt, The late, 12; Resolution of Condolence, 28.

Paris, International Sanitary Exhibition in, 420.

PARLIAMENTARY.—The Tribunal of Appeal: Sections of the London Building Act relating to, 135; Housing of the Working Classes: the Local Government Board Memorandum, 158; Architects' Registration Bill, first reading, 331; Petitions and Statement against the Architects' Registration Bill, 376; London Building Act 1894: Regulations *re* Dwelling-Houses on Lying Land, 489; A Teaching University for London, 642.

Parenzo Cathedral and its Mosaics, 219.

Parthenon, "Curves" of the, Discoverer of, 652.

Party-walls. *See* LEGAL.

Pater, Walter: his *Greek Studies*, 253; A Vision of Greece, 539.

PATERSON, ALEX. N.: SOME PRINCIPLES OF DECORATION IN MARBLE, MOSAIC, SCULPTURE, PAINTING, &c., 152; STYLE, INDIVIDUALITY, AND NATIONAL TRADITION, 246.

Payne, Alex.: District Surveyors, 92, 95; Building Contracts, 519.

Peach, C. Stanley: The London Building Act, 121; Building Contracts, 516.

Pennethorne, John, and the "Curves" of the Parthenon, 652.

Penrose, FRANCIS C.: Portrait of, *Frontispiece*; OPENING ADDRESS, 1; Letter *re* M. Chedanne's Drawings, 145; ADDRESS TO STUDENTS, 161; Vote of Thanks to French Government, 179; VALUE OF SIMPLICITY IN ARCHITECTURE, 238; ART IN PRIMITIVE GREECE AS TREATED BY MM. PERROT AND CHIPIEZ, 525; The

- British School at Athens, 534
ADDRESS ON THE PRESENTATION OF THE ROYAL GOLD MEDAL, 553
MM. Perrot and Chipiez and, 633; The "Curves" of the Parthenon, 652.
- Perkin, H.; Remarks at the York Society Annual Dinner, 195.
- Perrot and Chipiez (MM.) and Mr. Penrose, 633.
- Perry, J. Tavenor**: Architecture of the Netherlands: review of J. J. Van Ysendyck's Work, 326; Acoustics of Buildings, 370.
- Perspective for Architects, 421.
- PHILADELPHIA: AN ENGLISH ARCHITECT'S NOTES IN AN AMERICAN CITY [H. Bloomfield Bare], 394.
- Philaæ, The Threatened Destruction of, 5; Mr. Garstin's Memorandum on the Assouan Dam Project, 77; Mr. Somers Clarke on the Modified Reservoir at, 535; French Protest: M. Garnier's Letter, 621; M. Bous-sac's Letter, 622; M. Hanotaux' Reply, 653.
- Pick, S. Perkins**: REVIEW OF WORK SUBMITTED FOR THE LEICESTER SOCIETY'S PRIZES, 393.
- Pite, Beresford**: Christ in Architecture (review), 453.
- Planning a small Country-House, 349.
- Plaster, Misuse of, 165.
- Plasterwork. *See* DECORATION.
- Playfair, W. H., and his works, 134.
- Plymouth, Devonport, and Stonehouse, Architectural Education at, 72; B. Priestley-Shires' Lectures, *ib.*
- Pollard, A.: Remarks at the York Society's Annual Dinner, 195.
- Porta Nuova, Verona: J. L. Wolfe's Description of, 75, 133.
- Poynter, E. J.: The British Academy of Arts in Rome, 182.
- Practice and Design, Old and New Methods of, 7.
- PRACTICE COMMITTEE: Annual Report, 447; Vote of Thanks to, 521; Election, 550; Members appointed by the Council, 556; Reconsideration of Schedule of Professional Practice and Charges, 587.
- PRE-CONQUEST ARCHITECTURE, SOME CHARACTERISTICS OF [Professor Baldwin Brown].—Saxon and Pre-Norman Work, 485; Need for an Authoritative Record of Sites, Remains, &c., of Pre-Conquest Buildings, 486; Difficulty of identifying Saxon Work, *ib.*; "Transition Saxon," 487; Distinctive Features, *ib.*; Importance of the Study of Existing Pre-Conquest Buildings, 492; The English Village Church, 493; The Danish Raids: Development of Military Works, 494; Church Towers utilised as Strongholds, 495; Examples of Romano-British Work, 496; Cruciform Churches, 497; Celtic Influence discernible in the form of the normal Saxon Church, 498; Roman influence in the Masonry and Details, 499; Suggestions for a Committee of Investigation, 502.
- Discussion*: The President, 502; T. M. Rickman, *ib.*; Wm. White, 503; R. Phené Spiers, *ib.* 545; John Slater, 505.
- Note on, by R. Phené Spiers, 545.
- PRESIDENT'S OPENING ADDRESS, THE [Francis C. Penrose], 1.—Progress of the Institute, 1; The Examinations, *ib.*; Hon. Associates, 2; Corresponding Members, 3; The London Building Act, *ib.*; Qualifications of District Surveyors, 4; Three Thames Bridges, *ib.*; The Wembley Park Tower, *ib.*; "Architecture: A Profession or an Art?" 5; The Threatened Destruction of Philaæ, *ib.*; Old and New Methods of Design and Practice, 7; A Permanent Gallery of British Architecture, *ib.*; Some Eminent Architects and their works, 8; Inigo Jones, *ib.*; Wren, 9; Wren's Pupils and Followers, *ib.*; Representative Architects of the Century, 10; Proportion in Preference to Picturesqueness, 12.
- Vote of Thanks*: Dr. Gregory, Dean of St. Paul's, 13; L. Alma Tadema, 15.
- ADDRESS TO STUDENTS [Francis C. Penrose], 161.—Mr. Anderson's Addresses, 161; The Examinations, *ib.*; Draughtsmanship, 162; Geology and Archaeology in Relation to Architecture, 163; The Right Use of Materials, 164; Drawings by Old Masters in Architecture, 166; M. Chedanne's Drawings of the Pauthcon, 168.
- Priestley-Shires, B.: Lectures at the Plymouth School of Art, 72.
- Priunrose, H. W.: Simplicity in Architecture, 241.
- PRIZES AND STUDENTSHIPS 1895, REVIEW OF WORK SUBMITTED FOR THE [J. M. Brydon], 168.—Studies of Ancient Buildings, 169; The Measured Drawings Medal, *ib.*; Increased Honorarium suggested, *ib.*; The Pugin Studentship, *ib.*; The Owen Jones Studentship, 170; M. Chedanne's Drawings, *ib.*; Original Designs, 171; The Soane Medallion, *ib.*; The Tite Prize, 173; The Grissell Medal, 174; The Essay Medal, *ib.*
- — — PREPARATION OF DRAWINGS FOR THE [H. R. Appelbee], 227.
- — — The Ashpitel Prize (1894), 125; The Annual Exhibition, 144; The Winners, 183, 191; Deed of Award, *ib.*; Presentation, 193; Drawings selected for Exhibition at Allied Centres, 218; Subjects for 1895-96 set, 377; The Pamphlet on, and members in distant countries, 427.
- Probationers' Testimonies of Study: Concession to R.A. Students, 65; Lists of Probationers (1894-95), 125, 418. *See also* EXAMINATIONS.
- Professional Practice and Charges, Schedule of: Reconsideration by Practice Standing Committee, 587; M. P. Manning on clause 16, 595.
- Proportion and Picturesqueness, 12; Proportion in relation to Acoustics, 359, 371, 372, 425
- Prynne, G. H. Fellowes: Building Contracts, 517.
- PUGIN STUDENT 1894, TOUR OF, IN WILTSHIRE AND SOMERSETSHIRE, with Map and Sketches [R. Shekleton Balfour], 387.
- Pugin Studentship, The. *See* PRIZES AND STUDENTSHIPS.
- Q
- Quarterly Reviewer on "Londoners "at Home," 630.
- R
- Railway Stations in London, Condition of, 218.
- Rathbone, P. H.**: ARCHITECTURE AS A NECESSARY ELEMENT IN NATIONAL ECONOMY, 193.
- Reading University Extension College, 608.
- Registration Bill. *See* ARCHITECTS REGISTRATION BILL.
- Reichensperger, August: obituary notice, 586.
- Reilly, Henry**: Iron, Steel, and Timber (review), 21.
- REPORT OF THE COUNCIL FOR THE OFFICIAL YEAR 1894-95.—Statistics of the Examinations, 442; Statutory Examinations, 443; Proposed Archaeological Survey of the Nile Valley, 444; Deputation of London Stonemasons, *ib.*; The Architects' Registration Bill, 445; Reports of Standing Committees, *ib.*; Finances, 448; Auditors' Report, 477; Auditors' recommendations for clearing off Deficit, 480.
- Discussion*: Professor Kerr, 478, 483; F. Todd, 478; Wm. Woodward, 479, 480; F. C. Penrose, 481; C. H. Brodie, *ib.*; John Slater, *ib.*; Arthur Cates, 481, 483; Lacy W. Ridge, 481; Aston Webb, 482; Edwin T. Hall, *ib.*
- REVIEWS.—
- Archæological Survey N. W. Provinces and Oudh* (1894) [Wm. Simpson], 592.
- Bent, J. Theodore: *Ruined Cities of Mashonaland* [Wm. Simpson], 508.—*The Sacred City of the Ethiopians* [Wm. Simpson], 558.
- Berg, L. de Coppet: *Safe Building* [John Leaning], 422.
- Brooks, George: *Industry and Property*, 79.
- Cathedrals of England and Wales* [Wm. J. Anderson], 340.
- Cölner Thorburgen und Befestigungen* [Arthur Cates], 658.
- Craies, W. F.: *London Building Act 1894* [R. Langton Cole], 383.

- Cranage, D. H. S.: *Architectural Account of the Churches of Shropshire* [Arthur S. Flower], 70.
- Cusack's *Model Drawing and Shading* [G. L. Sutcliffe], 383.
- Dicksee, Bernard: *London Building Act 1894* [R. Langton Cole], 383.
- Eрман, A.: *Life in Ancient Egypt*; H. M. Tirard's translation [R. Phené Spiers], 149.
- Essays, The Institute Premiated, on "The Influence of Literature on "Architecture," "Craigsides," "Research," and "Ye Skeptic" [Frank Granger], 254.
- Farrar, Archdeacon: *Life of Christ as represented in Art* [Beresford Pite], 453.
- Ferguson, F. O.: *Architectural Perspective* [G. L. Sutcliffe], 421.
- Ferree, Barr: "Architecture in "London" (*Architectural Record*) [William H. White], 630.
- Fletcher, Prof. Banister: *The London Building Act 1894* [Wm. Woodward], 131.
- Glazebrook, R. T.: *Statics and Dynamics* [R. A. S. Macalister], 508.
- Hodges, Eliz.: *Ancient English Homes* [H. P. Burke-Downing], 632.
- Köln und seine Bauten [Arthur Cates], 656.
- Kuzsinszky, Valentin: *Aquincum Guide* [Ethel Charles], 69.
- Lacouperie, Terrien de: *Western Origin of Early Chinese Civilisation*, 68.
- Lane-Poole, Stanley: *Cairo, Sketches of its History, &c.* [J. D. Grace], 342.
- Leaning, J.: *Specifications for the Use of Surveyors* [T. M. Rickman], 85.
- Lethaby, W. R., and Swainson, H.: *Sancta Sophia* [William H. White and W. Brindley], 540.
- "Londoners at Home" (*Quarterly*) [William H. White], 630.
- Miller, R.: *Municipal Buildings of Edinburgh* [J. M. Brydon], 658.
- Maspero, G.: *Dawn of Civilisation: Egypt and Chaldæa* [Wm. Simpson], 336.
- Meade, Eric: *Pen Pictures, and How to Draw Them* [G. L. Sutcliffe], 383.
- Meyer, F. S.: *Handbook of Ornament* [Paul Waterhouse], 147, 223.
- Murray's *Handbook of Rome and its Environs* [A. H. Hart], 222.
- Museum of Materials in Vienna* [B. A. Charles], 23.
- New South Wales, Public Works Department [R. F. Grantham], 663.
- Palermo Congress 1892, The*, 19.
- Pater, Walter: *Greek Studies* [Paul Waterhouse], 539.
- Perrot and Chipiez (MM): *History of Art in Primitive Greece* [F. C. Penrose], 525.
- Petrie, W. M. Flinders: *History of Egypt* [Professor Sayce], 557.
- Pullen, H. W.: *Ancient Roman Marbles* [W. Brindley], 130.
- Rea, Alex.: *South Indian Buddhist Antiquities and Remains in Coorg* [Wm. Simpson], 381.
- Ruskin, John: *Verona and other Lectures* [A. E. Street], 380.
- Sandby, W.: *Thomas and Paul Sandby, Royal Academicians* [A. E. Street], 221.
- Seyffert, Dr. O. (Nettleship & Sandys' revision): *Dictionary of Classical Antiquities* [Alex. S. Murray], 220.
- Smither, J. G.: *Architectural Remains, Anurâdhapura* [Wm. Simpson], 456.
- Statham, H. Heathcote: *Architecture for General Readers* [Professor Baldwin Brown], 587.—*The Changes in London Building Law* [John Leaning], 131.
- Strassburg und seine Bauten* [Arthur Cates], 506.
- Stübben, J.: *La Construction des Villes* (Buls' translation) [William H. White], 627.—*Gesundheitliche Verbesserungen baulicher Art in italienischen Städten, and Der Bau der Städte in Geschichte und Gegenwart* [Ethel Charles], 590.
- Thompson, Rev. Dr. W.: *The History and Antiquities of St. Saviour's (St. Mary Overie), Southwark* [E. P. Loftus Brock], 150.
- Tomlinson, W. W.: *Denton Hall and its Associations* [R. Dircks], 20.
- Underhill, J., and Monk, W.: *St. John's, Clerkenwell*, 626.
- Unwin, W. Cawthorne: *On the Development and Transmission of Power from Central Stations* [Professor Kerr], 19.
- Warren, W. H.: *Engineering Construction in Iron, Steel, and Timber* [Henry Reilly], 21.
- Webb, Sydney and Beatrice: *The History of Trade Unionism*, 79.
- Welch, C.: *History of the Tower Bridge* [Arthur S. Flower], 255.
- Wood, W. H.: *Practical Stair-building and Hand-railing* [Arthur S. Flower], 148.
- Ysendyck, J. J. Van: *Arts dans les Pays-Bas du XI^{ème} au XVIII^{ème} Siècle* [J. Tavorer Perry and J. Starkie Gardner], 323.
- Ricardo, Halsey R.**: VALUE OF SIMPLICITY IN ARCHITECTURE, 229.
- Rickman, Thomas, The late. See PRE-CONQUEST ARCHITECTURE and Discussion.
- Rickman, T. M.**: Specifications (review), 85; Architects' Certificates and Awards, 213; Pre-Conquest Architecture, 502; Building Contracts, 521.
- Ridge, Lacy W.: District Surveyors, 94; Building Contracts, 473; The Annual Report, 481.
- Robertson's (Sir G. S.) Report on KÁFIRISTÁN, 677.
- Robson, E. R.: Simplicity in Architecture, 245.
- Roman Remains at Old Buda, 69.
- ROME: MAPS, PLANS, AND VIEWS OF THE CITY OF, with especial reference to a Drawing, of the Sixteenth Century, in the Burlington-Devonshire Collection [Professor R. Lanciani], 645.—Bufalino's Map, 645; De Rossi's work, *ib.*; The *Forma Urbis*, *ib.*; Description of Various Panoramic Plans and Views, 646; Heemskerck's Panorama, 647; Van den Wyngaerde's Panorama, *ib.*; The Burlington-Devonshire Drawing reproduced and described, 648 *et seq.*
- Rome, The British Academy of Arts in: E. J. Poynter on, 192; Murray's Handbook of, 222. See also ITALY and PANTHEON.
- Roof-Trusses. See BEAMS.
- Rovedino, Augustus: Thomas Hopper, 134.
- ROYAL ACADEMY, ARCHITECTURE AT THE EXHIBITIONS OF THE [R. F. Chisholm], 664.
- Royal Academy Students and the Examinations, 65.
- ROYAL GOLD MEDAL, The, 258, 343; Presented to Mr. James Brooks; Address by the President, 553; Mr. Brooks's Reply, 554.
- Ruskin's Lectures, Some of, 380.

S

- "Sacred Posts" in the East, 634.
- Safe Building, 422.
- St. Aubyn, James Piers: obituary notice, 653; R. Williams's Recollections of, 654.
- St. Clement Danes, The Church of, 451.
- St. John's, Clerkenwell, 626.
- St. Mary Overie, The Church of (review), 150.
- St. Paul's Cathedral: Suggested Washing of the Exterior, 26; "Frauds and Abuses at," 385.
- Salmon, W. Forrest: Architects in Glasgow, 33.
- "Sancta Sophia," 540; The Marbles in, 543.
- Sandby, Thomas and Paul, 221; Thomas Sandby's Lectures on Architecture, 223; Art Training, 257.
- Sanitary Exhibition in Paris, International, 420.
- Saxon Architecture. See PRE-CONQUEST ARCHITECTURE.
- Sayce, A. H.**: Ancient Egypt (review), 557.
- SCIENCE COMMITTEE: Fund for Experimental Research, 135; Want of Encouragement, 374; Annual Report, 448; Election, 551; Members appointed by the Council, 556.
- Sculpture. See DECORATION.

SESSIONAL & OTHER PAPERS:

- Address to Students [F. C. Penrose], 161.
- Architecture and the Arts of the Netherlands: J. J. Van Ysendyck's Great Work [J. Tavenor Perry and J. Starkie Gardner], 323.
- Architecture at the Exhibitions of the Royal Academy [R. F. Chisholm], 664.
- Art in Primitive Greece as treated by MM. Georges Perrot and Charles Chipiez [F. C. Penrose], 525.
- Chedanne's (M.) Drawings of the Pantheon, Rome: Summary of his Report to the Académie des Beaux-Arts [R. Phené Spiers], 175.
- China, Notes upon the Architecture of [F. M. Gratton], 37.
- District Surveyors in London: Falling off of Candidates in the Statutory Examination for the Office of [W. D. Caroe], 86.
- Examinations, The, for Admission to Candidature: an Historical Note, 137.
- Examinations, Session 1895-96, 577.
- Fever Hospitals [T. W. Aldwinckle], 265.
- Legal Position of Architects in relation to Certificates and Awards [J. A. Strahan], 197.
- London Building Act 1894, Observations on the [Prof. Banister Fletcher], 109.
- Marble, The Use and Abuse of, for Decorative Purposes [Professor Aitchison, Wm. Young, and W. Brindley], 401.
- Nesfield's (William Eden) Drawings [R. Phené Spiers], 605.
- Notes upon the smaller "Treasures" at Mycenæ [Wm. Simpson], 611.
- Observations on the Notes of Foreign Travel left by J. L. Wolfe, Sir Charles Barry, and others [A. E. Street], 73.
- Opening Address, The [F. C. Penrose], 1.
- Pre-Conquest Architecture, Some Characteristics of [Professor Baldwin Brown], 485.
- Report of the Council for the Official Year, 441.
- Review of the Work submitted for the Prizes and Studentships 1895 [J. M. Brydon], 168.
- Rome, The City of: Maps, Plans, and Views, with especial reference to a Drawing, of the Sixteenth Century, in the Burlington-Devonshire Collection [Professor R. Lanciani], 645.
- Royal Gold Medal: Presentation to Mr. James Brooks: Mr. Penrose's Address and Mr. Brooks's Reply, 553.
- Simplicity in Architecture, The Value of [Halsey R. Ricardo, Basil Champneys, and F. C. Penrose], 229.
- Sound in its Relation to Buildings [H. W. Burrows], 353.
- Style, Individuality, and National Tradition [A. N. Paterson], 246.
- Tour of the Pugin Student 1894 [R. Shekleton Balfour], 387.
- Vitruvius, Editions of, wanting in the Library [Professor Aitchison], 321.
- Sessional Statistics, 681.
- Seth-Smith, W. H.: Suggestions for Permanent Gallery of British Architecture, 8; Building Contracts, 519.
- Sheffield Society. *See* ALLIED SOCIETIES.
- Shop-fronts, 166.
- Shropshire Churches (review), 70.
- SICILY AND SOUTHERN ITALY, SOME ACCOUNT OF THE ARTS IN [F. W. Bedford], 341.
- Simonds, George: Use of Marbles, 416.
- SIMPLICITY IN ARCHITECTURE, THE VALUE OF. *See* ARCHITECTURE.
- Simpson's (Professor F. M.) scheme of architectural education at the Liverpool College, 691.
- Simpson, William: Chinese Architecture, 59; The Classical Influence in Indian Architecture, 190; Egypt and Chaldea (review), 336; Archaeological Survey of India (review), 381; Architectural Remains, Ceylon (review), 456; The Zimbabwe Ruins (review), 508; Joseph Bonomi A.R.A., Architect, and his son, 548; The Egyptian Obelisk (review), 558; Recent Explorations at Jerusalem, 585; Archaeological Survey of India (review), 592; NOTES UPON THE SMALLER "TREASURES" AT MYCENÆ, 611; "Sacred Posts" in the East, 634.
- Slater, John: Report of the Institute Delegates at the Budapest Congress, 16; London Building Act 1894, 118; The Annual Report, 481; Pre-Conquest Architecture, 505; "Craftsmen R.I.B.A.," 599.
- Smith, C. S.: University Extension College, Reading, 668.
- Smith, P. Gordon: Fever Hospitals, 308.
- Smith, S. R. J.: Building Contracts, 465.
- Smith, Professor T. Roger: District Surveyors, 88; The London Building Act, 116; Acoustics of Buildings, 369; Building Contracts, 470.
- Soane Medallion, The. *See* PRIZES AND STUDENTSHIPS.
- Social Reform and Trade Unionism, 79.
- Solomon, Lewis: Building Contracts, 517.
- SOUND IN ITS RELATION TO BUILDINGS [H. W. Burrows], 353.—Form of Buildings and Effect of various Types of Plan on Sound, 354; Square, *ib.*; Quadrangular, 355; Circular, *ib.*; Polygonal, *ib.*; Amphitheatrical, 356; Areaded, 357; Seat-
- ing, 358; Influence of the Section of Buildings on Sound, *ib.*; Roofs and Ceilings, 359; Proportion, *ib.*; Harmonic Proportion, *ib.*; Construction and Materials, 360; Experiments, 361; Effect of Heating and Ventilation, 363; Tyndall's Experiments, *ib.*; Jaques's Experiments, 364; Keynote of Rooms, 366; Remedies for defective Acoustics, 367; Acoustic Vases, 368.
- Discussion:* Professor T. Roger Smith, 369; J. Tavenor Perry, 370; H. H. Statham, *ib.*; Professor Aitchison, 372; Wm. White, *ib.*; Professor Banister Fletcher, 373; R. Langton Cole, *ib.*; Wm. Emerson, 374; The Author's Reply, *ib.*
- Supplementary Notes by Professor Aitchison, 423; Edward Falkener, *ib.*; Wm. White, 425; Max Clarke, 426.
- South African Association, Proceedings of the, 216.
- South Shields: Discovery of Monument of Palmyrene Origin, 190, 224. Specifications, 85.
- Spiers, R. Phené: Chinese Architecture, 63; Ancient Egypt (review), 149; SUMMARY OF M. CHEDANNE'S REPORT TO THE ACADEMIE DES BEAUX-ARTS, 175; Description of M. Chedanne's Drawings of the Pantheon, 178, 180; Pre-Conquest Architecture, 503, 545; WILLIAM EDEN NESFIELD'S DRAWINGS, 605.
- Staircases, Forgotten: an old Story, 27.
- Staircase Joinery, 148.
- Standing Committees: Reports, 445; Election, 551; Suggested Restriction of Nominations for, *ib.*; Members appointed by the Council, 556; Meetings of, 681.
- Stannus, Hugh: Meyer's *Handbook of Ornament*, 223.
- Statham, H. Heathcote: District Surveyors, 91; Simplicity in Architecture, 242; Acoustics of Buildings, 370; "Architecture for the Public," 633. *See also* REVIEWS.
- Statics and Dynamics, 508.
- Statutory Examinations 1894-95: Passed Candidates, 443; Re-appointment of Board of Examiners, 478, 483. *See also* DISTRICT SURVEYORS.
- Steel and Iron Joists. *See* BEAMS.
- Stonemasons, London: Deputation to the Council, 444.
- Strahan, J. A.: THE LEGAL POSITION OF ARCHITECTS IN RELATION TO CERTIFICATES AND AWARDS, 197, 214.
- Strassburg and its Buildings, 506.
- Street, A. E.: SOME OBSERVATIONS ON THE NOTES OF FOREIGN TRAVEL LEFT BY MR. WOLFE, SIR CHARLES BARRY, AND OTHERS, 73; Thomas and Paul Sandby (review), 221; Some of Mr. Ruskin's Lectures (review), 380.
- Stübben's Pamphlets on Modern Sanitation and the Building of Towns, 587, 590, 627.

Students 1894-95, Lists of, 65, 375.
See also EXAMINATIONS.
 Studentships 1895. *See* PRIZES AND STUDENTSHIPS.
 STYLE, INDIVIDUALITY, AND NATIONAL TRADITION [A. N. Paterson], 246;
 "Style" in Architecture, 588, 634.
Sutcliffe, G. L.: Review of his Essay "Influence of Literature on Architectural Development," 254; Three Books on Drawing (review), 383; Perspective for Architects (review), 421.
Sutcliffe, J. D.: COMBINED WARMING AND VENTILATION OF PUBLIC BUILDINGS, 314.

T

Tabberer, B.: District Surveyors, 91.
 Tanner, A. W.: Building Contracts, 474.
 Tayler, Lloyd: The late A. E. Johnson, of Melbourne, 669.
Taylor, R.: ARCHITECTURAL EDUCATION, 225.
 Teaching University for London: Deputations for and against, 217; Lord Cowper and the Duke of Devonshire on, 642.
 Technical Education in London, 127; Award of Scholarships, 196.
 Terra-cotta as a building material, 165.
 Tite Prize, The. *See* PRIZES AND STUDENTSHIPS.
 Todd, F.: Auditors' Report, 477, 478; Issue of New Form of Contract, 582.
 Tower Bridge, Architecture of the, 4.
 Towns, Building of, 591.
 Trade Unionism and Social Reform, 79.
 "Treasures" at Mycenæ. *See* MYCENÆ.
 Tribunal of Appeal under London Building Act: Members of, 127; Sections relating to, 135; Regulations as to Appeals and Fees, 330. *See also* LONDON BUILDING ACT.
 — under the 1844 and 1846 Metropolitan Building Acts, 189.
 Troy, Map of, 526.
 Tumulus Tombs. *See* MYCENÆ.
 Turner, Ernest: obituary notice, 378.

U

Unemployed, Work for the: Mr. Joseph Chamberlain on, 251.
 University, Teaching, for London. *See* TEACHING UNIVERSITY.

V

Valmarina Palace at Vicenza, Fergusson's Criticism of, 167.
 Vauxhall, Proposed New Bridge at: Art Committee's Deputation to the London County Council, 445, 582.
 Ventilation. *See* WARMING AND VENTILATION, and FEVER HOSPITALS.
 Vienna, Museum of Materials in, 23.
 Vignola, Drawings by, in the Burlington-Devonshire Collection, 166, 167, 185.

Viollier, M.: The Old Cathedral of Geneva, 653.
 VITRUVIUS, EDITIONS OF, WANTING IN THE INSTITUTE LIBRARY: An Appeal [Professor Aitchison, A.R.A.], 321; Value of the Study of Vitruvius, *ib.*; Reputation of Vitruvius in the Middle Ages, 322; The *Ediitio Princeps*, *ib.*
 — Editions presented by Baron von Le Coq, 506.
 Voluntary Examination, The (1863-1881): List of Passed Candidates, 142. *See also* EXAMINATIONS.

W

WARMING AND VENTILATION (COMBINED) OF PUBLIC BUILDINGS [J. D. Sutcliffe]. — Introduction, 314; Warming by Direct and Indirect Radiation, *ib.*; Three Systems of Central Heating, *ib.*; Reasons for Adopting the Warm Air System, *ib.*; Warming and Ventilation without Mechanical Power, 315; Mechanical Ventilation, *ib.*; Factory Warming and Ventilation, 316; Practical Hints, *ib.* *See also* FEVER HOSPITALS.
Waterhouse, Paul: The Logic of Lines (review), 147; A correction, 223; A Vision of Greece (review), 539.
 Watson, T. H.: District Surveyors, 90; Building Contracts, 474, 516.
Watson, T. L.: FOUR GREAT PERIODS OF ITALIAN ART, 157.
 Watters, T.: Chinese Architecture, 39, 60.
 Webb, Aston: Architects' Certificates and Awards, 214; Building Contracts, 464; The Annual Report, 482; Proposed Class of "Craftsmen "R.I.B.A.," 596.
 Webb, John: Drawings by, in the Burlington-Devonshire Collection, 185.
 Webb, Sydney: *History of Trade Unionism*, 79; his Work for Technical Education in London, 196.
 Wembley Park Tower, The, 4.
 West Ham Competition, 256.
White, William: Architects' Certificates and Awards, 212; Simplicity in Architecture, 245; Acoustics of Buildings, 372, 425; Pre-Conquest Architecture, 503; The East End of Durham Cathedral, 595.
White, William H.: Prizes and Studentships and Members in the Colonies, 427; "Sancta Sophia" (review), 540; Imperial London (review), 627.
 White, W. Henry: District Surveyors, 95.
 Williams, Robert: London Architecture, 386; Recollections of J. P. St. Aubyn, 654.
 Wires, Overhead, in London, 650.
 WOLFE, J. L., SIR CHARLES BARRY, AND OTHERS: SOME OBSERVATIONS

ON THE NOTES OF FOREIGN TRAVEL LEFT BY [A. E. Street], 73; The Porta Nuova, 133.

Woodward, Wm.: Chinese Architecture, 64; District Surveyors, 94; The London Building Act 1894 (review), 131; Architects' Certificates and Awards, 209; Election of the Royal Gold Medallist 1895, 343; Building Contracts, 471, 520; Auditors' Report, 477, 479; Proposed Class of "Craftsmen R.I.B.A.," 600.
 Working Classes, Housing of the: Local Government Board Memorandum, 158; Separate Houses or Cottages, *ib.*; Buildings in Blocks, 159; Lodging Houses, *ib.*
 Wren, Sir Christopher: his Principal Works, 9; his Favourite Design for St. Paul's, *ib.*; Pupils and Followers of, *ib.*

Y

York Society. *See* ALLIED SOCIETIES.
Young, Wm.: Simplicity in Architecture, 244; THE USE AND ABUSE OF MARBLE FOR DECORATIVE PURPOSES, 407.
 Ysendyck, J. J. Van: Review of his *L'Art dans les Pay-Bas*, 323.

Z

Zimbabwe Ruins, 508.

ILLUSTRATIONS.

Portrait of the President, F. C. Penrose, F.R.S. (*frontispiece*, facing p. 1).
 Head, by Della Robbia, in glazed Terra-cotta (facing p. 232).
 Chequers Court, Bucks (facing p. 236).
 Map showing the Hospitals and Ambulance Organisation of the Metropolitan Asylums Board 1895 (facing p. 304).
 Facsimile of a Pencil Sketch by W. E. Nesfield (facing p. 608).
 The City of Rome in 1562: reproduced from an original drawing in the Burlington-Devonshire Collection (facing p. 648).
 — Sections A and B of the same.

NOTES UPON THE ARCHITECTURE OF CHINA, 37.

Marble Memorial Arches, Ming Tombs, Pekin, 37.
 Timber construction, 40.
 The *yang* and *yin*, 40.
 Temple Front, Island of Pootoo, 43.
 Plan of Buddhist Monastery near Canton, 45.
 Courtyard of Fokien Guildhall, at Ningpo, 49.
 Plan of the Bankers' Guild at Shanghai, 50, 427.
 The Soochow Pagoda, 52.
 The Hu-sing-ting (Tea-house) in Shanghai Native City, 54.

ILLUSTRATIONS (*contd.*).

- Gateway and Front of the Chun-Tsiang-Cha at Peking, 56.
The "Marble Bridge," near Peking, 58.
Section of Great Wall of China at Kupei Kow, 96.
Section of Great Wall, west of Kupei Kow, 96.
- OBSERVATIONS ON THE LONDON BUILDING ACT, 109.
Diagrams illustrating Section 41—Backyards, 115.
- THE VALUE OF SIMPLICITY IN ARCHITECTURE, 229.
St. Catherine's Chapel, Abbotsbury, Dorset, 235.
- ELECTRIC LIGHTING, 258.
Battery and Circuit and Ohm's Law, 258.
Magnet and Lines of Force, 258.
Series Dynamo and Circuit, 259.
Shunt Dynamo and Circuit, 259.
Compound Dynamo, 259.
Transformer, 260.
Five-wire System, 260.
Tree Wiring, 262.
Distributing Wiring, 262.
Lantern and Wiring, 262.
Cut-out System, 263.
- FEVER HOSPITALS, 265.
Typical Plans from the Local Government Board Memorandum—Plan A, 270.
Ditto, Plans B and C, 271.
The Heathcote Infectious Hospital, Leamington, 273.
Willesden Isolation Hospital, 275.
Infectious Hospital, Grafton Street, Liverpool, 277.
The City of Glasgow Fever Hospital, Belvidere, 279.
The Moabit Hospital, Berlin, 281.
The London Fever Hospital, Liverpool Road, N., 283.
Ladywell Sanatorium, Salford, 285.
The Epidemic Hospital, Copenhagen, 287.
Infectious Hospital, Budapest, 289.

ILLUSTRATIONS (*contd.*).

- Metropolitan Asylums Board Convalescent Hospital, Winchmore Hill, 291.
The Brook Fever Hospital, Shooters' Hill, 293.
The "McHardy" Bed-pan-sink and Slop-sink, 296.
The New Bracket Bed-pan-sink and Slop-sink, 297.
Bradford Fever Hospital: Small-pox Pavilion, 299.
The Brook Hospital, Shooters' Hill: The Ambulance Station, 307.
- SOUND IN RELATION TO BUILDINGS, 353.
Diagrams, 355, 423-427.
- TOUR OF PUGIN STUDENT 1894, 387.
Map showing places visited, 387.
Old Hour-glass, Stratford-sub-Cas-trum, 389.
Gateway House, Sandford Orcas Manor-house, 390.
Montacute House, 391.
Gateway, Cleeve Abbey, 392.
- THE USE AND ABUSE OF MARBLE FOR DECORATIVE PURPOSES, 401.
Inlaid Verde Antico, from the Jesuits' Church at Venice, 405.
Marble Staircase, Municipal Buildings, Glasgow, 408.
Staircase Hall, Gosford House, 410, 411.
- THEORETICAL AND PRACTICAL NOTES ON BEAMS, COLUMNS, AND ROOF-TRUSSES, 428.
Pasley's Experiments on Brick Cantilevers, 429.
Tests of Brickwork Beams with various Thicknesses of Joints, 430, 433.
Mr. Hugh Leonard's Experiments on Full-size Footings, 431, 594.
Type of Column Foundations in ordinary use in Chicago, 432.
Failure in Timber Beam, 433.
Experiments on Framed Floors, 434.
Girder Tests, 435.
Tests of Columns, 436.
Various forms of Roof-Trusses, 437.
Collar-Beam Roof Couple, 438, 439.

ILLUSTRATIONS (*contd.*).

- ART IN PRIMITIVE GREECE AS TREATED BY MM. PERROT AND CHIZEZ, 525.
Map of Troy (Schliemann), 526.
The Treasury of Atreus, 527.
Fragment of Slab from Ceiling from Domed Tomb, Orchomenus, 528.
Restoration of Ceiling, 529.
Gutta in C. Temple, Selinous, 530.
Myenian Palace: showing pieces of the entablature, 531.
Ditto: showing separate pieces of Cornice, 532.
- NOTES UPON THE SMALLER TREASURIES AT MYCENÆ, 611.
The so-called "Treasury of Atreus" as it was in 1877, 612.
Cell of Tumulus, Bin Tepé, 613.
The Third Treasury, 614.
The Fourth Treasury, 615.
Sketch Plan of Third Treasury, 616.
Sketch Plan of Fourth Treasury, 617.
- Pilaster on Monument found at South Shields, on the line of the Roman Wall, 190, 224.
Egypt and Chaldæa.—The House of a great Egyptian Lord, 337; The Mastaba of Khomtini in the Necropolis of Gizeh, 337; Stele of Sitû, representing the front of a house, 338; Stele in the form of a door in the Tomb of Shiri, 339; The Temple of Nannar at Ura, approximately restored, 340.
Pattern of Ornamentation on large Circular Ruin at Zimbabwe, 510.
Pre-Conquest Architecture.—Deerhurst, 545; Palace of Theodosius II., Constantinople, 546.
Plan showing recent discoveries at Durham Cathedral, 547.
The Egyptian Obelisk.—Altar base of a monolith, Aksum, 559; Egyptian Table for offerings, 559; Plan of Temple at Yeha, 560; Monolith before the Temple at Yeha, 560; Altar at base of Monolith, 560.
The Geometrical Spider's Web, as model for plans of towns, 628.
Plan showing sites of Municipal Buildings of Edinburgh, 659.



LIST OF CONTRIBUTORS, AUTHORS OF ADDRESSES, PAPERS, &c.

AND OF THOSE WHO HAVE JOINED IN THE DISCUSSIONS AT GENERAL MEETINGS.

Non-Members.

H. R. Appelbee.
 H. S. Ashbee, F.S.A.
 Henry R. Babb (Plymouth).
 Wm. Brindley, F.G.S.
 W. Wallace Bruce, L.C.C.
 Basil Champneys, B.A.
 Miss B. A. Charles.
 Miss Ethel Charles.
 Georges Chedanne, *Grand Prix de Rome*.
 E. A. Claremont.
 Somers Clarke, F.S.A.
 R. Dircks.
 Dr. Downes.
 Edward Falkener.
 J. Starkie Gardner.
 Dr. Goodall.
 The Dean of St. Paul's.
 Sir Henry Howorth, K.C.I.E., M.P.
 T. G. Jackson, A.R.A.
 Howard Ince.
 John Leaning, F.S.I.
 Dr. Longstaff, L.C.C.
 R. A. S. Macalister, B.A.
 Dr. McCombie.
 John Marsland, L.C.C.
 J. M. Moncrieff, M.Inst.C.E.
 T. W. F. Newton.
 E. J. Poynter, R.A.
 H. W. Primrose, C.B., C.S.I.
 Alderman P. H. Rathbone.
 Henry Reilly, M.Inst.C.E.
 Halsey R. Ricardo.
 Professor Sayce, D.D.
 George Simonds.
 J. A. Strahan, M.A., LL.B.
 J. D. Sutcliffe.
 R. Taylor (Birmingham).
 T. Watters.

Hon. Corresponding Members.

Ch. Buls, Burgomaster of Brussels.
 Professor The Commendatore R. Lanciani, D.C.L.Oxon. (Rome).
 Charles Lucas (Paris).
 L. Viollier (Geneva).

Hon. Associates.

L. Alma Tadema, R.A., F.S.A.
 Professor Baldwin Brown, M.A.
 J. D. Crace.
 R. F. Grantham, F.G.S., M.Inst.C.E.
 Hugh Leonard.
 A. S. Murray, LL.D., F.S.A.
 Wm. Simpson, R.I.

Fellows.

Professor Aitchison, A.R.A.
 T. W. Aldwinckle.
 J. Macvicar Anderson.
 Charles Barry, F.S.A.
 John Bilson, F.S.A.
 Thomas Blashill.
 H. C. Boyes.
 E. P. Loftus Brock, F.S.A.
 James Brooks.
 John M. Brydon.
 G. Bertram Bulmer.
 W. D. Carøe, M.A., F.S.A.
 Arthur Cates.
 F. E. Caws.
 R. F. Chisholm (Baroda).
 S. Flint Clarkson.
 H. H. Collins.
 James Cubitt.
 Henry Dawson.
 Wm. Emerson.
 Frederic R. Farrow.
 Professor Banister Fletcher.
 H. L. Florence.
 Charles Fowler.
 E. M. Gibbs.
 H. R. Gough.
 Alex. Graham, F.S.A.
 F. M. Gratton (Shanghai).
 Edwin T. Hall.
 Octavius Hansard.
 Henry Hartley.
 C. Forster Hayward, F.S.A.
 John Hebb.
 William Henman.
 G. Highton.
 G. T. Hine.
 John Holden.
 J. Horbury Hunt (Sydney).
 James Jerman.
 Professor Kerr.
 J. Douglass Mathews.
 J. H. Morton.
 E. W. Mountford.
 Joseph Oswald.
 Alex. Payne.
 C. Stanley Peach.
 F. C. Penrose, M.A., F.R.S.
 Lacy W. Ridge.
 E. R. Robson.
 A. Rovedino.
 W. Forrest Salmon.
 H. D. Searles-Wood.
 W. H. Seth-Smith.
 John Slater, B.A.Lond.
 C. Steward Smith.
 P. Gordon Smith.
 S. R. J. Smith.
 Professor T. Roger Smith.

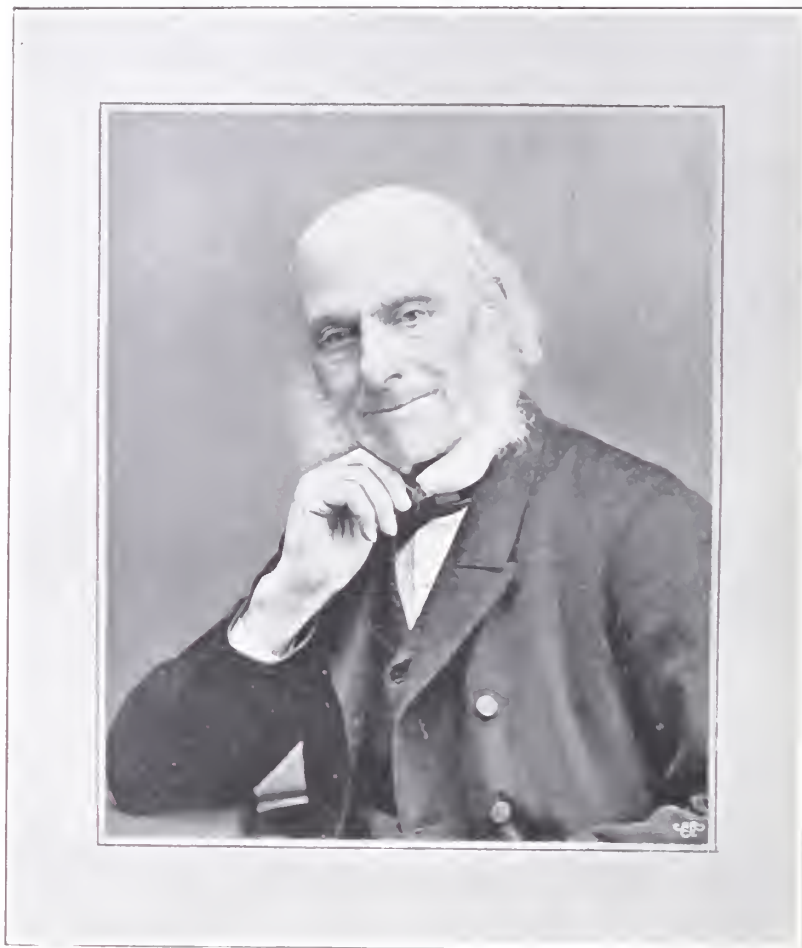
Lewis Solomon.
 Hugh Stannus.
 R. Phené Spiers, F.S.A.
 H. Heathcote Statham.
 A. E. Street, M.A.
 Benjamin Tabberer.
 Lloyd Tayler (Melbourne).
 Frederick Todd.
 Paul Waterhouse, M.A.
 T. H. Watson.
 T. L. Watson.
 Aston Webb, F.S.A.
 William White, F.S.A.
 William H. White.
 William Young.

Associates.

William J. Anderson (Glasgow).
 R. Shekleton Balfour, *Inst. Medallist 1892, Pugin Student 1894, Tite Prizeman 1895*.
 F. W. Bedford, *Ashpitel Prizeman 1890, Owen-Jones Student 1891-92*.
 G. H. Birch, F.S.A.
 A. T. Bolton, *Soane Medallist 1893, Inst. Medallist 1895*.
 A. C. Bulmer Booth.
 C. H. Brodie.
 H. P. Burke Downing.
 H. W. Burrows.
 Thomas Chadwick.
 Max Clarke.
 R. Langton Cole.
 Bernard Dicksee.
 Arthur S. Flower, M.A., F.S.A.
 Frank Granger, D.Litt.Lond., *Godwin Bursar 1889*.
 R. M. Hamilton (New Zealand).
 Alfred H. Hart.
 W. E. Hewitt.
 Henry Lovegrove.
 Alex. McGibbon.
 M. P. Manning.
 Alex. N. Paterson, M.A.
 J. Tavenor Perry, *Inst. Medallist 1864, Pugin Student 1865*.
 S. Perkins Pick.
 Beresford Pite, *Soane Medallist 1882*.
 B. Priestley-Shires, *Tite Prizeman 1886*.
 T. M. Rickman, F.S.A.
 G. L. Sutcliffe.
 A. W. Tanner.
 W. Henry White.
 Robert Williams.
 William Woodward.

* *

The Royal Institute of British Architects, as a Corporate Body, is not responsible for statements made or opinions expressed in the signed contributions to this volume. For those to which no name is attached the Secretary of the Royal Institute, who is the Editor of the JOURNAL, is responsible.



From a recent Photograph.

FRANCIS CRANMER PENROSE, M.A., F.R.S.
KNIGHT OF THE ORDER OF THE SAVIOUR IN GREECE,
ROYAL GOLD MEDALLIST 1883, PRESIDENT.

Yours sincerely
F Penrose

JOURNAL

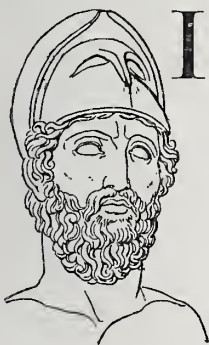
OF

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS

SESSION 1894-95.

THE OPENING ADDRESS. Delivered by the President, FRANCIS C. PENROSE, F.R.S.,
at the First General Meeting, Monday, 5th November 1894.

COLLEAGUES AND GENTLEMEN,—



IN the Annual Address of former Presidents you have naturally expected, and have not been disappointed in receiving, a general account of the progress of the Institute and of its undertakings, especially during the interval which had elapsed since the previous Presidential discourse. One of the subjects dealt with in the last Address concerned the commencement and the early stages of the JOURNAL. Now, however, the JOURNAL, which has become a great success, stands in no need of special encouragement, so that it is neither necessary for me to say anything in its favour—unless it be to thank those engaged upon it for the great trouble they have bestowed upon the work; nor is it necessary for me to dilate upon the affairs of the Institute, which are chronicled in its pages both better and more freshly than I can hope to tell them. A few points only seem to invite mention. I think I may say, without any exaggeration, that the Institute has continued to gain both in position and influence. As to the gain in members, without reckoning most welcome support given us by the Allied Societies, if we compare the numbers, I will not say sixty years ago—a date of which we were most agreeably reminded in July last—but taking fifty years ago, the increase is remarkable enough to be worth mention. The class of Fellows numbered at that time but little over one hundred; there are now more than six hundred. There were then some eighty Associates only; now there are nearly nine hundred—and this notwithstanding the barrier which has been surmounted by most of the later members. I mean the Examination.

I think it is now generally recognised that the Examination in Architecture has fully justified its establishment; at any rate, it has become a great Fact. And it seems important for me to call attention to this point—namely, that the present month brings the former and partly tentative arrangement to a close, and from henceforward begins the system of Progressive Examinations, the details of which will be found fully set forth in the recently issued KALENDAR. I consider that these Examinations cannot but have an excellent effect—

first, and directly, in securing to our future members the reputation of having satisfied a certain standard of proficiency; secondly, and indirectly, by excluding from the Institute in the first instance, and by reaction from the profession at large, young men whose abilities would be more advantageously directed towards the pursuit of some other calling. Some excellent remarks on this head have lately been made by the President of the Architectural Association in his Inaugural Address to that Body. A summary of our Examinations during the past official year gives the following results, namely:—

- (1) In the Preliminary Examination 165 attended. Only one was “plucked,” 28 were relegated for a term, and 136 passed.
- (2) In the Intermediate Examination 55 attended. Not one was rejected, 19 were relegated for periods, and 36 passed.
- (3) In the Qualifying Examination 176 applied, but only 150 attended. Three were rejected, 84 were relegated for periods, and 63 passed.

We welcome also the signs of useful examination in building construction inaugurated by other Bodies. The revived Guild action of the City Companies—to use the term applied to it by Mr. George Shaw, late Master of the Worshipful Company of Plumbers—is a circumstance favourable to sound execution. I have had pleasure in following in the steps of my predecessors, Mr. Macvicar Anderson and Mr. Waterhouse, at examinations conducted by the Worshipful Company of Carpenters.

I cannot leave the subject of membership without reminding you that the Charter declares the Institute to consist of “three classes of subscribing members, namely, Fellows, Associates, and Honorary Associates”; and though both the Fellows and Associates are steadily increasing in numbers, the Honorary Associates have been allowed to dwindle from 115 in 1878, to 60 in 1894, a decrease of nearly half—due, I am inclined to think, to a misunderstanding of the objects and principle which dictated the establishment in 1877 of this class of members. Honorary Associates are defined in our Charter as “persons not professionally engaged in practice as architects,” but “who, by reason of their position or of their eminence in art, science, or literature, or their experience in matters relating to architecture,” may “render assistance in promoting the objects of the Royal Institute”; and a by-law fixes the annual subscription of an Honorary Associate at a minimum of two guineas, with an entrance contribution of two guineas, which is paid forthwith into the Library Fund. Now some have thought that under such circumstances the title of Honorary Associate is a misnomer, because the term “honorary” should imply that such member is not a subscriber, and therefore no efforts are made to increase this class of members; but the term “honorary” ought not to be defined in so exclusive a sense. The French Royal Academy of Architecture, founded in 1671 by Colbert, consisted of three classes of members—Academicians, who were architects; Honorary Associates (“*Les honoraires associés libres*”), who, without professing architecture, were distinguished by their knowledge of that art, or those relating to it; and of Associates or Correspondents, both native and foreign. The title “honoraire” was used in the sense of our word “lay,” or of the French word “libre,” and it is in that sense we define it, and according to its true etymology, in the sense of conferring honour. The words of admission of Honorary Fellows in our Universities are “*In honoris causâ*.” Moreover, we do not look upon our Honorary Associates as merely ornamental appendages, who give us the encouragement and honour of their names but are not expected to take any part in our proceedings. They form part of the electorate, and have the power of voting for the Council and the Standing Committees, and at the General Meetings on all matters except professional points and the admission of candidates, and we look to them for helping to spread a knowledge of architecture among all classes of the educated community. I am convinced that the develop-

ment of this class of non-professional members will greatly enhance the usefulness of the Institute. We should wish to enrol in our Honorary Associate class many more painters than are now in its ranks, a large number of sculptors, engineers at home and abroad, the masters of the great crafts, and the more prominent of those thinkers and workers who, by their books and discourses, disseminate love and respect for the several arts and sciences of which the embodiment is architecture.

There is another section of membership of the Institute, pertaining to the non-subscribing classes, which has always seemed to me to form an essentially important part of corporations such as ours—I mean the class of Corresponding Member, or Foreign Correspondent. At present the majority of such members is distributed over France, Germany, and Italy. We have two in Denmark, two in Sweden, two in Spain and Portugal, two in Greece and Turkey, three in Austria, four in the United States of America, five in Belgium and Holland. Now I want to see Austria and Hungary largely represented in our ranks; and it is gratifying to know that two of the most distinguished architects of Budapest—a magnificent city, of which too little is known in this country—are nominated for election. I should be glad to see Austria at least as fully represented among us as Italy is; and I hope that the increasing popularity of Spain as a resort for study among the Students of the Institute may lead to an exchange of ideas, a reciprocity of knowledge, between the architects and students of the respective countries. Most, if not all, of the greatest European architects and archæologists have been Correspondents of our body, and even in 1842 they were 55 in number; while at present, after the lapse of half a century more or less prosperous, we have only 49. But, what is still worse, a startling omission occurs in this list: the architects, archæologists, and similarly learned men of Russia are absolutely without a representative among us. A few years ago we possessed Constantine Thon, Professor Strohm, and Professor Resanoff, and in 1842 there was Alexander Bruloff, of the St. Petersburg Academy of Fine Arts. Some attempt, I think, should be made to renew the ties of confraternal association which have existed, and which ought always to exist, between the architects of the mighty Russian Empire and ourselves. There never was a moment when such a reunion could be attempted with more chance of success than now. Indeed, Lord Rosebery—who, in the patriotic speech he delivered in Sheffield at the Cutlers' Feast, in which I had the honour to participate as your representative, expressed the unanimous feeling of this country toward the dying Tsar—cannot desire to retain relations of friendship with the whole population of Russia more heartily than we do with that portion of it which comprises our own profession. Whilst recalling my visit to Sheffield, I must not omit to mention the kind reception I met with there from the members of our Allied Society.

THE LONDON BUILDING ACT, 1894.

I have almost completed the observations I wished to make upon what may be termed the personal affairs of the Institute. But there is one point to which I think your attention should be directed. I allude to the present position of District Surveyors in London.

A new Metropolitan Building Act has passed the Legislature, with so many new provisions that it will require much study on the part of those who have to enforce it as District Surveyors or to obey it as Architects. For some of the enactments, at any rate, we may be thankful; I refer particularly to those which impose limits—lofty enough, indeed, but still limits—to the height to which houses may be carried both front and back. For amendments in many provisions of the new Act, made after careful consideration, the Metropolis is largely indebted to our Practice Standing Committee, and particularly to Mr. Arthur Cates, Mr. Rickman, and Mr. Edwin T. Hall, who, with representatives from the Surveyors' Institution, assisted at a prolonged conference on parts of the original Bill with a Committee of the London

County Council. I will not, however, enter into the subject further—indeed, it would be premature to do so, as the complete Act is only just published. Valuable comments on leading points have already appeared in the Building Journals. An Abstract of the Act is promised by Professor Banister Fletcher in a few weeks, and I have more recently learned that another work of the same kind, by Mr. Statham, is expected to be published by the end of the present week. Under this measure—the London Building Act, 1894—which comes into force on the first day of next year, the Institute remains the Examining Body for granting Certificates of Competency, without which no person can become a candidate for the office of District Surveyor in London. This Statutory Examination, until the present County Council imposed the condition that a District Surveyor shall not practise as an architect, was always well attended, and those who presented themselves for examination were generally men who had not only received the education of an architect, but had practised as such. Not long ago this Statutory Examination was held quarterly, and the Examining Board had then much to do in order to finish the oral part of the examination on one day. But now very few persons apply to be examined, and during the last official year the two examinations announced to be held did not take place, owing to the want, or perhaps the paucity, of candidates. Yet a District Surveyor, if he is to do his duty by the London Council who appoint him, as well as by the architects whose buildings he has to inspect, should have that knowledge of architectural science or building which can only be acquired by an architect who has been engaged for, say, seven or ten years in the active practice of his profession. I will not go into the question whether a District Surveyor ought, or ought not, to be allowed the right of private practice, but I am certain that he ought to have practised as an architect before attempting to fulfil the duties of a District Surveyor under the London Building Act. Is there, then, anything unreasonable in the suggestion that the London Council would do wisely if they included among the conditions of such appointments the proviso that every candidate for the office of District Surveyor in London shall have previously qualified for admission to the class of Associates of this Institute, and have either passed thence to the class of Fellows, or have become admissible, by length of practice, to that class?

THREE THAMES BRIDGES.

We have lately seen brought to completion by our Honorary Associate, Mr. Wolfe Barry, a great engineering work with which the late Sir Horace Jones was originally associated as architect. If he had lived to superintend the completion of the design of such parts of it as lay in his department, he would, probably, have left the towers more massive in appearance than they are. It is, indeed, greatly to be wished that association between architects and engineers, in cases where their provinces overlap, were more frequent than it is. I well remember Professor Cockerell regretting a lost opportunity of the kind in the case of Waterloo Bridge. Sir Robert Smirke had offered his assistance to Mr. Rennie in profiling and adjusting the Doric columns which formed part of the engineer's design; but the latter declined. The baldness of those columns is a serious defect to the beauty of the bridge—which, indeed, would have been handsomer if the columns had been omitted altogether; and one of the good results of the Tower Bridge is that it relieves the necessity of tampering with the noble simplicity of London Bridge.

THE WEMBLEY PARK TOWER, ETC.

In contradistinction to works which are satisfactory for their actual or hoped-for achievement, I feel called upon to mention one of which the stoppage would, it seems to me, be matter for congratulation; and to express the hope that no further progress may be made with the work, unless it be to convert what has already been done into something far less pretentious

than the original intention, which, if carried out, would spoil the scale of everything else for miles around. I need hardly explain that I refer to the incipient structure of the huge steel tower at Wembley Park, in the north of London. Possibly, if its lower storey were turned into something of the nature of the hanging gardens of Babylon, it might be an interesting and unobjectionable structure; but if the original scheme is to be carried through, you will, I think, agree with me in wishing confusion to a new Tower of Babel.

Again, with regard to another point, which is not, I fear, so much attended to as it ought to be. It cannot be too strongly insisted upon, that when new buildings are erected by the side of old buildings of established architectural merit, the utmost care should be taken that the new works do not injure the effect of the older. I think many of us must often have been much pained in witnessing such injurious treatment of old and venerated monuments. I am particularly thinking of the case which our late President so much and so eloquently lamented, namely, the new buildings of King's College abutting with such small consideration against Somerset House, notwithstanding the most laudable attempt of our Council to prevent its being done. Another case of the kind has occurred, but not so recently, at Exeter. There was till comparatively lately, as in the case of several of our cathedrals, immediately contiguous to the west front of Exeter Cathedral, a small church, of no remarkable architectural value certainly, but which by its very smallness gave valuable scale to the cathedral. At a later visit I found it had been replaced by a church of much larger proportions, and the merit which its predecessor had with reference to the cathedral was entirely lost. In my opinion, though the wants of the parish may have required the enlargement of the church, there was no occasion for the architect to have so raised the tower and spire as to overtop the venerable cathedral.

“ ARCHITECTURE : A PROFESSION OR AN ART ? ”

I shall not attempt to meddle with the controversy which some time since was raised as to whether Architecture is an art or a business. The two elements are no more separable than are Faith and Works; and our teaching to students properly takes cognizance of both. To the Art element, and the thoughts more immediately connected with it, I propose to confine myself in what I have still to say to-night.

THE THREATENED DESTRUCTION OF PHILÆ.

The original sources from which we derive our Art must always have an intense interest for us, and whilst we are in hopeful expectation of new light being thrown upon Greek archæology from the researches of the French at Delphi, under the experienced and skilful guidance of Monsieur Homolle, Director of the French School at Athens, we are not indifferent to grievous tidings which come from Egypt—a strange proposal which, having been more or less vaguely in the air for some time, has recently assumed alarming consistency. I refer to the proposed Nile barrage, to be built across the river at Assouan for the purpose of storing up the waste waters of the annual inundation in a huge reservoir, in such a manner as to submerge and ruin a series of the most beautiful and interesting remains in the country. The JOURNAL has contained two or three valuable Papers on the scheme, particularly one by Monsieur Naville in August, but the subject is so important and interesting that it seems to demand some mention here. The deluge which is threatened would extend from Assouan as far as Korosko, a distance of fully one hundred miles, forming a lake of which there would be no parallel in Europe, submerging the Island of Philæ with its celebrated group of temples, of the highest beauty and artistic value, and eleven or twelve other important sites, particularly the fine and very perfect temple at Kalabsha. In addition, moreover, to what we know would be

lost, it should be noted that as the region of Nubia in which they occur has not been so carefully examined as most other parts of ancient Egypt, it is more than probable that many objects which would otherwise reward future exploration, if they remained, as now, accessible, would be lost for ever.

Again, if anything happened to the dam, what would be the fate of Lower Egypt, of all its inhabitants, and all its treasures? We need not fear but that the engineers would do their best to make it secure; but sad instances of the failure of reservoir dams, where everything ought to have been well constructed, are not unknown to us, and the region has been subject to earthquakes so violent as to throw down even Egyptian structures.

The proposal has, unluckily for our point of view, much that is tempting to utilitarian minds; and we are not, as a nation, exempt from the reproach of yielding in cases where men of business have had to choose between sentiment and prospective gain. In the case of the Nile barrage, we must do the Egyptian Government the justice to say that they would seem to deplore the injury to Art and History which would follow: but the premium which is held before them is so large that we may feel sure that any attempt to oppose an absolute negative to the scheme would be simply futile; nor would it be right. Our own Government, again, are doubtless in no enviable position in the matter. If by an exercise of power they were to prevent the work from being undertaken, it is easy to see what a deep and, maybe, dangerous feeling of disappointment would arise in Egypt; whilst if they consent to it, they would incur much obloquy both at home and abroad. As for the Island of Philæ, it is true that a scheme has been proposed for lifting the remains above the surface of the reservoir; but it can hardly have been proposed seriously. It would be ruinously expensive to do it at all adequately, and would quite destroy the value of remains now perfectly adapted to the island on which they stand. Practically, the attempt, if made, could not fail to be worse than submergence. It has also been suggested that a dam of less elevation, placed above instead of below the Island of Philæ, would for a long time answer all legitimate demands for water-storage, and would involve a much smaller sacrifice of valuable antiquities or disturbance of inhabitants; and, if at some future time the demand should arise for a larger supply, other means not now available—new sites, for instance, above Wady Halfa—might be found. We may, at least, hope for the escape of Philæ and some other of the Nubian antiquities; and this gradual method of procedure would seem to fit in with the expectations of the proposers of the barrage, for the supposed profits on which the scheme is based are not to flow in at once, but, as Mr. Garstin, Under-Secretary of State for Public Works in Egypt, himself says, the *great expectations* are founded on an eventual increase “which will take years to arrive at.” On this subject I would draw your attention to a pamphlet printed by the Society for the Preservation of the Monuments of Ancient Egypt, in which a more gradual method of water-storage is strongly advocated.

As regards the main proposal of this barrage, we have, indeed, no resource but hope; and in this I am encouraged by the remarks of our distinguished Honorary Associate, Sir John Fowler, who presided at a recent meeting of the Egypt Exploration Fund, when he took occasion to state that there was now little danger of the destruction of Philæ; that further inquiry had shown that the material necessities of Egypt and the claims of archæology were capable of reconciliation. There is, however, another aim; which we need not relegate to the transcendent, but also transcendental, virtue of Hope. And towards this you have taken a valuable step by appointing, through your Council, delegates to a Conference in which the Royal Society, the Society of Antiquaries, the Society of Dilettanti, and the Hellenic Society and others, are represented, for considering the best manner of instituting a thorough survey, architectural, archæological, geological, and physical, of the district the

submergence of which has been threatened. This Conference was initiated by the Society for the Preservation of the Monuments of Ancient Egypt.

OLD AND NEW METHODS OF DESIGN AND PRACTICE.

Turning homewards, it may be useful to institute a comparison between some of the results of architectural work of the present time, and works of an earlier period in this country. In making this comparison we must not lose sight of the great differences in the two periods, both in respect of the demands upon the architect, and of the materials available to his hand. The greater complexity of the conditions of modern life is unfavourable to the modern architect in some respects. It requires him to spend a large portion of the funds available for a building in work which, however important, can produce no æsthetic effect, and the many calls upon him to satisfy a variety of wants must necessarily make it very difficult to secure that charm of simplicity and proportion which is an essential ingredient in work of the highest quality; indeed, with so many importunate claimants for attention, the time which must have been devoted to rhythm and harmony by the older architects can now seldom be spared. There is, therefore, a great temptation to accept a premature solution of the problem, provided the requirements of the plan appear to be satisfied, and provided the resultant grouping, however haphazard it may be, accords with some ideal of picturesqueness which natural or acquired taste can generally secure. I do not, however, venture greatly to blame this result. It is far better that a good plan should command the obedience of the elevation, than that a preconceived symmetrical elevation should force the plan into inconvenience. Nevertheless, a more excellent way is almost always possible where the plan shall still rule, but with all the difference between marching order and broken ranks; though, as I said, it may require more time for working out than can be spared in any particular case. Genius has been defined as the power of indefatigable study. Such genius is, indeed, very necessary for the highest achievements of architecture. There are certain buildings, such as club-houses, theatres, town halls, and, above all, ecclesiastical structures, which lend themselves much more than others to be treated by the rules of Art; but there are none, not even the most humble, which may not be improved through study with an eye that loves proportion. It is a duty the profession owes to the public to do this on every possible occasion.

There is another point in the comparison between the older and later architectural works which seems to be deserving of attention, but whether it admits of being to any great extent brought into operation I do not venture to say. The modern architect, owing to the way in which drawings, specifications, and bills of quantities are prepared, and the exactness with which contract works are expected to follow out those documents, has seldom, if ever, the same freedom in studying his design as it develops itself, and in making improvements which suggest themselves as the work goes on, that our predecessors had two hundred years ago. The designs made by Sir Christopher Wren for St. Paul's Cathedral underwent great changes during the progress of the building, as there are many extant working drawings to show. Some liberty, of course, we have by the usual conditions of contract, but the greater rapidity of modern construction, and the fear of additional cost to the employer, limit considerably the free use of those conditions; and this want of elasticity, so to speak, in availing ourselves of opportunities offered by the study of our works whilst in progress, is one of the points in which the older architects had a great advantage over us.

A PERMANENT GALLERY OF BRITISH ARCHITECTURE.

Let us now compare the works of some of the older with those of more recent architects. Before doing so, however, I would urge upon those in whose hand rests the power of developing

the means of architectural study, to consider the possibility of forming a permanent exhibition of drawings representative of English architecture. The suggestion, indeed, is not new, nor is it mine; but I have received a letter on the subject from our Fellow, Mr. W. Howard Seth-Smith, which is so much to the point that I propose to read a portion of it. He says:

If we are to look for real and permanent progress in architectural design, we must in some way create public interest and enthusiasm for beautiful building. A permanent exhibition would be the very best means of gaining public interest in our art. It is the Galleries which have made art more popular. It may be true that the public do not understand geometrical drawings such as are annually exhibited for three months in one small room at Burlington House, but there is a very considerable and increasing number of persons sufficiently interested in Architecture to appreciate keenly, and to compare critically, the merits of buildings if represented by photographs and other perspective views.

It is on the face of it unfair to subject an exhibition of architectural designs (largely geometrical) to competition with a mass of popular pictures, as is the case at the Royal Academy; but this is the only opportunity existing in London for a person to watch the progress of English Architecture. While the amateur's opportunities are confined to the ancient buildings themselves, his prejudice against all modern work is likely to be as invincible as it is unreasonable, and therefore fatal to progress. Nor is he, as a rule, capable of studying modern work profitably by perambulating the streets; his knowledge will be too small to enable him to distinguish the good from the bad. The choice specimens (alone worth the attention of the student) are, with few exceptions, scattered too widely or hidden too deeply amid the utilitarian wilderness of London to make this practicable.

I would propose that a permanent Exhibition be organised of most carefully chosen architectural illustrations of the best ancient and modern designs, classified under all the great divisions of building, such as Civil, Ecclesiastical, Domestic, Scholastic, &c. There should be one department for photographs of selected ancient work, chronologically and topographically arranged, and carefully described. This would supply the urgent and often-expressed want of an illustrated lesson on the characteristics and developments of the great architectural epochs and styles of the past.

Such an exhibition would at once be popular among the rapidly extending connoisseurs of art, would be patronised by persons of enterprise and intelligence desiring to build, and would doubtless be largely visited by Americans and foreigners.

I certainly consider Mr. Seth-Smith's proposal one of great importance. To be of any service it would require to be carried out in an effective manner, and if this were done, it could not fail to be advantageous both to our profession and the public at large.

Returning to my proposition before stated, the list of the architects to whom I propose to refer begins with the two greatest names on our record, namely, Inigo Jones, who practised in the reigns of James I. and Charles I.; and Sir Christopher Wren, who practised in those of Charles II., James II., William and Mary, and Queen Anne.

INIGO JONES.

Inigo Jones had settled at Copenhagen, and the King of Denmark's sister, who married our James I., brought him back to his native country. He then travelled for further study in Italy. The beautiful fragment at Whitehall is, as you know, only a small portion of the magnificent palace which he designed for King James, preserved to us, no doubt by the liberality of Lord Burlington, in Kent's fine edition of Inigo Jones's works. Besides the Banqueting House, there are but comparatively few remains of Inigo Jones's buildings in London. We have lately lost a very interesting work of his in Lord Shaftesbury's house in Aldersgate Street, which was taken down about ten years ago. It had already suffered much, but was still a noble fragment. There is also the much-mutilated east front of St. Paul's, Covent Garden, and the Piazza on the north side of the Market; and there is the Water-gate at the bottom of Buckingham Street. This gate, although it retains its beautiful proportions, has lost much of its interest now that it no longer gives access to the river; but its preservation under any circumstances is a thing to be grateful for. A house on the west side of Lincoln's Inn Fields still shows the handiwork of Inigo Jones. Ashburnham House, Little Dean's Yard, Westminster, built by him, has been much altered, but there are remains of his work in the

interior. There are probably a few others, but a good deal has been attributed to him on insufficient grounds.

WREN'S PRINCIPAL WORKS.

Sir Christopher Wren's first work of any importance was the Sheldonian Theatre, Oxford, designed by him in 1664—a building which still admirably answers the purpose for which it was constructed. At this time Wren was busied with various designs for altering old St. Paul's, which had survived in a very ruinous condition the ill-treatment of the sixteenth century and of the Commonwealth. The Great Fire in 1666 put an end to all attempts to repair and alter it, and made a new building necessary. I am not intending to dilate upon the existing Cathedral, which you all know so well, and in which there is so much to admire, but I should like to call your attention to a design which is even more distinctly Wren's than the existing Cathedral. I refer to his first and favourite design, for which an elaborate and large-scale model was prepared. This model still remains, bearing traces of the neglect from which it suffered during many years; but I am glad to be able to inform you that it is undergoing restoration, though progress is necessarily slow. It is, however, in sufficient preservation to enable Sir Christopher Wren's merit to be fully appreciated. We have here, by Mr. Goodchild's kindness, two splendid drawings representing the interior of the Cathedral as it would have been if Wren had been allowed to execute this design. I do not say that it competes on equal terms externally with the existing structure, especially when we consider the height of the surrounding buildings, which gives the value of greater loftiness to the adopted design. But when we consider the two interiors, the balance altogether preponderates in preference of Wren's favourite design. As for certain defects in it, which Fergusson in his *History of Modern Architecture* discusses, we must remember that Wren had not, in the case of this design, as he had in the adopted one, thirty years of study and improvement to give to it as the work proceeded; but this marvellous production was the outcome of, necessarily, a very rapid incubation.

The late Rev. J. L. Petit, the exhibition of whose splendid water-colour drawings at the Institute some of us may remember, in discussing Saint-Front, Périgueux, and what has been and still might be derived from it, observes that Wren—who, though he may not have known Saint-Front, must have known St. Mark's, Venice, from which Saint-Front was derived—“had conceived a design” (namely, this his favourite model) “on similar principles, which, had it been carried out, would have given his Cathedral the noblest interior in the world.”* I commend the whole passage, and indeed the whole book, to your study.

It is evident that Sir Christopher Wren's designs embodied the result of much study and many approximating revisions in preliminary sketches, carrying out in this the precept of Horace, “*Sepe stylum versas*,” which may be familiarly translated, “Use your indiarubber freely”; and when the final result was attained, I believe we shall always find that he considered rhythmical proportions as essential to completeness in architectural design as they are to poetry. I find the same thing in the two buildings of Sir Christopher's I have chiefly studied—namely, St. Paul's Cathedral and St. Stephen's Walbrook †—and I have no doubt it obtains also in his lovely creations of Bow Steeple, St. Vedast, St. Martin's Ludgate, and others of his works, which possess admirable qualities of elegance combined with simplicity.

WREN'S PUPILS AND FOLLOWERS.

The most conspicuous of Wren's followers were his pupil and assistant, Nicholas Hawksmoor, and Vanbrugh and Gibbs, to whom may be added, as an associate, Dean Aldrich, who

* *Architectural Studies in France*, p. 78.

† See TRANSACTIONS, Vol. VI. N.S. p. 243.

built the church of All Saints Oxford, and the Peckwater Court of Christ Church, in a style much in harmony with that of his friend, Sir Christopher Wren. The three first-named have left stately monuments. To mention only one work of each: Hawksmoor has given us, in his church of St. George Bloomsbury, a monument worthy of the classical feeling he had imbibed from his master; James Gibbs, in his church of St. Mary-le-Strand, a work of great elegance, which I select from among his other buildings for the purpose of recording the gratitude due to our late President for the zeal and pains he displayed in its restoration a few years ago, when its demolition was threatened by the utilitarians of the day; and Vanbrugh at Castle Howard, a noble pile, more pure than Blenheim. Vanbrugh, however, failed to impart—as Wren did—sufficient elegance to his powerful masses.

The above-named architects represent in date the middle of the seventeenth and the dawn of the eighteenth century, and they are the authors of standard works with which it is hard for the modern schools to compete. The middle and end of the eighteenth century witnessed performances many of which were not wanting in dignity, but they offer a less uphill match to our own time. We must, of course, accept a common ground of comparison; for Gothic architecture was almost unknown in the eighteenth century—though an exception to this statement ought to be made in the case of the architect Essex. Limiting the inquiry, therefore, to the revived classical styles, the names of Lord Burlington and his friend Kent, and Kent's pupils, Flitcroft and Vardi—the latter the builder of Spencer House, in the Green Park—the younger Dance, Sir William Chambers, and James Gandon, the architect to the Four-courts in Dublin, and distinguished as being the first to receive the architectural gold medal of the Royal Academy, stand out pre-eminently. There is a simplicity and fitness for its purpose about Dance's principal works, Newgate and St. Luke's Hospital, which are worthy of being carefully noted. Sir William Chambers's great work, Somerset House, notwithstanding many effective new buildings on the Embankment, maintains its pre-eminence, and the Strand front and entrance may still be said to "hold the record" of similar combinations.

A little later in the century lived Wood, the architect of Bath, whose palatial building of Prior Park is one of the ornaments of the eighteenth century: also James Wyatt, a man of versatile genius, and Robert Adam have left works of merit. At the turn of the century came Sir John Soane, whose most remarkable design, the Bank of England, has the merit of being thoroughly characteristic of the purpose of the building, following in this the spirit of his master, the younger Dance.

THE BRITISH ARCHITECTS OF THIS CENTURY.

When we come down to more recent times, by which I mean the first quarter, or half, of this century, I find among the names of the architects some whom I myself remember when I settled in London as a pupil to Edward Blore in 1836. One of my first memories was the exhibition of the designs for the new Parliament Houses. They were exhibited in the rooms in Trafalgar Square, which had only lately been completed, and had not yet been assigned to the Royal Academy, whose exhibition for that year was still held at Somerset House. Sir Charles Barry's design was approached by no rival. Some drawings were, indeed, sent in by Cockerell, but he had evidently not entered seriously into the struggle. Blore did not compete. So far as my judgment at that time can be trusted, the best of the unsuccessful designs was by Basevi. Besides the four just mentioned, the names I recall as the leading London architects were Samuel Angell, Tite, Hardwick, Sydney Smirke, Donaldson, Salvin; and, as a writer, Gwilt. For Sir John Soane, Sir Robert Smirke, Wilkins, Inwood, and Decimus Burton, though living, belonged to an earlier decade; Thomas Henry Wyatt, Sir George Gilbert Scott, and Sir James Pennethorne had scarcely at that time made their mark;

and William Burn was just migrating to London from Scotland. I omit Augustus Welby Northmore Pugin, who, as far as the competition for the Parliament Houses was concerned, was, as it was already known, giving his assistance to Barry.

At the time to which I refer, I consider that, with the exception of Pugin, Blore was the only architect who was quite at home in the detail of Gothic architecture. The full development of the Revival had not come in, and it was the "day of small things"; but whilst we may reasonably complain of a want of massiveness for the most part in his works, there is a sense of elegance about his buildings which raises them above the level of the majority of the contemporary works of Gothic revival. There are not many of his buildings in London. The exterior of the Church of St. Thomas Charterhouse, in Goswell Road, may be cited as a good specimen, allowance being made for the decay of the Bath stone used in the decorative parts, the inability of which material to resist the London atmosphere was not so fully recognised then as it has been since.

Among the best buildings of the same period are two works by Shaw—the hall of Christ's Hospital, and the tower of St. Dunstan's-in-the-West; fortunately a better stone was used in their construction.

The first place in the period I am considering—for I purposely do not refer to the names of men who, like William Burges and George Edmund Street, attained distinction in Gothic during the second half of this century—must be assigned to Sir Charles Barry, not only on account of his great work, the Parliament Houses, in which, whatever amount of freedom in detail he may have allowed to his coadjutor, Pugin, his great power of dealing with the masses was conspicuously his own. But independently of this, the Reform and Travellers' Clubs and Bridgewater House, to mention no other of his works, suffice to secure him this position. Barry was a man of extraordinary energy, of unwearied industry, and of a powerful presence, qualities of the utmost importance to anyone engaged in works of such a scale as those which were entrusted to him, especially when combined with a courteous manner, of which I personally had the highest appreciation when he was on the Committee assisting Dean Milman in the works intended for the completion of St. Paul's Cathedral.

The man of greatest distinction after Sir Charles Barry was unquestionably Professor Cockerell, a name deservedly revered and honoured, whose buildings include some of very great merit. Cockerell laid the foundation of the classical expression found in his works by an exhaustive study of Greek remains, of which he was an eminent and ardent explorer in days when such investigations were rare, and attended often with "perils from waters and perils from robbers," in days when communications were very difficult. His fame would be considerable if it rested only on his published works. When he returned to England he entered heartily into the then fashionable Greek revival; and, so far as it was possible to adapt the limited range, not of its teaching, but of its available precedents, to modern practice, he succeeded—a claim which can, I think, be made for no other architect of our time but one, Schinkel of Berlin.

Cockerell excelled as a draughtsman, and was no mean sculptor. He himself modelled much of the ornament which he introduced into his works, and his mouldings are always examples of appropriate profile. These details, and the propriety of their subordination to the whole, in addition to the sense of harmony and proportion which prevails throughout, are objects particularly worthy of study in his works. In London the Sun Fire Office near the Bank of England, and at Oxford the Taylor Museum, are buildings which will preserve his reputation as an architect. His lovable nature—

Not being less but more than all
The gentleness he seemed to be—

is still dominant in the remembrance of those who had the privilege to know him, but their number is now greatly reduced. There are, however, not wanting here those who can remember his son, which will help them in imagining what the father must have been. His admirable lectures delivered at the Royal Academy cannot but have produced good results on those who heard them. Both in Cockerell's works and in those of Barry will be found the same qualities of proportion and subordination of ornament which are conspicuous in the works of Sir Christopher Wren and architects of his school.

Nearly contemporary with Cockerell as a Greek explorer was Donaldson, the chief pillar of the Institute at its commencement. There are not many executed buildings by him to which I need draw your attention; but he was an admirable instructor, and some of our present members owe much to his lectures at University College. He, too, has left a long-enduring memory of a kind and sympathising nature; and, while mentioning Donaldson, I cannot but refer to the three Papworths, father and sons, the last of whom has been borne to his grave since we met in this room. The names of John and Wyatt Papworth, devoted supporters and benefactors of the Institute, must always be associated with its Library; and that of the younger of the two with *The Dictionary of Architecture*, for which he was a laborious worker, and the completion of which he, as its editor, happily lived to witness. I shall ask you presently, Colleagues and Gentlemen, to cause to be recorded upon the Minutes of this Meeting our sense of the loss sustained by the death of Wyatt Papworth.

To continue: Gandy Deering, himself a Greek explorer, having been engaged in that service by the Society of Dilettanti, exhibited much skill in his use of Greek elements; but for the most part the Greek revival did not, and could not, succeed, and it helped to bring on the Gothic revival, which also, apparently, is losing its vitality. Some good works, in which Greek detail is not so evident, were, however, produced about the same time, such as Arthur's Clubhouse, and Basevi's Fitzwilliam Museum at Cambridge. The latter was unfinished when Basevi met his death by a sad accident in Ely Cathedral, and was completed by Cockerell, but the interior has been much altered since those days.

The most remarkable building of this period (if we exclude the Houses of Parliament, the style of which does not lend itself to the comparison) is St. George's Hall, Liverpool. The younger Elmes, who was the architect, did not live to finish the building; and after some delay Cockerell was appointed to complete the work. It appears that Elmes had left full instructions for its completion, but these documents had been lost or mislaid, so that when Cockerell came upon the work he had nothing to guide him but the shell of the building. The entire finishings as executed are by Cockerell's hand; but there can be no doubt that in every respect he loyally carried out Elmes's intentions so far as they could be gathered, and the harmonious result shows that he must have succeeded in practically doing so. The external approaches to the Hall were worked out and finished with great care by Cockerell; these, however, have been since subjected to considerable alteration by others.

PROPORTION IN PREFERENCE TO PICTURESQUENESS.

I have now carried the summary far enough, and shall not particularise any very recent buildings; and for the purpose in view—that is, the comparison of what was done in the seventeenth and eighteenth centuries with the works of the present time—there is no necessity for my doing so. Carried down to the extent it has been, we have found in Sir Charles Barry's and Professor Cockerell's works the same loyalty to the principles of subordination and proportion that prevailed in the days of Inigo Jones and Wren. But, latterly, they seem to have been too much lost sight of. Both the Greek and Gothic revivals have had the effect of bringing into contempt the precedents of Palladio and the great Italian authorities.

Misinterpreted as the spirit of their rules often was, there was some reason in this reaction, for, as far as such rules were supposed to supply the place of genius and thought, they were indeed, fetters instead of helpers. That genius and thought could be replaced by rules of any kind was certainly a mistaken view. Followed as Palladian precedents and principles were, by men like Inigo Jones, Wren, and Chambers, as the language with which their thoughts were to be clothed, they had the same value in architecture that metre has in poetry. The licence which is now too frequently taken with forms and features long recognised as essential, in favour of a treatment of which the final aim is picturesqueness, can hardly ever produce a satisfactory effect from all points of view. I do not hesitate, however, to allow that pleasing effects do, as it were, accidentally occur; and that, in streets where architects have scope allowed them, we do not see monotonous frontages of the class of Gower Street and Wimpole Street—such as were general at the beginning of the century, though even to them some excuse must be granted. Those were hard times, when the country was struggling in a great war for very life, and severe economy in building was then much more insisted upon than it has been of late; and had that restriction not happily been relieved, there could not have been employment for more than about one-tenth of the number who are at present enrolled in the profession. The relaxation of architectural discipline, however, was not a necessary element in the result referred to, for quite sufficient variety, and of a better quality, can be obtained by proper study without ignoring accepted precedents, or neglecting principles of still greater value—namely, proportional relations of contiguous parts, and subordination of details to the purposes for which they serve and to the general effect. My predecessor in this Chair insisted so well and so emphatically on the evil of redundant ornamentation, which has been common of late, that I should only weaken what he so well urged were I to say more than that I heartily agree with every word he uttered on the subject in his last Annual Address to the Institute.

VOTE OF THANKS TO THE PRESIDENT.

THE VERY REV. ROBERT GREGORY, D.D., Dean of St. Paul's.—Gentlemen, I rise with great pleasure to propose a hearty vote of thanks to my good friend, Mr. Penrose, for the most interesting Address he has just delivered. I am sure that all of us, whether we are students, or whether we are ignorant, as I confess myself to be, of the great subject of architecture, must feel equally indebted to your President for the admirable way in which he has placed his points before us. If I were a professed architect, I might venture to criticise some of the things he has said; but as a layman, from an architectural point of view, I do not profess to be in the least qualified to do anything of the kind. I should, indeed, make a very great mistake if I were to attempt to do so. But whilst not criticising what should be done, perhaps I may be allowed to run over some points referred to by Mr. Penrose, and say a few words about them. If every house were obliged to be erected under some one architect, no doubt we should have a far more beautiful city. I must suppose, to judge from their appearance, that the owners of a vast number of buildings erected have no thought whatever of beauty, but that their only idea is how much money can be got out of them. People try to build as cheaply as they can in order to get as large a return as possible. In London, again, we are a good deal handicapped by another consideration—that is, the enormous value which is placed upon land, and the consequent greatly-increased cost of the buildings that are put up. But, possibly, the profession of architecture may come to be a good deal like the profession of which I have the honour to be a member, where there is employment for any number of people, but a livelihood for comparatively few. Another remark made by Mr. Penrose is one, I think, of very serious consideration, and that is the large amount of money which must

be expended on works that do not appear. My experience of architecture during some time past has been, to a considerable extent, connected with drains, and I find that a great many architects do not look after the drains until they have been constructed, and have to be reconstructed; and that then the reconstruction of such very invisible things, but so necessary a portion of the work if our houses are to be healthy, is a very costly operation. One knows that with regard to the older part of London—the City—in which I have the pleasure of living, there has been a complete revision of the question of drains, and consequently enormous cost has been inflicted upon those living in houses where the whole system has had to be reconstructed. There are one or two points mentioned by Mr. Penrose in which I feel a special interest. The inspection of buildings by the London County Council, through persons authorised by them, certainly does not seem to be done in the happiest way possible. I speak with no special knowledge of the subject, yet even the more ignorant among us must feel how great an improvement might be made if the recommendation Mr. Penrose has urged were followed out—that is to say, that experienced architects should be employed for the important task of inspecting the works of their neighbours. Then, with regard to St. Paul's Cathedral, we have been told what an admirable thing it would be if we would only wash the external part of it. Now, I think of all the silly things I have heard for a long time, that is one of the silliest. When I saw the letters in the newspapers I did not even think them worthy of an answer. I remember some twenty years ago the same subject was started. People said if you want to improve the appearance of St. Paul's wash the exterior. The late Dean and myself took the trouble to go and see buildings which had been washed; and I confess that our feeling was that they looked like dirty, streaky bacon! Anything more hideous or unsightly than the effect of the water upon the stone could not be imagined; in fact, anybody who had an eye for colour, or idea of what an ancient building ought to be, would reject at once the proposal to do anything of the kind. And certainly one's past experience, I think, has been justified, and it is gratifying to find that it is entirely in accordance with the views of this assembly. With regard to the interior of the Cathedral—in which, as possibly some of you know, I have taken a deep interest—when I was appointed to a canonry in St. Paul's, some twenty-six years ago, the first thing I thought of doing was to go to Italy and get some idea of what we ought to aim at. I had no knowledge of architecture, or of what should be done; but I thought that if one had any appreciative power, something might be learnt by studying the buildings in Italy which belonged to the same school of architecture with St. Paul's, and sooner or later an opportunity might arise of furthering what was wanted. At the present time we are making efforts, at all events, which I trust the world at large will consent to regard as successful. I think that under the guidance of Mr. Richmond we have been exceedingly successful in the mosaics recently fixed, and, if the public will allow us to go on with the work by helping to provide the necessary funds, we trust that it will be brought to a successful conclusion. But I cannot hope to live to see it. It must be a work, like most great works, of years; a work of effort and a work of genius on the part of him who has its direction; and, at the same time, one of patient perseverance and absolute assent to the proposal of the skilled man whom we employ. As you know, something has been done, and a good deal of money spent. I trust that before very long a good deal more will be done, but it will take at all events a couple of years before we can hope to see the scaffolding entirely removed from the choir; and, until that is done, of course, the work is seen at great disadvantage. As to St. Paul's, seeing the building twice a day for more than twenty years, one necessarily grows to love it, and admire it, and to think that no other place is equal to it. I trust that as long as I live that will be my feeling towards it, and my great desire will be to see it more and more beautified. After all, if I may venture to say so, I am rather glad that the second St. Paul's

was preferred to the first; because, as I look at the earlier design, it seems to me not to be equal to that which was eventually brought to a successful conclusion. Be that, however, as it may, we are thankful that we have so good a building; and we feel that it has been a great scandal to the country that for two hundred years a building, which was designed to be decorated as St. Paul's was, should have been allowed to remain without that decoration for which it so loudly called. Perhaps, however, it is as well that it was reserved to the present day to do the work, because it is possible that the skilled men of our own time are more able to do it in the best way than those of a less recent period might have been; for, although I am disposed to be somewhat of a *laudator temporis acti*, still, I nevertheless feel that the artists of the present day excel in many important respects those who preceded them. With regard to Vanbrugh, an architect with whose works I have some slight acquaintance, whenever I have seen any of his buildings I have felt how true the record of him was:—"Lie heavy on him, Earth, for he Laid many a heavy load on thee." I think that certainly the weight of his buildings, rather than their beauty, is the thing that strikes one most.

MR. L. ALMA TADEMA, R.A. [*H.A.*].—Gentlemen, I need hardly say that I feel it a great honour to be called upon to second the vote of thanks proposed so admirably by the Dean of St. Paul's for the Address of the President, whom I have always looked upon as our great Athenian. I confess that I have learnt so much from it that I feel it to be rather presumptuous in me to attempt to speak on the subject of his able discourse. As, however, you desire me to say a few words, you will allow me, I hope, to begin by telling you, as an Honorary Associate, that I consider it a great honour—and no doubt we all do—to bear that title, and to be *en rapport* with so distinguished an Institute as that of the Architects of Britain. There is one point which interests me very much as a member of the Royal Academy. As you know, I am specially interested in the subject of Art education. That education, unhappily, is too little thought of in the great schools and universities, and is not sought after as it should be. A civil engineer, or any such person employed by the country, is never tested as to his knowledge of art or architecture, and subjects of the kind; but, when the time comes, if he is successful, he is popped on to a committee, and judges very freely. It is a pity that some scheme could not be devised by which that idea might be brought to bear upon those who direct the education of the country. It is needless to say that I, for one, applaud with all my heart the proposal to establish a museum of drawings and photographs of executed monuments in order to awaken in the public the desire of studying that art which is the greatest ever produced by mankind—that art to which we belong as painters and sculptors, and which in our modern times, through the division of labour, has been, perhaps, too much chopped up into all sorts of details. One more word I would say—and in giving it voice I know I am expressing the sense of all present—and that is that I always feel a certain pain when I think of the privation we suffer in knowing so little of the great architects to whom we owe those wonderful cathedrals scattered all over the country. They are lost in oblivion, but we love and admire them none the less, I feel quite sure. I have the honour of seconding the vote of thanks to Mr. Penrose.

THE PRESIDENT briefly replied in acknowledgment of the compliment.





9, CONDUIT STREET, LONDON, W., 8 Nov. 1894.

CHRONICLE.

THE BUDAPEST CONGRESS.

Report of the Institute Delegates.

Messrs. Arthur Cates [*F.*] and John Slater [*F.*], who attended the recent Budapest Congress on behalf of the Institute, report as follows:—

GENTLEMEN, —We beg leave to report that we attended as your Delegates the Eighth International Congress of Hygiene and Demography recently held at Budapest. The inaugural meeting was held on Sunday, 2nd September, in the large hall of the Municipal Redoute, when the Congress was formally opened by His Imperial and Royal Highness the Archduke Charles Louis, who was accompanied on the platform by Dr. Wekerlé, the Hungarian Prime Minister, M. Hieronymi, the Minister for Internal Affairs, and numerous other civil, military, and ecclesiastical dignitaries. On the same evening the Archduke held a reception in the Royal Palace at Buda, which we attended. The business of the Congress commenced on Monday morning, when the various sections met in the rooms of the Polytechnicum and the adjoining University buildings.

The sectional meetings were held on the Monday, Tuesday, Wednesday, and Friday mornings from 9 o'clock till 2.

Sections IX. and X. were presided over by Professor A. Hauszmann, but on the occasion of the English papers being read on Tuesday and Friday, Mr. Arthur Cates, and on Wednesday when the papers on Hospitals and Theatres were read, Mr. Thomas Blashill, were requested to take the chair, a compliment to the English delegates which was highly appreciated.

We may mention, as more particularly of interest to the members of the Institute, the following papers—

“Les Résultats techniques des Canalisations effectuées, durant ces dix dernières années, dans les grandes Villes,” by Georges Bechmann, of Paris.

“Protection of Residences against Sewer-gas: The Control of the Escape of Sewer-gas,” by Dr. Corfield, of London.

“Die Wahrung der Reinheit der eingeleiteten Luft und die Assanirung der Luft bei Central Ventilation,” by Gustav Wolffhügel, of Göttingen.

“Central Heating of Dwelling Houses and whole Towns,” by Sir Douglas Galton, London.

“Chauffage central des Logements dans les Maisons de rapport et dans les Villes entières,” by Emile Trélat, of Paris.

“Gasheizung,” by Franz Siemens, of Dresden.

“The Planning of Fever Hospitals,” by T. W. Aldwinckle, London; illustrated by drawings of the hospital at Shooter’s Hill now being erected under his superintendence.

“Heizung, Ventilation und Beleuchtung der Theater und Sitzungsräume,” by H. Fischer, Hanover.

“Feuersicherheit der Theater,” by F. Fellner, of Vienna; admirably illustrated by the working drawings of the new Deutsches Volkstheater, recently erected by his firm, Fellner & Helmer, in Vienna.

“Combined Dwellings for Artisans now being built in London,” by T. Blashill, London; illustrated by plans, &c., of the Boundary Street Scheme of the London County Council.*

“Sanitary Construction of Dwellings,” by Prof. Banister Fletcher.

An attempt was made by Dr. Corfield to carry a series of resolutions on the general methods to be adopted to secure hygienic conditions in cities; but there was found to be so much diversity of opinion on this subject among the delegates that the resolutions were withdrawn, and the whole subject was referred by the General Committee to a small international committee.

Of the genuine hospitality and universal kindness of the reception given to us we cannot speak too highly, but may specially mention the banquet given at the Hôtel National on Wednesday evening to their professional brethren by the Hungarian Society of Engineers and Architects. This banquet was presided over by M. Hieronymi, the Hungarian Minister for Internal Affairs, and the English delegates were honoured by being placed immediately on his right and left.

As regards the city of Budapest, we were much struck with the great works of municipal importance and development which have been carried out chiefly within the last ten years, the magnitude and general character of the buildings, the extent and magnificence of the new streets and boulevards, and the remarkable building activity everywhere apparent. Works not less extensive and important are about to be commenced, among which may be mentioned the construction of two new leading thoroughfares across the city, with two new bridges across the Danube. The general result is to render this beautiful city a worthy object of study by architects, who may also learn important lessons in municipal organisation for the development of a great city.

(Signed) ARTHUR CATES; JOHN SLATER.

The Opening Meeting.

The Presidential Address was listened to with much apparent interest, and frequently applauded. The visitors, among whom were a few ladies, included, besides the Dean of St. Paul’s, Mr.

* See the JOURNAL, Vol. I. Third Series, p. 658.

H. W. Primrose, C.S.I., the Secretary of Her Majesty's Works and Public Buildings; Mr. Olinthus Donaldson, son of the late Professor; and Mr. W. W. Bruce, of the London County Council. Two gentlemen from Budapest were also present: Herr Eugène de Radisics, Director of the Hungarian Museum of Decorative Arts; and Herr Camille Fittler, Secretary of the Hungarian Society of Engineers and Architects. Mr. Charles Barry, F.S.A., came for the purpose of attending the Meeting, but was obliged to leave on account of indisposition; Mr. Alfred Waterhouse, R.A., was in duty bound to be at Manchester; and Sir Arthur Blomfield, A.R.A., was absent owing to the death of his brother, the Bishop Suffragan of Colchester. Mr. Henry Christian represented his relative, Mr. Ewan Christian; and Mr. J. Macvicar Anderson, the ex-President, was present.

The November Examinations.

A more than usual number of applications to be admitted to the several examinations which ultimately qualify for candidature as Associate have been received. For the Preliminary there are 116 applicants, of whom eight were previously examined and relegated to their studies; and two have not been admitted. For admission to the Intermediate, 55 Probationers have applied, thirteen of whom were examined on a former occasion and relegated to their studies; and five have not been admitted. The applications for admission to the Qualifying Examination, to be held during the week commencing 26th inst., have not yet been considered by the Board of Examiners. There are about 180, more than 50 of which are from gentlemen who have been relegated from previous examinations.

The Kalendar 1894-95.

Monsieur Charles Lucas [*Hon. Corr. M.*], a member of the Société Centrale des Architectes Français, writing from Paris on the 1st inst., is very complimentary to his English colleagues, and the compliments he makes on the subject of their latest KALENDAR are the more agreeable because no one better than M. Lucas understands the working of a professional body, whether in France or England; and no one in France knows more about the Royal Institute of British Architects than he. Referring to that portion of the KALENDAR which contains the Registers of members and others, his words are: Je ne veux pas tarder à vous dire la grande satisfaction avec laquelle j'ai constaté l'augmentation régulièrement constante du nombre des *Associates*, des *Students*, et des *Probationers*, ces véritables réserves de l'Institut et lui devant constituer les *Fellows* de l'avenir, en même qu'assurer à tout le monde britannique une pépinière d'architectes de valeur. Les *Allied Societies*, par les liens qui les unissent à l'Institut, ne sauraient non plus laisser indifférents tous

ceux qui ont quelque souci d'une forte organisation de la profession d'architecte, en quelque pays que ce soit.

The late Léon Palustre.

The distinguished Frenchman Léon Palustre, archæologist, antiquary, and man of letters, died, it is regretfully recorded, on the 25th ult., in his fifty-seventh year. His great work, *La Renaissance en France*, it will be recollected, furnished material for the interesting notes on Architects and Master-workmen contributed to the last volume of the JOURNAL [pp. 511, 535] by Mr. Phené Spiers. The following notice is translated from a communication courteously made by Monsieur Charles Lucas:—

An antiquary of the widest views, a writer of a most frank spirit, a Frenchman deeply enamoured of the artistic glories of his country—such was Léon Palustre, and as such his memory will be ever cherished by his brother historians and archæologists.

Born at Saivre (Deux-Sèvres), 4th February 1838, he was attracted by the charms of fair Touraine, and fixed his residence there after his marriage. From an early period he devoted himself to the study of literature, art, and law; and, after extensive travels in France and on the borders of the Mediterranean, he made his first appearance as an author by the publication of a work entitled *De Paris à Sybaris*, the result of artistic and literary studies relating to Rome and Italy. Later followed the beautiful *Album* illustrative of the marvels of the Tours Exhibition of 1884; a re-issue of the *Mystère d'Adam*, a legend of the thirteenth century; and of the *Triomphe d'Anne de Montmorency, Connétable de France*, a work of the sixteenth century. He was the author of a *Vie de Guillaume d'Aquitaine*; and, in collaboration with Mgr. le Chanoine Barbier de Montault, produced the *Mélanges d'Art et d'Archéologie* and *Le Trésor de la Cathédrale de Trèves*. Numerous articles from his pen appeared in the *Bulletin Monumental* (the organ of the Société Française d'Archéologie); the *Gazette des Beaux-Arts*, in which his latest studies were devoted to the Renaissance and to Germain Pilon; and in *La France artistique et monumentale*. In the last-named were published his monographs on the Châteaux de Blois, d'Amboise, and de Chambord; and one on the Château de Chenonceaux will shortly appear in the same journal.

But his masterpiece—to which for more than ten years he devoted all his evenings, and which, unhappily, he did not live to complete—is *La Renaissance en France*, an admirable publication treating of the finest monuments belonging to one of the most charming and perhaps the most fascinating of the great epochs of art. To this work was issued as a handbook his *Histoire de l'Architecture de la Renaissance en France*. The

name of Léon Palustre will remain inseparably connected with the artistic beauties of the French Renaissance, which he loved with enthusiastic but discriminating devotion, and with a taste as pure as his learning was profound.

Léon Palustre, in 1874, succeeded Arcisse de Caumont as Director of the Société Française d'Archéologie; and the Count A. de Marsy, who since 1884 has occupied that distinguished post, on the 27th ult., at the Cemetery of Saint-Symphorien of Tours, expressed in feeling terms the regrets of all who knew Palustre.

The late Charles Herbert Cooper [A.].

Mr. Walter E. Hewitt [A.] has forwarded the following obituary notice of an Associate who passed the Examination in Architecture in March 1889:—

By the death of Mr. C. H. Cooper from typhoid fever, which took place on the 7th ult. at the early age of thirty-two years, the Institute loses a young architect of much promise. Mr. Cooper's early education was received at Kensington School; thence he entered the Architectural division of the Science and Art Department, and was afterwards articled to Mr. Rowland Plumbé [P.]. For the past two years he had been in practice for himself, his principal work being the rebuilding of warehouse premises at 61 and 62, Friday Street, E.C. Mr. Cooper was of a very gentle and retiring disposition, and his merits were chiefly known among his more intimate friends, who greatly mourn his loss, and who mustered in strong force in Willesden Old Parish Church, where the interment took place. He had for some time been engaged in collecting and editing particulars of the burial-places of distinguished English men and women, a task which was approaching completion at the time of his death.

A Hint to Competition Assessors.

The first Suggestion, sanctioned by the Institute, for the conduct of Competitions, is that promoters should, as their first step, appoint one or more professional assessors, whose appointment should be published in the original advertisements and instructions, and whose decision should govern the selection of the designs. But in more than one recent competition the appointment of an assessor has been an afterthought, or at least delayed until the designs are on the point of being received by the promoters. The result has often been that some clauses in the instructions issued to competitors and in the conditions under which they were invited to compete have not met with the entire approval of the assessor thus tardily appointed, or have been condemned by him as injudicious or unfair. Under such circumstances an assessor might very well stipulate, prior to accepting the appointment, that his name should be published with the statement appended (1) that his duty

was restricted to the selection of the best designs submitted in accordance with instructions and under conditions of which he had no official knowledge prior to his appointment as assessor; and (2) that as his advice, which is alone sought, may not be finally adopted by the promoters, his award shall be published with their report containing the final decision they arrive at. By reserving such rights, an assessor need not fear being made responsible for results which may be opposed to the terms of his award.

Additions to the Library.

Copies of a valuable text-book for students, Mr. Charles F. Mitchell's *Building Construction* [London: B. T. Batsford], have been added to the Reference and Loan Departments of the Library. Mr. Mitchell, whose elementary work on the same subject is so familiar to students and others, having run through various editions, has compiled his material for the present volume from experience gained by personal observation of the methods of construction, not only in Great Britain, but also in France, Germany, Switzerland, Norway, and the United States. The particular object of Mr. Mitchell in the present work is to meet the requirements of the examinations conducted by the Science and Art Department, the Institute, and other examining bodies—an object which he is particularly well qualified to fulfil in view of the fact that the published lists of the Science and Art Department credit him with having prepared the greatest number of successful Honours Students during the past seven years.

Early London Theatres, by Mr. T. Fairman Ordish [London: Elliot Stock], is the most interesting, and it promises to be the most popular, volume yet published in the Camden Library series. Mr. Ordish has been singularly fortunate in selecting this subject for historical treatment, for, curiously enough, he has had no predecessor who has dealt with it adequately. As further reference will be made in a subsequent issue of the *Journal* to this book, it is only necessary now to congratulate Mr. Ordish upon having taken excellent advantage of a delightful and rare opportunity.

Professor Henry Adams has presented his book on *The Practical Designing of Structural Iron-work* [London: E. & F. N. Spon]. Professor Adams has, at intervals during the last ten years, issued in pamphlet form much of the matter which appears in his volume for the use of students in the Engineering Department of the City of London College. To have this matter, in view of its great practical utility, brought into its present convenient shape makes it an invaluable book of reference, scarcely less so for architects than engineers.

Mr. Arthur Cates, one of the Delegates of the Council of the Royal Institute at the Eighth International Congress of Hygiene and Demo-

graphy, has presented the *Journal* of the Congress which was issued daily for the convenience and guidance of members during the sitting, each part being duplicated in four languages, English, French, German, and Magyar. Mr. Cates has also presented the *Order of the Lectures, List of Members*, and a copy of the *Magyar Hirlap*.

M. Ch. Buis is both the author and donor of the following pamphlets: *Le Monténégro*, being a lecture delivered before the Belgian Alpine Club (Brussels: F. Hayez); *La Peinture Allemande*, an article originally contributed to *La Revue de Belgique* on German painting at the Munich Exhibition [Brussels: Parent et Fils]; *Les Anciennes Guildes et Corporations*, a lecture delivered before L'Union Syndicale [Brussels: Bruylant-Christophe & Co.]; *La Thessalie*, a lecture delivered before the *Société royale belge de Géographie* [Brussels: Jules Vanderauwera]; *Fêtes Nationales de 1890*, an oration delivered by the author on the occasion of the inauguration of the Square du Petit-Sablon on the 20th July 1890, which was consecrated to the glory of the sixteenth century; *Palais du Peuple*, a report by the President of the Commission (M. Buis) organised to consider the erection of a People's Palace, subsequently established in the Parc du Cinquantenaire [Brussels: A. Lesigne]. Mr. John Hebb [F.] has presented *Municipal Pawnbroking*, by Mr. W. H. Dickinson, Deputy Chairman of the London County Council; and Mr. T. J. Willson, his reprint from the *Archæological Journal* on *The Tomb of St. Hugh at Lincoln*.

Helmingham Hall.

On a former occasion some reference [Vol. I. pp. 25, 59, and 276] was made to photographs of Helmingham Hall by Mr. William Vick, of London Road, Ipswich. Until the Architectural Association visited it, by the kind permission of its owner, in the summer of last year, the Hall was little known to architects—or, at least, little talked about by them. Mr. Vick has recently presented a photograph of the exterior from the south-east, and also one of Queen Elizabeth's bedroom—a charming interior.

REVIEWS. XV.

(42.)

THE PALERMO CONGRESS, 1892.

Atti del Congresso degli Ingegneri e degli Architetti in Palermo 1892. VII. Nazionale—I. Internazionale in Italia. Parte I. Memorie Preliminari; Parte II. Resoconti. Palermo [Tipografia editrice Tempo D. Vena 1893.] Memorie Preliminari allegato alla sezione V. tema 4o. Venezia 1889. [Stabilimento Tipo-litografico dei Fratelli Visentini Editori.]

These three volumes contain a detailed account of the subjects discussed at the International Congress of Engineers and Architects which took

place at Palermo in 1892. They deal with almost every branch of these professions, and are arranged on very systematic lines.

One volume contains all the papers read on the several subjects chosen for consideration. The reports of the discussions relating to them are collected in another; and the third consists of a long and comprehensive treatise by the engineers Signori Romano and Fiendra, propounding their scheme for the construction of a canal between Spezzia and Venice.

Representatives of thirty-one Colleges, Academies, Institutes, and Societies attended this Congress, the Royal Institute of British Architects being among the number. Fifteen other Bodies recorded their formal adhesion to it. The Congress was divided into eight sections, architecture being placed second, and the sittings were held at the Palace of the Royal University. In the Architectural Section, at the first sitting, the Congress nominated Mr. T. H. Watson [F.] as President, Signor Melchiorre Minutilla as Vice-President, and Signor Angelo Coppola and Signor Achille Patricolo as Joint Secretaries. The compliment paid to the Institute in the appointment of its representative as President of the section was acknowledged at the second sitting. Papers were read and discussed by the architects present at each of the seven sittings, and excursions were made to places of architectural interest in Palermo and the neighbourhood on alternate days. During the Congress, which lasted three weeks, there were many public receptions and much private hospitality on the part of the numerous artistic and social clubs of Palermo.

Most of the remains of Greek, Saracenic, and Norman architecture in Sicily were mapped out and visited under the guidance of Professor Cav. Giuseppe Patricolo, Director of the Government Department for the Preservation of Monuments in Sicily. Excavations of the ancient cities have been carried on for many years, and a considerable sum is annually voted for their prosecution. The excavations are well protected by military pensioners, and are all within a moderate carriage drive of the railway stations. The museums at Naples and Palermo have been enriched by several important finds.

(43.)

THE HOWARD LECTURES 1893.

On the Development and Transmission of Power from Central Stations; being the Howard Lectures delivered at the Society of Arts in 1893 (Amplified). By William Cawthorne Unwin, F.R.S., B.Sc., M.Inst.C.E. 8o. Lond. & New York. Price 10s. net. [Messrs. Longmans, Green, & Co., Paternoster Row, London.]

In this work the learned author expands into book-form the substance of a course of scientific lectures delivered by him last year before the Society of Arts; and those of our members who like to know a little of everything that is collateral

to their profession will find in the volume a great deal of interesting information most intelligently set forth. The understanding in some measure of what "energy" is, and the discovery of what can be done with it when laid hold of, must be regarded as perhaps the most characteristic of the practical enterprises of our adventurous age; and Professor Unwin confines himself strictly to the practical view of the question, not aiming at what may claim to be new, but explaining what is demonstrably and suggestively true. The scope of the investigation may perhaps be put thus:—Whether it be steam power, water power, compressed air power, gas power, or electrical power, let it be concentrated at a convenient station and distributed by convenient appliances; economy is thus obviously secured, and ingenuity has only to concern itself further with ways and means.

There are advanced people in these days who are bold enough to tell us that the time may not be so very far off when the ratepayer under a modest municipality may obtain supplies of no one knows how many things by the turning on promptly of a variety of taps in his private room; but our author does not trouble his head, or ours, with such merely pleasurable speculations; he goes straight at his mark—which he calls "socialism" in the field of mechanical engineering—as at the present day within the range of practical endeavour, and looking at "mechanical energy" or "motive power" in no other light than "as a commodity, producible, distributable, saleable." As a peculiarly intelligible illustration of what he means, and without going away from home, he cites the case of the establishment of a public supply of hydraulic power in London; and it may surprise some of us to be told that "for the single purpose of working lifts and hoisting-machinery it has already proved remunerative (in 1892) to extend through the streets of London a system of hydraulic mains nearly sixty miles in length," supplying 1,676 customers, and at the rate of 6,600,000 gallons of water per week. Thus is the one simple form of "mechanical energy or motive power" which consists in the weight of water most potently utilised—centrally stored, widely distributed, and profitably sold—for a single purpose; and of course there are many other equally serviceable forms of the same universal force of nature which are only waiting upon the march of enterprise to be more or less simply utilised for many other purposes.

Taking this unaffected and thoroughly business-like view of the question, Professor Unwin proceeds to deal in most interesting detail with steam power, water power, and others, in respect of initiation and central supply; and still more minutely with the problems of transmission and distribution by all the various means already in use; ending, still unaffectedly, with the mysterious agencies of electricity and "the utilisation

"of Niagara Falls." A treatise of this kind is not only full of information for the explorer in applied science on the highest ground, but it affords to the student of practical construction, of whatever kind, an opportunity for obtaining stimulating mental exercise in one of the most valuable forms.

ROBERT KERR.

(44.)

A NORTHUMBERLAND HOUSE.

Denton Hall and its Associations. By William Weaver Tomlinson. 4to. London, 1894. [Walter Scott, Ltd., London.] Edition limited to 250 Numbered Copies, of which 100 are for private circulation.

Denton Hall, Northumberland (situated three miles to the west of Newcastle-on-Tyne), derives what interest it possesses from being one of the earliest and one of the most picturesque examples, excellently preserved, of Jacobean architecture in the county; from its being, at one time, a periodical residence of Mrs. Elizabeth Montagu, of literary renown; from the antiquarian interest of its neighbourhood (remains of the Roman Wall and Vallum still exist in its immediate vicinity, and within its grounds there has been unearthed a course of masonry belonging to an ancient chapel of the Priors of Tynemouth); and, finally, from its being the domicile of a fairly well authenticated ghost, which may be commended to the attention of the Psychological Research Society or Dr. Lee.

Architecture, essentially domestic in character, did not make its appearance outside the walled towns of the English border counties, which were subjected to frequent raids from their Scottish neighbours, until a later date than in southern parts of the country, very rarely, indeed, until the Act of Union between England and Scotland had proved practicable and binding. Previous to that time buildings outside the towns were, for the most part, designed rather for providing effective protection against Border reivers than for comfort. Denton Hall was one of the earliest unfortified manor houses of the county built before the Union, and although its general character is Jacobean, its erection was not uninfluenced by the sterner form of architecture which it succeeded. An instance of this is exhibited in its principal staircase, which is of stone and rather narrow. Thanks to the present owner and occupant (Mr. W. A. Tanson), who has, at considerable expense, relieved the building from "improvements" effected by earlier proprietors, Denton Hall stands now pretty much the same as when it was built by Anthony Errington in 1622. It still, however, remains for Mr. Tanson to restore the two dormer windows removed from the west front of the house, the absence of which leaves the building, in that aspect, with an incomplete appearance.

Denton has passed through the hands of various proprietors, all of considerable local importance, and one whose reputation was far-reaching—Mrs. Montagu, the most distinguished emancipated

woman, holder of the most brilliant *salon* of her time; the friend of Dr. Johnson, Sir Joshua Reynolds, Garrick; the author of *Dialogues of the Dead* (published in 1760), and an *Essay on Shakespeare compared with the French and Greek Dramatic Poets* (1769), provoked by Voltaire's memorable attack on Shakespeare. Mrs. Montagu's residence at Denton is accounted for by the fact that her husband, the Hon. Edward Montagu (a grandson of the first Earl of Sandwich), inherited the property, with its adjacent lucrative coal-mines, in 1758. From that time until a few years before her death Mrs. Montagu made, with few exceptions, yearly excursions to Denton, where she entertained many of her distinguished contemporaries; and on the death of her husband in 1775, she displayed a great natural aptitude for business affairs in the successful management of the Denton estate.

In a work which is only likely to possess a limited and local appeal, Mr. Tomlinson has discharged his undertaking conscientiously, with characteristic thoroughness, and with the untiring diligence in research which distinguishes his *Comprehensive Guide to Northumberland* and other works. The publishers are to be congratulated on the admirable appearance of the volume, which is plentifully and excellently illustrated by Mr. T. Eyre Macklin. Mr. W. H. Knowles [F.], of Newcastle, has supplied plans, to scale, of the ground and first floors of the Hall. RUDOLF DIRCKS.

(45.)

IRON, STEEL, AND TIMBER.

Engineering Construction in Iron, Steel, and Timber.
By William Henry Warren, Whitworth Scholar,
M.Inst.C.E., M.Am.Soc.C.E.; Challis Professor of
Civil and Mechanical Engineering, University of
Sydney. 8o. Lond. 1894. Price 16s. [Messrs. Long-
mans, Green, & Co., Paternoster Row.]

So many excellent and comprehensive treatises devoted exclusively to the mathematics of engineering construction are already in existence, that it seems needless to add to their number. It is not so, however, with books such as this one of Prof. Warren's, in which the mathematical treatment, while adequate in itself, is accompanied—not merely supplemented—by examples such as occur in actual practice, the working out of which in detail cannot but assist the student to a better understanding of the mechanical principles involved.

The first chapter of this book is devoted to the mechanical tests applied to materials of construction, more especially with reference to the determination of their elastic properties. In discussing working limits of stress and factors of safety, the results are summarised of Prof. Bauschinger's experiments (supplementing Wöhler's and Spangenberg's of earlier date) on the effect of repeated and alternate stress; the empirical formulas of Weyrauch, Launhardt, and others, designed to express these results, being given; also modified

forms of the same as used generally in the United States, and in France by Government regulation, to determine working limits under various conditions of stress.

In the succeeding chapter, on the strength and elasticity of timber, much valuable information is furnished by the tabulation of the most recent experimental results; those of Mr. Kirkaldy and Prof. Lanza, on the crushing strength of pine and oak timber, being especially useful, from having been made on pieces of sufficient size to represent actual conditions of use. The results are also given of similar experiments made at Watertown Arsenal (United States). Very interesting are the results of original experiments made by the author on various Australian timbers, including ironbark, the gum timbers of New South Wales, and jarrah from Western Australia. The values of the modulus of elasticity for these timbers differ but little from the average of those found for pine and oak, but their ultimate resistances to crushing and bending are from two and a half to three times as great.

Examples of timber bridges of ten feet to thirty feet span, for road and railway purposes, are given in Chapter VI. These are illustrated in detail, and the strength and scantling of each part calculated, the resistances of bolted and keyed connections being also investigated. The types chosen are most suitable for countries where timber is plentiful, and are chiefly interesting to English readers as being examples of good design for temporary structures, for which timber still remains the most suitable material, though for such purposes a larger factor of safety may reasonably be taken than is necessary for permanent structures. In later chapters the design of tension joints for large timbers and of lofty timber trestles is exemplified.

Chapter III., commencing with a statement of the mechanical conditions of equilibrium of a structure, follows with an explanation of "Culman's "principle," the foundation of grapho-statics. Bow's notation for reciprocal figures, the invention of which has done much to extend the usefulness of Maxwell's discovery, is fully described, and is well exemplified in this chapter; also in Chapter VII. and the two following, where it is applied to various forms of framed roof trusses, braced girders with parallel flanges, also polygonal and bowstring girders. A number of clearly drawn diagrams are printed with the text, and though in some cases suffering from the small scale inevitable to this position, are more easy of reference than when collected in plates, frequently many times folded, at the end of the volume.

Dr. Ritter's method of moments for determining stresses in braced structures is described, and the author advises its use as a check upon the purely graphic method, it being only necessary for this purpose to apply it to a few members of the structure in question.

The examples given of roof-truss calculation are the more useful that a clear statement is made in each case of the data necessary to determine the forces acting at each loaded joint, due to fixed and snow load and wind pressure. With regard to wind pressure on roofs of large size, or in exposed positions, the different cases should always be examined of wind blowing from either side, the truss being fixed at one end and on rollers at the other, or fixed at each end, as it will be found that the maximum stresses on the various members do not usually occur for one case only.

Similarly useful examples of single and multiple triangulated girders are given, though, in regard to the latter, the not strictly accurate assumption is made that the systems of triangulation may be considered separately, acting only under the loads applied at their own vertices. The author does not allude to the subject of secondary strains, though the importance of considering these in girders of large size is now recognised.

In Chapter IV. the relation between bending moments and shearing forces, and their algebraic and graphic representation, are very clearly explained for the various cases of distributed and concentrated loads on cantilevers and beams supported at two points. This is followed by a chapter on the distribution of longitudinal and shearing stresses in beams of various sections, with examples of the determination of moment of inertia and resistance for cast-iron flanged beams, for rolled angle, tee and girder sections, also for built-up riveted girder sections. Useful tables are given for the modulus of resistance, $\frac{1}{y}$ inch units, of the different sections of steel rolled joists now made in England and the United States. To use these tables it is only necessary to multiply the modulus therein given for any section of joist by two-thirds the chosen limit of stress in tons per square inch, to obtain the value of Wl , which is the product of the safe uniformly distributed load, also in tons, and the span in feet.

The more complex subject of deflection is considered in the next chapter, and is extended to the cases of beams fixed at one or both ends. Following this is a chapter on continuous beams, the use of which, both in bridges and for building purposes, is illustrated by worked-out examples. For such beams it should be well borne in mind that the results of calculation in any one case are true only so long as the supports remain at the level assumed, and are entirely vitiated by the slightest want of accuracy or subsequent alteration in that respect.

A valuable chapter on long columns and struts commences with the time-honoured demonstration of Euler's well-known, though somewhat useless, formula for the breaking strength of an elastic column of uniform section loaded centrally—an ideal condition seldom attained in practice. This

is followed by an abbreviated demonstration of Mr. Claxton Fuller's formula, founded upon the assumption of initial eccentricity of loading, and of Rankine's generalisation of Gordon's formula, still in shape the foundation of the modern empirical formula designed to express the result of recent experiments. Tables are given of the results obtained from experiments, made at the Watertown Arsenal, on full-sized struts suitable for bridge girders and also for building purposes, of various riveted sections. Some of these struts were of the well-known Phoenix column section, formed of segmental channel bars, and others built up from plates, angles, and channel bars—in some cases lattice bracing taking the place of connecting web plates. These struts were from 10 feet to 25 feet long and 6 inches to 12 inches across, the dimensions being comparable with those occurring in actual practice. Following the tables are formulas devised by Mr. Cooper, a well-known American engineer, to represent these and other similar experimental results.

In a chapter on joints and connections examples are given of the design of riveted joints, the relation between shearing and bearing resistances of the rivets, and the tensile or compressive resistance of the plates or bars joined being fully explained. The author wisely advocates the drilling of holes for riveted work, especially in steel; he also recommends the use of double covers where possible, these having the obvious advantage of enabling some at least of the rivets in the joint to act in double shear, though the stress on each section is not necessarily equal. Attention is properly drawn to the importance of so designing the junctions of bracing bars to booms in a framed girder or truss that the axes of the several members connected intersect at one point, and that the group of rivets forming the connection may be as nearly as possible symmetrical to these axes, in order to obtain approximately equal distribution of stress upon the rivets. The proportions of eye bars and pins are briefly considered, and some illustrations follow of typical connections for iron roofwork: these are, however, too small in scale and too little explained to be of much use to the student; the more complete working out of a single moderate-sized roof truss example would have been more instructive.

A brief description of some of the different forms of metal decking used for bridge floors and building purposes opens a chapter on the distribution of fixed and moving loads on road and railway bridges. This is illustrated by fully-worked-out examples of the design in detail of plate girders for such purposes. The influence of American practice in Professor Warren's teaching is obvious in the frequency of reference to standard rules and specifications in use in the United States. There is nothing to complain about in this, however, when the systematic manner in which these rules

are worked out is considered. An example, frankly American in type, is described and illustrated of a pin-connected steel truss bridge of 180 feet span for a single line of rails. The details are decidedly good of their kind, though different enough from those seen in English practice. Calculations for small details and connections are not given in this case, but the stresses and scantlings for the different members are tabulated in full.

The effect of wind pressure on girder bridges and on skeleton structures, such as lofty piers and towers, is considered in the two following chapters, and the stresses due to it, in their lateral and transverse bracing, examined in some detail.

Another well-worked-out example of practical design is that of a continuous girder road bridge of three unequal spans, illustrating the application of the theoretical investigations of Chapter XI. This is followed by a chapter on swing bridges, briefly describing the different methods adopted for supporting their weight during turning, viz. by live roller rings, central pivots fixed or supported by hydraulic power, and combinations of these. A design for such a bridge, with two 60-foot openings, is given, illustrated by four plates; calculations are not furnished, but the details are very fully shown, and there are some good points to be noticed, especially in the method adopted for securing equal distribution of weight on the live ring.

The theory of elastic arches is somewhat cursorily treated in a semi-graphical manner for the cases of the arch hinged at the springings and continuous at the crown, and the arch fixed at the springings. It must be said, however, that for the student approaching this difficult subject for the first time, a fuller and, to commence with, more elementary treatment would have been desirable. The much simpler case of the three-hinged arch, pivoted at springings and centre, is more fully described, and a summary of the calculations for a road bridge carried out on that principle is given. This form of arch possesses the great advantage that temperature strains are eliminated, since the crown of the arch is free to rise or fall with change of temperature. There is also no uncertainty about the determination of the actual stresses occurring in the arch, as they can be found by statical methods only, no assumption as to the elasticity of the material being required. Striking instances of the application of this form of construction occurred in the great roofs of the Paris and Chicago Exhibitions.

Suspension bridges are the last subject treated by Professor Warren, and his book concludes with a summary of the calculations for the North Sydney suspension of 500 feet span, designed by the author and Mr. Coyle. This bridge consists of steel wire cables suspended from masonry towers, and supporting steel lattice cross girders which carry longitudinal timber bearers and a

plank roadway. The details, shown by three plates, furnish a good example of modern suspension bridge design.

In a future publication the author proposes to deal with engineering construction in brickwork, masonry, and concrete; the subject of foundations, very briefly mentioned in the present book, will there be more extensively discussed. It only remains to say that the many tables and illustrations in this book are clearly printed and well executed, and that altogether it is a valuable and useful addition to the literature of engineering and building construction. HENRY REILLY.

(46.)

MUSEUM OF MATERIALS IN VIENNA.

Führer durch die Baumaterial-Sammlung des K. K. naturhistorischen Hofmuseums in Wien.

This is a guide to the collection of building materials in the Imperial and Royal Natural History Museum at Vienna. Dr. Aristides Brezina tells in his preface how this large and comprehensive collection was first started. Herr Felix Karrer had delivered a lecture on the building stones of Vienna before the Scientific Club; and the Union Building Society presented to the Imperial and Royal Collection of Minerals a number of specimens in illustration of the above lecture. The large new museum was at this time being built, and Herr Karrer suggested adding to the nucleus which was to be transferred from the Hofburg a further and more complete collection of the building materials used in Vienna. The idea was very warmly supported by the Director, Hofrath von Hochstetter, and others, and in a short time a large number of specimens had been brought together. The success of this attempt encouraged renewed efforts, and further collections were made in various cities of the empire and in Hungary and other countries. In the space of thirteen years 7,000 specimens were collected, which are second to none in completeness, beauty, and excellence of arrangement. A further acquisition was their own collection of 2,000 specimens presented by the Austrian Society of Engineers and Architects.

The specimens, rough or wrought, are cut for convenience' sake to a uniform size of $12 \times 8 \times 3$ cm. The collection is arranged geographically, and classified according to technical use in ten groups; further subdivisions are petrographical and geological. The labels are of two colours: the green give the usual or commercial name; and the yellow, the special use of the stone. In the section on Vienna notes are added, telling in which buildings many of the specimens may be found. There are also forty phototypes of the principal buildings in various towns, the materials being mentioned in each case.

A list is also given of books of reference bearing on the subject. B. A. CHARLES.



THE A. A. CURRICULUM.

By FREDERIC FARROW [F.], Lecturer at the Architectural Association.*

Lectures, classes, and studio are now commencing for the fourth winter's work of the Architectural Association, as a teaching body for architectural students, since the remodelling of its educational methods to fit the standard required by the Progressive Examinations of the Institute; and it is therefore a fitting opportunity for members to consider the advantages offered by the Architectural Association for the education of their pupils, improvers, and assistants.

The curriculum of the Architectural Association has been built upon the foundation of the programme of the Institute Examinations, and its maintenance in its original form depends largely upon the support it meets from those who are desirous of studying for the examinations. During the past session the senior classes, which were especially suitable for those students preparing for the "Final" Examinations, met with small success, from the postponement of the first of them and the extension of the Qualifying Examination to the current month. Hence the Committee of the Association have dropped some of their senior classes for the present, though still hoping to reopen them in another year's time when sufficient Students R.I.B.A. may be expected.

In the curriculum the instruction is divided between studio and lectures, which latter include classes. Either studio or lectures can be taken separately, or, if the student desires, they may be taken concurrently. The subjects taught in the studio or by lectures are alike divided in the current session into three divisions and certain extra subjects, with the view of so distributing a student's work that everything taught may be steadily and thoroughly learnt without cramming or undue pres-

sure. The *Probationer* of the Institute who desires to prepare for the Intermediate Examination should take up in successive years the work of Divisions I. and II.; and in one of those years the "extra subject" plane and solid geometry; in the other mensuration, and surveying and levelling. In the studio work of Division I. he will be taught geometrical drawing of ancient examples, free-hand drawing, drawing of examples of elementary construction, plane geometry applied to actual work, and perspective. In Division II. the studio continues the work of Division I. to a higher stage, and includes also solid geometry. Thus, in the studio, the Probationer has the opportunity of preparing his "Testimonies of Study" for the examination. By the lectures and classes in Division I. the Probationer is instructed in the Orders of Greek and Roman architecture and the several varieties of classic ornament, the nature of ordinary building materials and the elementary principles of construction, the rudiments of perspective, and elementary physics; whilst in Division II. he learns about English architecture, materials, the strength of materials, stresses and strains.

The inclusive fees are £5. 5s. for a year's instruction in the studio in any division, and £5. 5s. for a year's course of lectures and classes, including one extra subject; or, if a student so wishes, he can take up a single course of lectures in any one subject at a special fee.

After passing his Intermediate Examination the Student can proceed with Division III. of the curriculum, to prepare for the Final Examination, and, as intimated above, this will be followed by a Division IV. when sufficient students are ready to justify the re-establishment of the advanced courses. During the past session the work of the lower divisions has been very successful, forty-nine students having attended the lectures in Division I., and thirty-one those in Division II., whilst forty-eight students joined the studio in Divisions I. and II.

FREDERIC FARROW.

SOME OF LANDOR'S WIT.

The readers of the JOURNAL may possibly find something to interest them in the opinions concerning architecture which were held by so distinguished a man of letters as Walter Savage Landor. The first passage, in point of date, in which he expressed his views on the subject was originally printed as a note on an allusion to the Piræns, in the imaginary conversation between Pericles and Sophocles.* In this note Landor refers at some length to the architecture of Greece and Rome. He remarks that all the public works of London and of Paris would not form a

* See THE R.I.B.A. KALENDAR 1894-95, pp. 151-56. and the Architectural Association's *Brown Book*.

* *Imaginary Conversations*, by W. S. Landor, 6 vols., 1891. *The Longer Prose Works of W. S. Landor*, 2 vols. Both published by Messrs. Dent & Co., London, 1892-93.

third of the Piræus. Athens, he says, a city not much larger than Liverpool or Bristol, with a population which might have lost itself in Syracuse, produced within the space of two centuries a greater number of exquisite models in architecture than the rest of the universe in six thousand years. Athenian architecture is also referred to in "Pericles and Aspasia," where to Ictinus, the architect of the Hecatompedon, is attributed the suggestion that "what we call the Doric column is "in fact Egyptian." Ictinus, quoted by Aspasia, adds: "Our noblest specimens of it are but "reduced and petty imitations of those antient "and indestructible supporters to the Temples of "Thebes, of Memphis, and of Tentyra." In the note on the Piræus, Landor also has something to say about Roman architecture. The Romans, he thinks, did less in their cities than in their colonies. The greatest of their works was the wall in Britain; the most majestic and solid, their bridge across the Danube. But they excelled the Athenians in their theatres. "Those at "Athens were worthy of Pollio and Seneca; those "at Rome of Æschylus and Sophocles." Lucullus, he maintains, was the first Roman who had any idea of magnificence in architecture. In another conversation, it may be remembered, an account is given of the villa of Lucullus. Julius Cæsar, Landor says, left nothing memorable in Rome but Pompey's statue. Augustus did something for the adornment of the city, but he was no Pericles. Nero, however, erected a palace before which all the splendours of Pericles fade away. This was the famous Golden House in which were placed the masterpieces of Phidias and Praxiteles, Zeuxis and Apelles. Landor, like the Italian scholar, Signor Lanciani, always held that the character of Nero has been unjustly maligned. "The Conflagration of Rome I believe to have arisen from "the same cause as the Conflagration of London, "the necessity of purifying the city after an epidemic disease, and of leaving no narrow streets "in the centre for its recurrence." After the Flavian emperors, Landor says, architecture sank for ages; and then follow some striking observations on another order, that introduced into Europe by the Moors: "The cathedrals of Spain "are the most exquisite models of it; and illuminated books, which the Arabs, Turks, and Persians still prize highly, gave, I imagine, those "ideas on which French, German, and English "raised so many noble edifices, correcting by "them the heavier and more confused masses of "Italy." Elsewhere one of Landor's interlocutors exclaims: "How flourishing was Spain under the "Saracens during great part of a millennium! "What pleasure and politeness, what chivalry and "poetry, what arts and sciences in her cities! "What architecture within her walls and round "about; what bridges, what fountains, what irrigation!" Of Italian architecture he says that the

towns are indeed magnificent; but in the churches there is always something of misapplied paint and importunate gilding. "A couple of pepper-boxes "are mounted on St. Peter's, which also exhibits "the absurdity of two clocks on its front."

Concerning architecture in England, Landor, writing in 1826, said: "In London with St. Paul's "and St. Stephen's before us, in Bath with Queen's "Square, the Crescent and the Circus (to which "last nothing in Rome or in the world is equal), "we build cottages like castles, and palaces like "cottages." In later years he objected to the revival of the Elizabethan style. "Condemned "by nature to perennial twilight, you wainscot "your apartments with the darkest oak, and impanel it in your ceilings; your windows are "divided and traversed by thick stonework; and "the panes of glass, extremely small, are sometimes "made darker by green and purple, and are held "together by an almost equal quantity of lead." No less did he dislike the wholesale imitation of classic models in domestic architecture. "Some "of us would be Grecian in our houses, forgetting "that the Greeks made a wide difference between "the construction of a house and a temple. Even "if they had not, still the climates of the two "countries are so different that what would be "convenient on the shores of the Ægean Sea "would be ill-placed on the shores of the British "Channel. Exposed to our biting winds, the "Corinthian acanthus would soon shed its beautiful foliage."

In London, as we have seen, St. Paul's moved Landor to enthusiasm; but in a characteristic letter to Southey, then in town, he says: "I know "not what they have been doing in your capital; "but unless they open a street from St. Paul's "across the Thames, the whole width of the "church's length, they may as well do nothing." Elsewhere he speaks of "picture galleries more "fit for the mysteries of Eleusis; Houses of Parliament models for bride-cakes."

Landor held strong views in regard to the use of statuary in architecture. To have the images of saints and martyrs perched on the slopes of a balustrade, instead of receiving us at the door or on the steps, is as absurd, he makes Michel Angelo say, as the hoisting of emperors and kings upon a column a hundred palms above the earth, where only a pigeon would feel secure. Similar sentiments are put into the mouth of Aspasia, who expresses amazement at hearing that a barbarian prince had erected a column sixty cubits high, supporting his own effigy in marble. "Imagine "the general of an army standing upon a column "of sixty cubits to show himself. . . . It might "aptly represent the virtues of a rope-dancer." In the same epistle Landor's Aspasia refers with derision to a Thracian temple wherein were placed many flat marbles, of all forms and dimensions, fastened with iron clamps to the walls, and

inscribed in an obsolete language. It was no Thracian temple that Landor was thinking of when he wrote this. In another volume of his miscellaneous works, he treats even the best monuments in Westminster Abbey and St. Paul's as deformities in the edifice.

Bacon's saying, "Houses are built to live in, and not to look on," is criticised in the conversation between Barrow and Newton. "Is the beauty of cities," Newton asks, "no honour to the inhabitants, no excitement to the defence? External order in visible objects hath relation and intercourse with internal propriety and decorousness. I doubt not but the beauty of Athens had much effect on the patriotism, and some on the genius of the Athenians."

NOTES, QUERIES, AND REPLIES.

St. Paul's Cathedral.

Without expressing an opinion as to the possibility of keeping the external stone of St. Paul's clean, and recollecting that Mr. Plunket signalled his presence at the head of Her Majesty's Works and Public Buildings by cleaning some of the monuments of London, sensible men—architects included—may reasonably desire to wash the outside even of the metropolitan cathedral; but washing, to be really effectual, might involve the application of much that could not fail to injure the stone, perhaps even the scraping of its surface. Were its walls constructed of the hard limestone which would take polish, by all means wash them, but the stone used belongs to that distinct class which does not; though when properly laid on its bed, and worked soon after extraction from the quarry, it acquires a glaze or coat which protects it from the weather, and even from atmospheric impurities. Once scrape off that glaze, or remove it in any way, the stone is irretrievably damaged, and under the circumstances mentioned begins to decay. England is not a stone country like France, and there is much less necessity to be practically acquainted with those natural processes inherent to all building stones on this side of the Channel than on the other. Viollet-Le-Duc, who was as well versed in the science as in the art of architecture, took some trouble to explain the theory of the use and abuse of ordinary stone in Paris and the great provincial centres of activity. He differed wholly from the late C. H. Smith, who in this country was a great authority on lithology, and who maintained that stone might be safely fixed in any position, regardless of bed, unless it presented a decidedly laminated structure. But to lay calcareous stone with its bed outwards is to expose the heart of the stone, and the façades of many stone buildings which during this century have suffered from the English weather, and have decayed, would probably have

lasted much longer had all the stones composing them been scientifically laid. In the Middle Ages, the stones of arches, vaults, flying-buttresses, were so laid as to receive the force of the thrust upon their beds, the idea being that stones should be placed for use in a building as they lie in the quarry, or, as Philibert de l'Orme wrote, "ainsi que la nature les a fait croître." As regards the desirability of working and moulding stones at or near the building for which they are intended, there can be no doubt that when buildings are executed wholly under the eye of the architect, the stones are likely to be better worked on the site or in such close proximity that the architect can constantly inspect them. But, when conscientiously done, and when stone which has just been quarried is employed, the ordinary blocks used in building are likely to last longer, and resist atmospheric influences better, when dressed and moulded at the quarry itself. The reason is easy to understand. A natural action takes place in the majority of limestones immediately after extraction from the quarry, and consequent exposure to the air. They all contain what is known as quarry-water, which, under solar influence, comes to the surface, bringing with it a certain quantity of dissolved carbonate of lime, which crystallises and forms a crust upon the exterior. That crust once removed will never re-form; hence the advantage of working calcareous stones while their quarry-water is still within them; and, moreover, they are then easier to work than when the water has evaporated. To use rough blocks of stone which have been lying exposed to the heat of an entire summer, as must frequently happen, and then to dress and mould them for building purposes, is to undo the beneficent work of Nature. At the same time, it must not be forgotten that while the sun acts advantageously upon newly-quarried stones, frost and ice are injurious to them, and exposure in the depth of winter while their quarry-water remains in them, is fatal, reducing them to fragments and dust in the course of a day or night. To return to the immediate subject which inspired these observations, the west front of St. Paul's Cathedral was cleaned some forty or more years ago—Mr. G. A. Sala says it was in 1845, but he always likes to appear older than he is—and though it became sooty again very soon, the stone did not suffer from the experiment. Some would like to repeat it, even though the Dean be of a contrary way of thinking. But whatever may ultimately be attempted, the naturally acquired crust of the stones must not be scraped off or otherwise injured.

From JOHN HEBB [F.]—

The Rev. H. R. Haweis's suggestion in *The Times* that the outside of St. Paul's should be washed with soda and water has met with but little support from the public. The experiment was tried some years ago upon Hanover Chapel,

Regent Street, under the superintendence of Mr. E. C. Robins, who went to Paris to study the methods employed in that city for cleansing the outsides of buildings (the periodical washing of street fronts being compulsory), and who afterwards read a Paper * describing the process. The effect of the operation upon Hanover Chapel was disastrous: the weathering of the stone was removed and a new surface exposed to the weather; the stonework of the columns is now pitted with holes, and the whole building looks as if it had been flayed. If Mr. Haweis is solicitous about the cleanliness of London buildings, let him select some other building than St. Paul's Cathedral for experiment. To most persons the colour and texture of St. Paul's are extremely agreeable; its very defects are dear to us, and it would be a thousand pities to impair its unequalled charm by any such ill-advised experiment as suggested by Mr. Haweis. "J'aime Paris jusqu'à ses ver-rues," says Montaigne, and Londoners may in like manner say, "We are proud of St. Paul's—even of its soot"; for it would be impossible to remove the soot without seriously injuring the appearance of the building. I would oppose to the text quoted by the reverend gentleman from Eph. v. 26: "Cleanse it—cleanse it with the washing of water," another from Matt. xiii. 29, deprecating the gathering up of tares, lest one root up the wheat with them.

The District Surveyors' Examination.

FROM THOMAS HENRY WATSON [F.]—

The result of the recent Statutory Examination of candidates for the certificate of fitness to perform the duties of District Surveyor appears to be especially worthy of consideration at a time when, under the London Building Act 1894, numerous matters are left to the discretion of the District Surveyor. I observe that whereas twenty years ago the average number of successful candidates was about ten a year, now, during the years 1891 to 1894 inclusive, the average number of successes has been only two a year, no candidate having been successful this year.

I should like to ask the Council of the Institute to consider what steps can be taken to restore a proper appreciation of this Examination, which ought, judging from the growing popularity of the other Examinations of the Institute, to be more highly esteemed than it is at present.

"Forgotten Staircases: an Old Story" [Vol. I. p. 655.]

FROM A. C. BULMER BOOTH [A.]—

Referring to the communication from Mr. John Hebb, *Forgotten Staircases*, in the JOURNAL [20th September], a discrepancy occurs as to the date the present gallery staircase of the Lyceum Theatre was erected.

The requisitions of the Metropolitan Board of Works are dated 28th July 1882, and included other important alterations besides the staircase above mentioned, notably a proscenium wall, fire-proofing the carpenter's shop in the roof over the auditorium, emergency exits, &c. The works were commenced early in August, as soon as the theatre was closed for the recess. The new staircase is approached from an entrance in Exeter Street, through a passage six feet wide, at the rear of the houses in the street; to obtain such width entailed considerable expense on the owner of the theatre, as the rear walls of the houses had to be partly pulled down, and the upper structure carried on iron girders. The old staircase was removed in August 1882, and the new one opened to the public, in my presence, on 2nd Sept. 1882.

Referring to the date of the theatre, I have before me an original ground-plan, signed Samuel Beazley, architect, Soho Square, and dated 5th September 1832; there is, however, no indication of access to gallery shown thereon. The title on the plan is "The English Opera House." I believe it is not generally known that the first "strike" of workmen in London occurred at the rebuilding of this theatre.

In 1881 extensive alterations were made in the theatre, under my personal superintendence (Wm. Hudson, Son, & Pooth), including principally the access from lower to upper vestibule (first-circle level), new staircases to second circle and amphitheatre stalls, removal of the horseshoe wall (18 inches thick) dividing the auditorium from a corridor, thereby obtaining an increased seating area; excavating the area under the stalls and pit, and obtaining a large storage room for scenery, &c.; new drainage system and sanitary arrangements, and opening up doorways from each side of stage for access to a vaulted corridor following the horseshoe form of the house, by which processions could pass across the stage, under the auditorium, and appear again on the other side. The whole of the aforesaid area had been filled up with the *débris* from the building destroyed by the fire, the original foundations of the earlier building being considerably below the street level.

The access from the lower to the upper vestibule, as originally designed, was through an opening only 5 feet 9 inches wide. This was increased in 1875 to three openings, the two additional ones being about 4 feet 9 inches each. As seen in 1881, the approach is 16 feet wide. I believe further alterations have been made during the last few years in different parts of the theatre.



* TRANSACTIONS, 1873-74, p. 98.



MINUTES. I.

At the First General Meeting (Ordinary) of the Session 1894-95, held on Monday, 5th November 1894, at 8 p.m., Mr. F. C. Penrose, F.R.S., *President*, in the Chair, with 57 Fellows (including 15 members of the Council), 41 Associates (including 2 members of the Council), 3 Hon. Associates, and 30 visitors, the Minutes of the Meeting held 25th June 1894 Vol. I. T.S. p. 571 were taken as read, and signed as correct.

The President announced that Francis Lennox Canning, of Johannesburg, South African Republic, had been reinstated in his position as Associate.

The President further announced that at the Statutory Examination, held on the 25th ult., a certificate of competency to act as District Surveyor under Local Authorities had been granted to Francis Baugh Andrews [A.] of Birmingham.

The following candidates for membership, whose nomination had been previously approved by the Council, were recommended for admission:—As FELLOW, Edward Ingress Bell [A.]. As ASSOCIATES, Walter Hugh Barker (Wrexham); Eustace Godfrey Bird (Ontario); Harry Jefferis (New South Wales); Robert John Thomson; Alfred Wright Toynton; Harry Harrington. As HON. ASSOCIATES, Alfred Gilbert, R.A.; William Blake Richmond, M.A.Oxon., A.R.A., F.S.A.; Frederick George Hilton Price, Director of the Society of Antiquaries, F.G.S. As HON. CORR. MEMBERS, Emerich Steindl, Professor of Architecture (Medieval) in the Royal Polytechnic School, &c. (Budapest); Alois Hauszmann, Professor of Architecture in the Royal Polytechnic School (Budapest); Charles Buls, Burgomaster of Brussels; Henri Edouard Naville, D.Ph., D.Litt., *Correspondant* of the Institut de France (Geneva); Barr Ferree, B.Sc., University of Pennsylvania (New York).

The following Associates, attending for the first time since their election, were formally admitted, and signed the Register—namely, Arthur Henry Wharton Glasson, Louis Jacob, and Lewis Eric George Collins.

The Opening Address of the Session having been delivered by the President, a vote of thanks, moved by the Rev. Dr. Gregory, Dean of St. Paul's, and seconded by Mr. Alma Tadema, R.A. [H.A.], was passed to him by acclamation, and briefly acknowledged.

Finally, on the motion of the President, who in the course of his Address had alluded to the decease of Wyatt Papworth, it was

RESOLVED, that an expression of sympathy and condolence with the widow and children of Wyatt Papworth [F.] for the loss they have sustained by his death be entered on the Minutes of the General Meeting, and communicated to them.

The proceedings having terminated, the Meeting adjourned at 9.30 p.m.

The Glasgow Institute.

On the 23rd Oct. the following office-bearers were elected for 1894-95:—President, Mr. T. L. Watson [F.]; Vice-President, Mr. J. J. Burnet [A.], A.R.S.A.; Auditor, Mr.

David Thomson; Hon. Treasurer, Mr. Alex. Petrie; Secretary, Mr. C. J. MacLean, Writer. Members of Council, Messrs. T. L. Watson [F.], Alexander Petrie, Henry E. Clifford, John Keppie, John B. Wilson [A.], J. M. Monro, A. G. Thomson, John Thomson, J. J. Burnet [A.], J. A. Morris [F.] (Ayr), and George Bell.

PROCEEDINGS OF ALLIED SOCIETIES.

THE MANCHESTER SOCIETY.

On the 2nd Oct., at the opening Meeting of the Session of the Manchester Society of Architects, the following Address was delivered by the President, Mr. John Holden [F.]:—

GENTLEMEN,—Allow me first to say how much I appreciate the honour you have conferred upon me by electing me for a second time to the Presidential Chair. My only fear is that I may not be able to follow, in a satisfactory manner, the footsteps of my predecessors in office. You must, however, bear with my shortcomings as much as possible, and consider them as due to my natural inability, and not to any want of intention on my part.

Retrospectively, the last two or three years have been eventful ones in the history of this Society. The times have changed very materially since its formation in 1865, and the arrangements which satisfied the members of the profession at that time became no longer applicable in 1891. Hence the reconstruction of the Society, and the consequent changes in the regulations, a task of no small difficulty, and one which required very delicate handling. The alteration was, however, carried out ultimately, under the skilful pilotage of our then Presidents, Mr. Wm. A. Royle in 1889, and Mr. R. Knill Freeman in 1890-91, to whose tact the success was largely due.

Now, a change of this kind, involving radical alterations, in fact revolutionary in its character, is always a crucial period in the history of any Society, and is one calculated to cause very great anxiety in the minds of those responsible for the change. At times it appeared as if the whole scheme would come to an end—and if so, I doubt very much whether it would even have been tried again—but happily the clouds passed away and the end was accomplished. It was the right thing to do, and I am glad it was done. At the same time I may tell you now, that if it had to be done again I, for one, should hesitate to face the difficulties. It was, however, better for it to be carried out while so many of the older members were actively engaged in the work, and when the rearrangement of the Royal Institute of British Architects (with which some of us had a great deal to do) acted as an additional reason for changes in the local societies. Then, again, the older members here were at that time so intimately connected with the Institute, and also with the different provincial Societies, that the status and influence of this Society could be kept up during the changes necessary in its reconstruction. The Society had built up its position during the preceding quarter of a century by hard work and a considerable expenditure of both time and money, and it was essential that this position should not be jeopardised; and by the course taken, instead of the reconstructed Society falling back and, as it were, commencing *de novo*, it was enabled, not only to retain its former position, but to continue its work with increased vigour.

One of the results of the change has been, as you are aware, a considerable increase in the number of members, principally younger men with new ideas and new blood, and this must and will in the end be of great service to the Society. Of course, there are always little difficulties arising in such an event, but these will, I am sure, in time pass away. It seems to me that I can already notice a considerable difference in this respect, a quieting down, as it were; and I look forward to the time when the same intimate acquaintanceship amongst all the members will

prevail as was the case in the former period of the existence of the Society. Before I leave the subject, I would wish particularly to mention that in this, as in most other Societies, the actual work is carried out voluntarily and gratuitously by all the officers for the benefit of the whole of the members, and that, consequently, a very great expenditure of time (and it must not be forgotten that time is money) takes place by those gentlemen who accept office. I put it plainly therefore to you, that it is the duty of every member to assist in making this sacrifice as light as possible. Let every member consider that he is practically in training for office, that some day he will fill the office of Honorary Secretary, Member of Council, Vice-President or President, and that then he will in his turn have to suffer from the inconsiderate conduct of others. What I most particularly refer to is inattention to regulations, thus forcing the Secretaries to make repeated applications for things which should be done at once and without notice; non-attendance at meetings, thus possibly rendering a meeting inoperative, and so wasting the time of those members who have attended, very likely at considerable inconvenience to themselves; and disregard of notices sent which require answering. These matters render the different offices intolerable, and may result in alienating from the Society many members who have been and are still its best friends. The attendance at meetings is of the greatest importance. As you are aware, the Council meets at five o'clock generally, transacts its business, and then most of the members remain and attend the General Meeting at 7.30. Many members remain in town at considerable inconvenience so as to do their share in the work; and I can assure you that it is not by any means pleasant after waiting the stipulated time, half-an-hour, or till 8 o'clock, to find that there is no quorum, that no business can be transacted, and that the entire evening has been wasted. This is not a fancy grievance, but has occurred many times; and in one instance it was not till the third meeting that a certain piece of business could be transacted, the two former meetings having been abortive.

Now, to turn to another subject, the Society has since its reconstruction sustained a great loss in the death of five of its members, Messrs. Elgood, Tuke, and Crowther within a few days of one another in March 1893; Mr. Maxwell in September 1893; and Mr. Lawrence Booth in July 1894, all men of high position and character. Mr. J. S. Crowther was the least known personally of all, but perhaps the best known by his works, which were mainly of an ecclesiastical character.

We also in March 1894 lost our old friend, the Honorary Legal Adviser, Mr. J. H. P. Leresche, a gentleman who has been connected intimately with this Society for the last ten years. His death will, I am sure, be felt very much by many of the older members who had known him years since when he was practising at the Bar. He was a sound lawyer, kind and genial in his manner, and a good man, and he will be missed by many people. He was elected into the Society during my former Presidency in 1884, and I regret very much that one of my first duties after my re-election this year should be to refer to his passing away from amongst us. I may here say that this office has been filled up by the appointment of Mr. William Goldthorpe, barrister-at-law, a gentleman well known to most of us, and one who will, I am sure, be a worthy successor to our late friend.

Against these losses the Society has gained by the advent of several new members, who, I hope and believe, will in time become energetic and good workers.

Turning now to the work of the Society, there are many matters which have still to be dealt with and which are of considerable importance. Competitions still give trouble, and disappointments arise in consequence. The action taken by the St. Helen's Corporation in connection with

the technical school is an instance. This was a case in which designs were invited for a building to cost a certain sum, an assessor being named. Designs were sent in, amongst which were those by a firm, members of this Society, who had great experience in this particular branch of work. The assessor placed their names first on the list, at the same time stating that, in his opinion, none of the designs could be carried out for the amount named. No doubt this was correct. The authors of the designs named by him as worthy of the premiums were therefore requested to reconsider their respective drawings, and to report with a view to reducing the cost to the amount named. This was done, and additional drawings were prepared, showing the modification suggested. They were re-submitted to the assessor, who again placed our friends' design first. Shortly after, the authors received from the Corporation a cheque for the first premium—I think, £100—and a note thanking them for their attention, and informing them that the carrying out of the building had been placed in the hands of the architect who was placed second in the assessor's list.

Now, Gentlemen, the course taken by the Committee opens out a matter which it will be well for those entering into competitions to consider carefully, as I think I may say without fear of contradiction that very few persons enter into competitions (excepting for very large and important public works) simply on the chance of gaining one of the money premiums, but that they do so on the implied understanding that if they are successful, so far as the assessor's opinion is concerned, and if their position is such as to leave no question open as to their ability to carry out the work, the building will be placed in their hands. The firm in question can very well afford to disregard any suggestion of want of ability or position; in fact, no such suggestions were attempted. The result, however, was not only annoying, but it strikes at the root of that confidence which should subsist between the profession and the public in these matters; and there is no redress, as the conditions carefully provided that the Committee should not be bound to employ any of the authors of the designs submitted.

It would be well in future to examine carefully the terms of a competition, and note whether the Committee reserve the right either to employ the successful competitor or not at their option, and then act accordingly.

The question of builders depositing their priced quantities is one which has also engaged the attention of the Society, as this is a matter of considerable importance. It is, however, a difficult matter to deal with, as underlying the whole is a suggestion of fraud on both sides. I put this in plain English, because, in my opinion, it is no use dealing with side issues while the very root of the matter is ignored. The architects charge some of the builders or their sub-contractors with manipulating the prices in the quantities before they are produced at the final settlement of the account; and the builders retaliate by charging some of the architects with opening the quantities when deposited, examining the prices, and re-arranging the materials and workmanship during the carrying out of the work, so as to be able to deduct matters which have been highly charged and to substitute others in which the prices are low. Now, this is, in my opinion, on either side simply a fraud, and I feel unwilling to believe that any architect or builder having any pretensions to position would take such a course, which, if found out, should result in the architect being requested to retire from any professional society and the builder being practically boycotted. Assuming it, however, to be the desire of both parties to act straightforwardly and to prevent suspicion, there should not be any difficulty in dealing with the question so as to take it out of the power of either party to act unfairly; and I see no reason why a schedule or copy of quantities priced out should not be sealed up and deposited in the joint names

of the architect and builder with some independent party—say, the referee named in the contract, or placed in the joint names of the parties in a “safe deposit,” if such exists in the town, or at a banker’s, where it would remain and be available only on the joint application of the parties.

I think, however, that a considerable amount of the difficulty will be found to exist between the builders and the sub-contractors, and that if contracts are divided and given separately to the different trades, the difficulty will cease to exist. This course, however, is not as convenient to the architect; hence it has not up to the present time found much favour with them. It is a matter, however, to be considered now.

It is of importance that some list of prices should be arranged before the contract is entered into, or otherwise difficulties arise in many cases in squaring up the accounts. We all know the remarkable difference which exists in the value of work in additions or in deductions, and we also know the great expense of a dispute. At the same time, I cannot help thinking that much of the difficulty arises from a want of tact on the part of the architect, and also a want of consideration in pricing out additional works in accordance with special circumstances. A hard and fast line in dealing with schedule prices is in many cases neither just nor proper. All the attendant circumstances should be carefully considered, and also the time at which the work is executed. Many of these matters have come before me in references, and I have seen items priced by the architect in a manner which certainly justified a positive refusal on the part of the builder to accept them; and on the other side, I have seen prices equally unfair for additions, and deductions either entirely ignored, or put down at ridiculously small prices on the chance of their being passed, claimed by the builder.

The whole matter in dispute is one of confidence. Many well-known architects will not, I am sure, have any difficulty in dealing with the question in their own practice; while others, equally honourable but perhaps less known, will be troubled. I am afraid the matter will have to remain *in statu quo* until the architect and the builder have mutually gained that confidence in each other which is really required and which ought to exist.

The decision of the Builders’ Association notified by the circular sent to the Council of this Society, dated 22nd May 1894, to the effect—that the priced quantities shall not be given up to the architects unless they are made part of the contract, but that, if required, they shall be produced at the final squaring up of the building for the purpose of settling the accounts—was at once accepted as a settlement of the question so far as this Society was concerned; but this was withdrawn by the builders in a second circular, dated 20th June 1894, which was as follows:—That the priced quantities shall not be given to the architects, but that if so requested, they shall be produced at the final squaring up of the building for the purpose of settling the accounts.

This, I need hardly say, is useless in a general sense, as it does not deal with the architect’s objection in any way, and there is not the slightest guarantee that the prices are those of the original contract. Difficulties will no doubt be found in small contracts, but I doubt very much whether there will be any trouble in obtaining the priced quantities for large works if it is insisted upon. Competition is very keen now, and I hardly think that the average contractor will allow work to pass into other hands on these grounds. I would suggest for the consideration of both architects and builders the following terms, which, I think, fairly meet the difficulties of the case:—

(1) The quantities priced and moneyed out to the amount of the contract sum to be produced at the signing of the contract, to be sealed up and, in the names jointly of the architect and the builder, deposited with a banker who may be agreed upon, with instructions that the parcel is to be produced only on the joint application of the parties.

(2) The architect to have the right to check the carrying out of the items in the deposited copy when it comes into his hands at the squaring up of the contract, and also to rectify prices on either side which are palpably incorrect (clerical errors), such rectification not in any way to interfere with the contract sum, but to apply solely to additions and deductions or extra works.

(3) All variations from the contract, both additions and deductions, and all extra works to the extent of 10 per cent. above the contract sum, are to be priced out at the rates named in the deposited quantities.

(4) All further additions (above the 10 per cent. extra) are to be considered as additional works, and the prices to be subject to revision or confirmation, to be agreed upon, if practicable, at the time the work was ordered.

(5) All clear deductions from the contract when there are no corresponding additions, or additions to an equal value in similar materials, to be priced out at 5 per cent. below the rates named in the deposited quantities.

These terms are, I think, fair and reasonable as between the parties, and, if adopted, would prevent any suggestions of fraud on either side. But, even in the event of such an arrangement being made, the architect must not forget that in the absence of the priced quantities to guide him it will be necessary for him to be very careful not to over-estimate the value of the work executed when he is certifying for payments on account; and also to be careful that the contract does not state that extras and deductions shall be priced at the same rates as the original quantities, unless at the same time it stipulates that the quantities fully priced out shall be handed over before the work is commenced. In the discussion with the representatives of the builders, the principle of sealing and depositing the quantities with an independent party did not find favour with them. This would lead me to suppose that the complaint made by them of “architects tampering with the quantities” is not a *bona fide* one, and that there is something else in their minds which has not yet been disclosed.

I would here mention another matter which I hope to see carried out. You all know that Manchester is now becoming the great educational centre of the North of England, and from the facilities afforded to students in the way of libraries and other matters, it should, and no doubt will, be a great success.

Now, Architecture, which is so important a branch, has at present no particular status in the educational curriculum at the principal establishments in this city, that is, at Owens College and Victoria University. This, I think, should not be the case, and I hope to see a Chair of Architecture established at this centre, which would be of great use to the profession in the North of England. To attain this end, however, it will be necessary for all of us to work steadily; and in this matter much can be done by the younger members, who must show by their actions that they would appreciate the benefits which would accrue from such a cause.

I confess that I should like to see more of the Manchester students entering for the examinations which have been held here, especially those for the Associateship of the Royal Institute, because this is, after all, the great test of efficiency at present in operation. I would remind you (and I now refer particularly to the younger members) that you are the men who have to succeed us and to take up the conduct of this Society when we pass away at least, out of active participation in the work; and this period cannot, in the natural order of things, be very far distant. Remember that, under the rules of the Society, the President and Vice-Presidents must be Fellows of the Institute; hence there is a serious limit to your position in the Society unless you qualify yourselves—and I can assure you that you will find it much easier to pass these examinations, so as to take these positions, while you are

young, and before you enter upon the serious responsibilities of life, than afterwards.

The Progressive Examinations now going on will, in March or April next year (1895), culminate, I may say, in the Final Examination to qualify for Associateship. Those already held have been Preliminary and Intermediate; and the single Qualifying Examination, which has been held in London and Manchester, will, except under special circumstances, then cease.

I will also take this opportunity to appeal to the older members to spare a little of their time for the benefit of the others in preparing and reading Papers, which will, I am sure, be of interest as well as benefit to all of us. I am perfectly aware that these entail the expenditure of considerable time in their preparation; but after a gentleman has been in practice and actively engaged for from thirty to forty years there must be in the storehouse of his memory a large amount of valuable information on many subjects which cannot fail to be of interest, especially to those just entering life. Even a short, chatty Paper is valuable, as indicating something to induce students to think and read; and accounts of troubles in construction surmounted, defects discovered, and even failures, are of importance to all of us. Such Papers as I have indicated would, I am sure, be of interest, and would make the meetings more popular; and the meetings must be well attended before we can hope for Papers from outsiders to be a success. In this I refer more particularly to the comparatively small number who have attended at some of the meetings at which Papers have been read. Nothing is more disheartening to a lecturer than to find a small attendance, especially if he has, possibly at some inconvenience to himself, travelled perhaps a hundred miles and brought with him a number of exhibits and drawings. His expenses may be paid; but we cannot pay him for the time lost, or for the annoyance of feeling that his services have not been properly appreciated. Our Society numbers something like 135 members of all kinds, and out of that number we should be able to command a good attendance if their hearts are in the work, and if they are really seeking after information. These remarks apply both to seniors and juniors, as I consider it important that the seniors should by their example induce the younger members to attend.

Before I finish my remarks, I would remind you that we have a library upstairs, with plenty of vacant shelf room, and that any contributions to it which can be spared from our own libraries will be most acceptable. Good books are, I know, expensive luxuries, and are not always to be obtained by students excepting at libraries of this description. Of course, there is the Free Reference Library in King Street, but I think a public library cannot be as convenient as one of a private character, where everything is quiet and conducive to study. I appeal to those of you who can afford it to do something towards providing the means of education for those who are not so fortunately situated. Now let me mention a very valuable gift of books recently made to the Library by Mrs. Whitaker, the widow and sole executrix of the late William Wilkinson Whitaker, architect of this city, a gentleman known to very few of the architects of the present day, as he retired from business a quarter of a century ago. He possessed a very fine library to which he was constantly adding. After his death, on the 30th May last, his widow very generously presented about thirty-five volumes of valuable books to our Library, amongst which will be found several by Digby Wyatt; Gally Knight's *Antiquities of Italy*; Carter's *Architecture*, and others. In addition, she supplemented the gift with a sum of money for the purchase of other books.

Now a word to the students. I sincerely advise you to work and read, and take advantage of every opportunity which may come in your way of obtaining information, not only in the artistic and theoretical part of the profession,

but also in the practical part. Remember that at the present time an architect must not only be master of the practical as well as the artistic part of the profession, but he must also be a thorough business man if he is to succeed, and if he does not intend to remain simply a clerk. Look around, and you will find that the majority of the successful men in the profession are, in addition to their artistic capabilities, clever and reliable business men—men whose advice is sought after in many matters not purely architectural or artistic. Therefore, while I do not for one moment suggest that the artistic part is to be neglected—far from it, as it should be the foundation-stone of the whole—still by all means cultivate the practical and business part, and lose no opportunity of gaining experience. Also, remember that even a good and correct opinion may be spoiled by the manner of expressing it; therefore cultivate the habit of putting your thoughts on paper for future reference. There is a great art in writing and in expressing your views clearly. Again, do not be afraid of asking questions. The days are happily passed in which the seniors attempted to keep their information and experiences to themselves, and a more just and generous time is now running. Every right-minded man will gladly hold out his hand to assist the younger members of the profession; and in stating this, I am sure I am but expressing the view of all my professional brethren.

Now, Gentlemen, I have spoken very plainly to you, for which you must pardon me. Remember that the Society occupies, and always has with me occupied, a first place. I have seen it grow up from a very small and unimportant one to one of now considerable importance, both in position and numbers, and for something like twenty-two or twenty-three years I have never been out of office—first for over eleven years as Honorary Secretary, following my friend Mr. Murgatroyd, and consequently having a hard road to travel; then as President, and afterwards as Member of Council and Vice-President. Even when I should have had a year's respite following the Vice-Presidency I happened to be a member of the R.I.B.A. Council, and consequently remained Member of the Council of this Society.

You will therefore see that, as far as I have been able to do so, I have not spared myself, and I have endeavoured to keep up the status of the Society and to further its interests. I now ask you all to do your utmost in the same direction; and, if you do, there is no doubt that we shall not only retain the position in the architectural world which we have already gained, but shall make it more pronounced.

THE LIVERPOOL SOCIETY.

On the 8th Oct., at the Opening Meeting of the Forty-seventh Session of the Liverpool Architectural Society, the following Address was delivered by the President, Mr. Henry Hartley [F.] :—

GENTLEMEN, — I have already made my public acknowledgment of the honour you have conferred upon me in re-electing me President of your Society; and at this the opening of our forty-seventh Session, when we resume our work after the summer recess, and bid you welcome, I trust to find you, one and all, ready to perform with renewed vigour the duties that lie before us. I regret, however, that the very first note in my opening Address must be in a minor key and one of sadness. The name of Joseph Boulton is as a household word to all of us, but by those who were associated with him in the years that are past he will be long remembered as an active and able worker in our Society. Few men worked more vigorously and more untiringly for the establishment and prosperity of our Society, did better work, or sacrificed more time in his efforts to build up its position and its usefulness. We may not have agreed at all times with some of his theories, but I feel sure there are none who will not acknowledge his devotion and work.

The few months that have elapsed since we met have not been crowded with events of any special interest to us, but there are one or two that demand notice; others, indeed, of the greatest importance are of such moment that the whole of our future may be influenced by them.

I cannot refrain from mentioning the generous and noble gift of Mr. Philip Rathbone in presenting to the town the six panels in the east front of St. George's Hall. The commission of designing and carving these panels was entrusted to Mr. Stirling Lee, and they have been executed with the feeling and artistic finish that we look for in his work. If any of those whom I address have not yet inspected them, I would invite them to do so, feeling sure that they will then agree with me that such a gift is one worthy of the honoured name of the donor, and of the noble building of which we Liverpoolians are so justly proud. Surely this example of private generosity should set our City fathers to work, and inspire them with a determination to complete the panels remaining; and I hope to bring this matter before the members of the Society at a later date, with the object of asking them to petition the Corporation of the City to carry on the work so generously begun, in the hope that this noble pile may yet stand finished and complete as designed by the architect, a monument of his genius and worthy of the best traditions of our town.

The Congress of the Sanitary Institute has so recently concluded that it is hardly necessary to say much about it, for we have still one of its creations surviving—I mean the Health Exhibition. I feel, however, that I ought not to let it pass without expressing my satisfaction at Liverpool having been selected as the place of meeting this year, and the consequent advantages we have had in attending the discussions and listening to the admirable Papers on subjects which must always be of interest to our profession. Such subjects as “The Housing of the Working Classes,” “and the Sanitary powers relating thereto,” “Tenements, Houses, or Dwellings in Flats,” “The Purification of Air emitted from Hospitals,” and subjects connected with drainage, ventilation, water supply, and the like, are of essential importance to the welfare of the nation at large, and must ever be of the greatest interest to those engaged in our profession when dealing with buildings in our crowded towns. Bound as we are to cultivate what is beautiful and true in art, what will elevate and ennoble the mind, we are at the same time compelled to see that we have the most perfect sanitary conditions and the most healthful surroundings that science and practical experiment can suggest; and as our population is ever gravitating to our large centres, and the evils of centralisation increase, the greater is the need to be prepared to cope with the serious questions which arise in the erection of our town dwellings. It is gratifying to learn that no previous Congress of the Sanitary Institute has been attended by such large numbers; and, in the judgment of those qualified to express an opinion, none have been in all other respects so successful as the one just closed.

And now, Gentlemen, I approach the subject which interests us more personally—I mean the establishment of the “School of Architecture and the Applied Arts.” It affords me the greatest possible pleasure in formally introducing to you Professor Simpson, who has been appointed by University College to the Chair of Architecture, and who is also the Director of the School. There can be no question that we may congratulate ourselves at the opening of this Session of 1894 on the establishment of this new and fully-equipped educational organisation. The scheme is already manned with an able professor and skilled instructors, and will be formally launched in the course of the next few weeks. Professor Simpson, who comes amongst us as a practical architect of known and recognised ability, supported by testimonials of the highest order from the leading men in the art world, is to have associated with

him Mr. Aning Bell, the painter and decorative artist, and Mr. Allen, the sculptor, both gentlemen of recognised ability in their respective professions, together with skilled instructors in wood-carving, modelling, iron and brass work, &c., so that nothing will be wanting to make the new school a great power in the education of the rising generation. With wider knowledge and improved opportunities, together with increased proficiency of technical and artistic skill in the various arts and trades associated with architecture, I look forward confidently to a marked advance in the practice of our art.

The only thing, as far as I can foresee, now necessary to establish the new school on a firm and satisfactory basis is the hearty co-operation or support of this Society, as well as the active assistance of the members of our profession and of the public generally. I have already from this chair placed before you the duty that lies upon you of collectively and individually helping forward the scheme by every means in your power, and I can promise you not only the satisfaction of advancing a scheme of general interest but of personal advantage, for the pupils who in the future enter our offices will be already versed in some of the detail, and have a fuller knowledge of the theoretical and mechanical part of their work, than pupils have hitherto had, so that instead of having to deal with raw material—and some of it the most unpromising and unworkable of its kind—we shall have students who have already gained more than a rudimentary knowledge of the profession they propose to follow, trained by systematic study, and ready to proceed with the acquisition of the further knowledge to be acquired only in the work of the architect's practice. As to the students themselves, I cannot over-estimate the importance of the opportunities which this school will open up to them. They will be able, in a regular and systematic course, to acquire knowledge which, under the old conditions, had to be picked up at irregular intervals and from doubtful sources in the busy office of the architect to whom they were attached. Further, it will give them the opportunity, before being formally attached, of testing their abilities, and of satisfying themselves that the profession of architecture is the one which is most congenial to their tastes and abilities, and to which they are prepared in the future to devote their energies and their lives.

We cannot forget that our Society is allied to the Royal Institute, and all of us are proud, as members of this Society, to belong indirectly to that venerable institution; but many, and indeed I hope all our younger members, are anxiously looking forward to become Fellows or Associates of the Institute at some not far distant time. To attain this end it is necessary to qualify by examination; and I have here before me particulars of the new Progressive Examinations, embracing the two examinations which must be passed before the student can enter for the Final or Qualifying Examination, and also a Form of Application for such architects and chief assistants as may apply to the Institute Council for exemption from passing the Preliminary and Intermediate Examinations and from submitting testimonies of study. [The President gave a description of each of the Progressive Examinations, as explained on the several Forms of Application distributed among the Allied Societies.] To those who desire further information on the subject I shall be glad to give any assistance in my power, and for their guidance I propose to leave the papers sent me in the students' room so that they may be referred to at any time.

Now to return to the School of Architecture. Although the School has not been established with the sole object of preparing pupils for these Examinations, the educational course will include, *inter alia*, the necessary subjects to enable young men to qualify for admission to the Institute Examinations.

I trust you are able to realise the importance of these

advantages. In past years our Society has endeavoured, and I may say has, to an extent, successfully endeavoured, by the devotion and self-sacrifice of a number of our members, to provide courses of lectures to students so as to help them to qualify for their examination; but the new school will provide a more complete and more perfect curriculum of study, and will give our future students advantages that few, if any, provincial towns enjoy.

THE SHEFFIELD SOCIETY.

On the 11th Oct. the Sheffield Society of Architects and Surveyors held the opening meeting of the Session, with the President, Mr. E. M. Gibbs [F.], in the Chair. The rooms of the Society of Artists of Sheffield were kindly lent for the occasion, and the opportunity of inspecting the rare works of art there collected was much appreciated by the large number of visitors present. On view also were the sketches and measured drawings of ancient buildings of the district, executed during the past summer months by the younger Associates and Students, and submitted for the prizes of the Society. The President, in the course of a brief address, expressed the great satisfaction of the Council at the excellence of the work done by the Sketching Class, the credit of which was largely due to the efforts of the instructor, Mr. J. R. Wigfull [A.], *Inst. Silver Medallist 1894*. Out of consideration for the numerous lay visitors present, Mr. Gibbs forbore to touch upon professional topics, but gave a short sketch of the objects and work of the Society. The latter, he said, was largely educational, whether in the form of lectures and discussions on special subjects, and the formation of a library for the benefit of all the members; or in the form of classes on the study of the history and styles of architecture, for sketching, for designing, and on surveying and levelling, for the benefit of the younger members. The work of the Sketching Class exhibited was only a small part of the educational work of the Society. The Society was also active in matters relating to professional practice, and desired, whilst protecting the interests of the profession, to command the respect of the general public, by maintaining the honour of its members, and the standard of their ability to solve successfully the complex problems of modern building and surveying, by combining the most perfect arrangements of plan, the best construction, and the most artistic conception and finish, with the soundest advice as to values and costs, and the practical superintendence of the work.

The final business consisted in the presentation of prizes to the members of the Sketching Class, the first of which was awarded to Mr. Frank W. Chapman, and the second to Mr. J. C. Amory Teather.

THE GLASGOW INSTITUTE.

On the 16th Oct. the annual meeting of the Glasgow Institute of Architects was held in the Religious Institution Rooms, Buchanan Street, Glasgow, Mr. W. Forrest Salmon [F.], the President, in the Chair. Mr. C. J. Maclean, the Secretary, submitted the Report of the Council, which made feeling reference to the death of Professor Veitch, who was one of the few Honorary Members of their Institute, and of Mr. James Hamilton, 112, Bath Street, who was one of the original members, and well known in Glasgow and the West of Scotland as a man of ability. Messrs. J. Lindsay, J. Miller, and W. J. Boston had been admitted to membership during the year. The number of ordinary members on the roll stood at 52.

The conditions of competition for the Govan Congregational Church, which were not in accordance with the Suggestions recently adopted by the Institute, were under consideration by the Council; as were also the terms of competition for a public hall, freelibrary, and other buildings at Kirkcaldy, and the Paisley Grammar School and Academy. The Council, when sending copies of the Suggestions to

the promoters of these competitions, took occasion to point out that the Suggestions were framed in the interests of those in charge of the competitions, as well as of the competitors themselves. As it was considered desirable that the Suggestions should be more widely circulated, copies were sent to the leading firms of measurers, lawyers, and accountants in Glasgow.

With regard to the representation of Allied Societies on the Council of the Royal Institute, the latter Body had been asked to consider the advisability of putting the Glasgow Institute in the same position in this respect as the Royal Institute of Ireland, for so long at least as no Allied Society existed in Edinburgh. The parent body in London had thereupon resolved:—"That until Edinburgh become an Allied Centre, there shall always be on the Council of the Royal Institute the President of some Allied Society in Scotland, and that it shall be the President of such Allied Society as contains the largest number of members of the Royal Institute, provided such President shall be a Fellow of the Royal Institute."

An intimation had been received from the Royal Institute that if six persons as a minimum in the Glasgow district were admitted, either to the Preliminary Examination held in February last, or to the single examination qualifying for Associateship held last March, the Glasgow Institute would be asked to take charge of those examinations. The Council had agreed to accept the charge, and had appointed two Committees to carry it out; the first, consisting of the whole Council, to take charge of the Written and Graphic examination; the second, consisting of the Fellows of the Royal Institute, who were also members of the Glasgow Institute, to conduct the Oral examination. In the case of the Preliminary Examination, a sufficient number of candidates had not come forward; for the other Examination, six candidates entered themselves, and the examination was proceeded with under the charge of the Committees. Of the five candidates who presented themselves, all passed. The last of the single examinations would be held in November in London and the provinces, after which the system of graded examinations, promoted by the Royal Institute of British Architects, would come into full force.

The Alexander Thomson Memorial Prize was won by Mr. John H. Craigie, of Shawlands, and a Committee was appointed to arrange with him regarding the tour he is to make in terms of the conditions of the competition. The Standing Committee on Public Architecture have had under consideration the designing of the public buildings of the city of Glasgow, and, on their initiative, the Council of the Institute are in correspondence with the Lord Provost on the subject. The Council were again in communication with the Police Commissioners regarding the promised exhibition of the plans of the bridges proposed to be erected over the Clyde; and a letter was received from the Commissioners stating that the original drawings of the proposed bridges had been departed from, but that the Institute's suggestion as to the public exhibition of the drawings would be kept in view when new drawings had been fixed upon. A course of lectures on Mediæval Architecture would be delivered in the Corporation Galleries during the coming Session.

The President, in moving the adoption of the Report, said that the question of employing architects for the erection of public buildings had come up during the past year. Surely it must be to the public advantage that architects of the greatest experience should be appointed to design and superintend the erection of public buildings. The employment of independent architects would not cost a penny more than the present system. If this course were pursued, public buildings in Glasgow might be more worthy of the city, in whose welfare and advancement all were interested. The Institute knew that the Lord Provost himself was very much interested in the architect-

ture of Glasgow, and they therefore hoped that something might result from their suggestions in this direction. Why should not every building erected with the citizens' money possess those qualities of fitness and beauty which would command for them the praise of future generations?

THE BIRMINGHAM ASSOCIATION.

On the 2nd Nov., at the opening Meeting of the Session of the Birmingham Architectural Association, the following Address was delivered by the President, Mr. William Henman [A.]:—

GENTLEMEN,—The honourable position in which I am placed by your goodwill, for which I now tender to you my heartfelt thanks, confers both privilege and duty. Strengthened by a cheerful continuance of your favours and support, let me assure you it will be my endeavour to employ the privileges and perform the duties of the office of President in such manner that the interests of our art in general may, at least, be maintained, and those of the Birmingham Architectural Association may, if possible, be advanced.

In opening this the twentieth session of the Association, I not only congratulate you upon the success of that just past, as set forth in the Report of the Council, but also upon the excellent programme which has been drawn up for the coming session. The subjects to be brought forward by able men are such as will, I am sure, secure large attendances of members and our friends.

"Architectural Education" is first on the list, and I venture to predict that the Director of our City School of Art, Mr. E. R. Taylor, will tender sound advice as to how a sure foundation may be laid by those who aspire to succeed in our arduous profession.

Then comes Mr. F. R. Farrow, who will give his experiences of the preparation necessary for passing the R.I.B.A. Examinations—those tests which, by our leading Society, have been put into operation in order that each may prove whether or not the foundation be truly laid whereon to raise a fairly proportioned architectural reputation. I have no intention to trench upon ground over which Mr. Farrow will lead you, but may just mention that in the spring of next year the Institute will conduct an examination to qualify for candidature as Associate R.I.B.A. on new lines, particulars of which have been issued, and will be placed in this room for reference.

Urgently would I recommend all members of this Association who are qualified and have not yet entered upon active practice to submit themselves for examination at the earliest opportunity. No greater mistake can be made by a student in architecture than to defer this test until the pressure of actual business makes it so excessively arduous that he is compelled to forego it. It is true that at present the Institute makes concessions to such; but shortly those concessions will be withdrawn.

Now that it is realised that examinations should be proof of knowledge, rather than tricky traps to trip the timid, the Institute has, in my opinion, done well to make them Progressive, viz. Preliminary, Intermediate, and Final. Any youth on leaving school ought to pass the first. Two years' pupilage in the office of a practising architect, together with personal study, should carry him through the second. Another year in that office, and a year as improver or assistant in another office, with further individual application, should secure success in the third.

In my early student days such matters were only talked about. Then came the somewhat unsatisfactory Voluntary Examination, which by many of us was regarded with little favour, as likely to show up our ignorance, with no compensating advantages to those who were successful; but now, let me remind you, membership of the Royal Institute can only be secured after success in examination.

Let none here present look slightly upon that distinction, because, now that the scheme has been fairly

launched, the public will assuredly in time come to realise its importance; and although one here and there highly gifted may possibly attain success without having officially proved his metal, the ordinary practitioner who has not done so will undoubtedly be heavily handicapped; and even the genius may thereby earlier gain favour, and eventually soar to greater heights than without that systematic study which alone would enable him to pass successfully the Institute Examinations.

Unfortunately, there are a few able men in our profession who not only do not support the Institute in the matter of examinations, but even go out of their way to speak and write against it, asking the question: Is architecture an art or a profession? In answer, I would say that to some it is an art; that to others it is a profession; and that, unhappily, to some it is but a trade. Examination will not, assuredly, change all this, yet there is little fear that the art of architecture will suffer by systematic study on the part of its votaries; and as the proof of it is now the key of admission to the ranks of the Royal Institute, there is good reason to believe that in time our patrons, the public, will recognise the difference between those who degrade architecture to the level of a trade, and those who, by suitable preparation, practise it as an art. The importance of this subject, particularly to the junior members of this Association, must be my excuse for this digression.

I will now return to our programme, and find that early next year Mr. J. A. Cossins will discourse on "Restoration of Ancient Buildings." It is right that reverence for the work of past ages should be inculcated, and although Mr. Cossins has in the title of his Paper made use of a word which, as popularly understood, is looked upon as a reproach in connection with ancient buildings, I feel sure that his experience and good taste will lead him to make it clear that "Restoration" should imply the conservation of the art of the past, and not modern reproductions of old work, far less the wanton destruction of that which is venerable. Next we are to hear from Mr. Robert Hamilton something of the architectural excursion to Italy, and no doubt somewhat of those marvellous buildings from which architectural inspiration has been drawn for use in almost every civilised country of the world.

The "Preparation of Drawings for the R.I.B.A. Prizes" is the subject selected by Mr. H. R. Appelbee. This carries me back, in thought, well-nigh a quarter of a century, to my student days. What keen relish was experienced in those friendly rivalries! What magnificent "castles in the air" were then sketched out, as little likely to be actually realised as the palaces on paper which, confident in our immature experience, we hoped would carry off the coveted prize! Relish more keen, I venture to say, than that which, in after years, has been experienced competing for work, when it became a question of bread-and-cheese; for then, to a sensitive mind, the fact would assert itself that only one could win, while disappointment would fall to the lot of many.

I am glad to find that Mr. Wenlock Rollins promises to give his ideas as to the "Modelling of Architectural Ornament." Mr. Rollins is a sculptor, and, to my mind, something more than that term generally implies; for, if I judge aright, from my knowledge of his work, he cannot only develop an idea of his own artistically in wax or clay, and transfer it to bronze, stone, or marble, but is, in addition, willing to work out an idea originated by an architect, and make his work harmonise with the design, and thereby truly add to the embellishment of the building.

Mr. W. F. Newton has taken up the subject of "The Planning and Decoration of Small Houses." Therein we know he is at home, so may expect from him some useful hints. "School Planning," on which Mr. Henry Beek will give us his views, is worthy of our careful attention, for I consider it is capable of higher developments.

Last, we have Mr. Herbert Lloyd, who, with the aid of a lantern, will show us some of the charmingly characteristic English Architecture of the Broadway District, and, no doubt, whet our appetites for the delights of collective study on future summer excursions. In addition to these various subjects of interest, members of this Association will have opportunities for mutual study in the classes of design and construction, and are invited to attend the able lectures of Mr. Bidlake in the School of Art, which it is hoped may attract many.

Even so slight a review of the bill-of-fare for the coming session must convince you of the vitality of this Association, and it leads one to ask why it is that we should band ourselves together thus to employ time and devote energies to the study of various problems connected with architecture. Of the many reasons which might be given in answer, there are two which probably stand foremost. As to the relative position in which they are esteemed by each one individually will depend greatly whether architecture is by him to be practised as an art or to become a trade. The reasons I have alluded to are, that we may fit ourselves to gain a living; and that by our works we may add to the health, the comfort, and the enjoyment of our fellow-beings.

If the former usurp the primary place in our estimation, the latter will probably lag behind, and perhaps be ultimately forgotten; but if the latter take the lead, the other will go hand in hand therewith; for, hard as the battle of life undoubtedly is, experience proves that reasonable thought exercised for the common weal rarely goes unrewarded, even in this world. By taking a lofty view of our noble art we shall realise that the welfare of each one of us should be to the advantage of many—ourselves included; for there is scarcely a phase of civilised human existence which is not made more healthful and pleasant—or the reverse—in proportion to the knowledge, ability, and care of the architect.

My observation leads me to this conclusion—that every well-designed building, carried out with care, develops continually a desire on the part of communities for other attempts to be made. It is true that rivalry is set up, but not always of an objectionable character. The late Mr. Edmund Sharpe told me that in perusing mediæval writings he was struck with the frequently displayed ambition of various sees, monastic and ordinary, ecclesiastical as well as civic communities, to outshine one another in their architectural efforts. This desire to excel not only results in work for architects, but adds to the importance and welfare of our cities and towns, in the present as in the past ages. It would, therefore, be a good thing if every local authority truly realised this, and that their laudable ambitions were ably given expression to by every architect. Communities would then consider it a reproach if their public buildings could with reason be adversely criticised. Individuals would vie with one another to have architecturally good and convenient business premises as well as private dwellings, and capable architects would be honoured and patronised as they deserved.

Some advance in this direction has, during the last few years, been undoubtedly made, but that “love of money, which is the root of all evil” and the bane of good architecture, not only stifles the art, but disfigures every building with hideous signs and letterings, which make offensively prominent the names of those devoid of good taste and anxious to puff their questionable wares. The time has come when the public should protest against this vulgarity, and local authorities should obtain powers to suppress it, as in old times Acts of Parliament were passed to curb the excessive display of signboards which, compared with modern advertising methods, were greatly to be preferred for their generally artistic treatment and effect.

If, instead of detaining students for hours together in overheated and badly ventilated class-rooms of our schools

of art, daubing paints and laboriously stippling, they were frequently conducted through the streets of our cities and towns, under the guidance of men of taste, and taught to appreciate the good in architecture, to despise what is base and degrading thereto, to observe the inartistic design of our lamp-posts, street nameplates, and other efforts of officialdom, we might hope that the next generation would not be oppressed by so many impecunious painters of mediocrity or the exhibitions flooded with their puerile productions, but in their place would grow up a healthy majority of men and women capable of appreciating that which is artistic, who would at least insist that our streets should not be made hideous as they are to-day, together with a minority of trained artists who would give suitable expression to the desire for beauty to reign in public places, as well as in private houses.

Such a revolution in popular artistic perception and work can only be brought about in the course of time; it must necessarily be of slow growth; but if never a voice be raised against the present deplorable state of things, they will go from bad to worse. Let me, then, urge all here ever to use their eyes; and when they are assured their judgment is ripe, to condemn without fear or favour what is false and vicious, yet never to grudge commendation to that which is true and worthy in art or in relation thereto.

In this age of hurry it is well that some things move slowly, in the hope that when times are ripe and ideas are matured men may rise endowed with power worthily to carry out desired objects. May this be the case with regard to our much-talked-of Birmingham Cathedral, so that when, some years hence, it is proposed to raise a memorial to a good and worthy Bishop or honourable and honoured citizen, and it is decided a cathedral shall be built, public appreciation of architecture may be so far advanced that the question will never be raised, as it has been this week, whether it would be practical to “convert a Grecian (?) Church into a Gothic Cathedral.” But if the taste and demands of that day determine that the site of St. Philip’s Church shall be that of Birmingham’s Cathedral, then I for one, although I give place to none in reasonable reverence for work of the past, and much admire the tower of that church, sincerely hope it will not be allowed to influence the style of a building which must necessarily be of greater importance; nor that it will simply make way for a “Gothic cathedral,” but that the inhabitants of the city and neighbourhood will, with one voice and open purse, demand that the building shall be worthy its position, designed by able hands in the best style of the period.

As in the daily routine of our practical work we are all too frequently compelled to pass quickly from ideal thoughts to the commonplace, so must I now direct your attention to a prosaic matter of importance to the public as well as to our profession. For some time past it has been evident that in many districts there is friction between architects, on behalf of their clients, and the action of local authorities—or, to be more exact, the officials of such authorities.

During this week alone I have, as President of this Association, received two letters, one from a more northern city, the other from nearer home, calling attention to grievances, and asking that some united action may be taken to remove them. In one case it has reference to the depositing of plans, and the arbitrary manner in which they are passed, rejected, or deferred; and in the other case, to assistants in the office of the surveyor to a local authority undertaking work in connection with the building or alteration of premises.

I do not intend to enter upon these matters in detail this evening, because they have not yet been sifted by your Council; but I mention them in order to request that if any member has reliable information upon such or kindred

subjects, he will communicate it at once to our Hon. Secretaries. Fortunately, we have in Birmingham at the head of the Surveyors' department a gentleman capable and willing to take a broad and reasonable view of whatever may be brought before him. I refer to Mr. William Till. During last session he was approached with regard to some matters in connection with the building by-laws of the city, which, however, in consequence of the illness from which he has only recently recovered, have been allowed for a time to drop. In this city, by judicious action, I do not doubt that real grievances or hardships can, and will, be righted; but in localities under the rule of autocratic surveyors and I am sorry to say there are such—reform may be more difficult. So long as paid officials are allowed to dabble in architecture, even reasonable by-laws framed for the protection of the public health may be made vexatious, and employed to bring grist to an illicit mill.

If Architectural Societies take this matter up, as I believe they may ere long, it must not be in the spirit of trade unionism or for selfish ends, but in true regard for the public welfare. I question very much whether our building by-laws, although ostensibly framed with that object, attain it as they should; partly because they practically "strain at a gnat" in their want of elasticity on many unimportant points, and "swallow a camel" by the open mouth they leave through which evasion is possible on points of true importance.

Look at the inconsistency in their administration throughout the Provinces—Metropolitan methods differ, and therefore are excepted—which relieves trained architects of their proper responsibilities by the intervention of comparatively uneducated building inspectors, who probably suppose *kudos* is to be gained by bringing to the notice of their local boards architects of repute for disregarding the letter of a by-law, while the jerry-builder goes safe, regardless both of the spirit and letter of by-laws and of the health of individuals and communities.

If there is to be reform in this matter, I venture to suggest that better building and greater attention to matters connected therewith in relation to safety and health might be secured by a few simple by-laws dealing broadly with important matters—such as the width of streets, height of buildings, and open spaces about them, sanitary conveniences, and the like—if properly trained architects alone be permitted to design and superintend the erection of buildings, and they, as well as the owners of property, be held responsible for permitting the doing or omission of that which is proved will, or actually does, jeopardise the safety or health of the public, either individually or collectively. By such a system the cost of an army of inspectors would be saved, and better work would be produced, because architects would know their reputation to be at stake, and the public would learn that the services of those who have been properly trained are cheapest and best.

May our meetings here in part help on that education which will fit us for those happier days, so that when the call comes to anyone, he may prove that architecture is an art which not only gives enjoyment to the cultured, but can contribute to the health and well-being of his fellows, and bring him suitable reward!

LEGAL.

Alterations to House—District Surveyor's Fees.

MACLACHLAN v. LISTER.

On the 19th ult., at the Mansion House, Mr. MacLachlan, District Surveyor for the western division of the City, summoned Mr. Thomas Lister, a builder, for fees, under the Metropolitan Building Act, for the surveying of alterations to a house in Fleet Street. The claim was resisted

on the ground that the alterations were not within the Building Acts. They consisted in the construction of certain closets—which are subject to the Public Health (London) Act 1891 and the supervision of the sanitary authority—the erection of two wooden partitions subdividing some rooms within the house by cutting a doorway in an internal partition wall, not a party-wall, and in some consequential alterations in the staircase. The District Surveyor contended that all these matters were within the provisions of section 9 of the Act of 1855. Against him it was argued that that section applied only to alterations which, if they had formed part of the scheme of a new building, would be subject to the rules of the Act as to walls, roof, and construction generally, and that the particular alterations were only internal fittings. This view the Lord Mayor adopted, and dismissed the summons. Application was made for a special case, which has, however, not yet been granted. The matter is one of considerable importance, for if the District Surveyor's contention be right, all partitions and screens put up in City offices are subject to survey, and the Surveyor entitled to charge fees on the scheduled scale for the whole of a large building when only one room is affected. And it is also important in another way, for if these things are subject to survey, a building notice must be given in respect to them.

New Buildings erected on Old Foundations—Failure to give Notice to Vestry.

BERMONDSEY VESTRY v. WILLIAMS.

On the 22nd ult., at the Southwark Police Court, before Mr. Fenwick, Mr. H. J. Williams, builder, and Councillor for Rotherhithe on the London County Council, appeared to answer a summons taken out on behalf of the Bermondsey Vestry, for "that he did, without having given the notice directed by section 76 of the Metropolitan Management Act 1855 (18 & 19 Vict. c. 120), begin to lay the foundation of a warehouse or building at Suffolk Place, Bermondsey." For the Vestry evidence was given that early in the month of August last it was discovered that the defendant had erected a warehouse in place, and on the site, of an old building without having given the notice required under the Act. Counsel for the defence (Mr. Elliott) contended that the act of the defendant did not come within any section of the Building Management Act, and that he had done all that was required by the Act by giving notice to the District Surveyor, with plans, before he commenced the new building; and not having interfered either with the drains or the foundation, no notice to the Vestry was necessary, or could be required. It transpired that, although the old foundations were not interfered with, yet they were not considered to be sufficient for the proposed new building, and a layer of concrete was added, whereupon Mr. Fenwick said that that being the case he thought the Vestry's contention was right, that they should have had notice. Mr. Elliott said this was an important question, and he asked his worship to further consider the matter. Mr. Fenwick consented. Mr. Elliott then said that Mr. Williams was a builder, carrying on an extensive business, and was a member of the London County Council, and therefore it could be understood that he had no desire but to comply with all the requirements of the law. Mr. Fenwick said that if there had been any dereliction in the case it had been done in ignorance, and therefore he would reserve his decision. Commenting upon this ease, the *Law Journal* says there seems to have been some confusion in the minds of counsel and the magistrate between the Building and the Management Acts. Obligations towards vestries arise under the Management Acts, including therein Michael Angelo Taylor's Act, and they have under these Acts the duty of inspecting foundations and drains and of licensing hoardings, quite apart from the duties of the County Council and its surveyors under the Building Acts.



MARBLE MEMORIAL ARCHES, MING TOMBS, PEKIN.

NOTES UPON THE ARCHITECTURE OF CHINA.

BY F. M. GRATTON [*F.*],

Member of the China Branch of the Royal Asiatic Society.

Read at the General Meeting, Monday, 19th November 1894; and, with the illustrations, registered at Stationers' Hall as the property of the Royal Institute.

IT has been often authoritatively asserted that China has no architecture; possibly by reason of its absolute dissimilarity from Western architecture, and because so few examples remain. Much, however, that has been written about Japanese art will apply to China, for there is hardly a form, a plan, or an idea portrayed in the splendid temples of modern Japan which does not find its original in ancient China: the same dwarfed shrubs and trees; the same feasts, festivals, and processions; the same ancestral reverence, the same religions, the same colossal guardian temple gods, and the same architecture. The very novelty and quaint grotesqueness of the decorative treatment of Chinese architecture constitute its great charm; and, for adaptability of style to local circumstances and climate, it can hardly be surpassed by any Western creation of the present or past. Take also its ancient carvings in stone, marble, ivory, and wood; its lacquers and embroideries, its porcelain. True, the absence of perspective in the drawings and paintings places somewhat at a discount the skilful care and delicacy displayed in them; even then, however, it is only relegated to the position held by the ancients whose arts have not been modified by the more advanced teaching of modern times. Undoubted taste and cunning workmanship are shown in much of Chinese artistic work, which arrived at a high state of efficiency, the greatest decadence being placed by Chinese records at from the fifth to the sixth century of our era. It again gradually recovered, though the nation, being an eminently practical one, had not the lofty ideals which have led more poetic peoples to the highest stages of the sublime and beautiful.

Zoroastrianism, Mohammedanism, Judaism, the teachings of Mencius, Taoism, Nestorianism, Buddhism, and the wonderful ethical system of that uncrowned monarch Confucius, who

flourished six hundred years before the Christian era, and whose system has exercised a far greater moral effect upon the Chinese than any other cult, regulating the lives and actions of millions of people for twenty-five centuries, and making the teachings of many latter-day priests sink into nothingness by comparison—these have all aided to form the character of this mighty nation, and produced their result upon her arts. Poor, dilapidated, or almost deserted as some of her cities and towns may be, not one but possesses temples of various forms and kinds. These may be employed to-day merely for impostures practised upon the lower orders by a decaying priesthood; but, in the great majority of instances, they still exercise by their presence and services a vast influence upon the minds of a people saturated to the core with religion—to use the term in its secondary sense, as a system of faith and worship. Nor must the possession of images be confounded with idolatry. The Chinese faith, as laid down by Confucius, neither leads to the worship nor the holding in great reverence of visible gods, which are often grotesque; it is the dread Spirit of which the tangible form is merely a representation to whom their prayers are offered. The amount of money spent upon religions and missions by Western nations is small indeed compared with the vast expenditure of China on her religious ceremonial. Imported creeds flourish side by side with the native, and buildings are still to be found in which material representations, in groups of clay and wooden figures, depict the horrible tortures and penalties inflicted in the Buddhist hell.

On the subject of China having no State religion, I would respectfully join issue with some well-known writers. That China has no established Church I admit; but that it had, and still has, a State religion, practised in elaborate and splendid ritual by the emperor and ministers of State, and permeating the whole empire, cannot, I think, be denied. It is to this religion that we are indebted for many of the architectural features still left for our study. To Confucianism, as modified by the admixture of other creeds, must be accorded the palm of final permanency. As in other countries, the rival wars of religion—paralleled only by political feuds—have ever done as much to destroy as to create: as, for instance, when the persecutions of her earlier days caused her images (A.D. 860–874) to be melted down and turned into coin.

The Abbe David, speaking of the province of Shansi, says:—

Nous trouvons sur notre route les ruines se succédant aux ruines; les pagodes surtout ont été détruites avec un soin particulier par les mohammétans . . . mais nulle part au monde je n'ai vu toits aussi ornés et aussi élégants que ceux des édifices de ces districts qui ont échappé au vandalisme des brigands aux longs cheveux et des mohammétans révoltés. . . . Mais la vue des murailles de la capitale, qui paraissent former un carré parfait d'une grande étendue, rappelle singulièrement Pkin; et même la porte par laquelle nous y pénétrons et qui est surmontée d'une immense bâtisse à plusieurs étages percés de meurtrières fait un effet imposant qu'on ne voit pas dans le séjour impérial du Fils de Ciel. — (*Journal de Voyage en Chine.*)

The temples erected by various sectarians cannot be fairly considered national buildings; and possibly those best entitled to the term are the temples and altars erected, often at vast expense, by or under the approval of the Government, where civil and military officials congregate at stated periods for sacrifice, votive offerings, and prayers. These buildings are erected, and the prayers offered, to the spirits of Heaven and Earth; whilst others are dedicated to the elements, the seasons, arts, sciences, literature, war, peace, husbandry, and a thousand similar rulers and divinities.

The numerous insurrections and invasions from which China has suffered have told even more detrimentally against her architecture, both civil and religious, than rival sects: in the invasion, for instance, by the Mongols, in 1213, when upwards of a hundred cities were razed to the ground; and in that by the Manchu Tartars early in the sixteenth century. Then, too, the English wars, and the destruction of temples and palaces. The fifteen years' Taiping rebellion led to a further waste of cities and general desolation of the central portion of the empire, the temples being then especially selected for destruction. It is to such iconoclasm

that China owes her inability to point to her architectural monuments. And, finally, to the fatal earthquakes which occurred at Peking (first made the imperial capital about 1260), first in 1662, when important buildings were wrecked and 300,000 people lost their lives, and in 1731, when there was further destruction, with a death-roll of 180,000.

As an example of the fatal vicissitudes through which the architectural remains of this country have been handed down to us, we may take the case of one of her celebrated cities, Hangchow, which was for some time the imperial capital, the court being again established at Peking early in the fifteenth century. According to Chinese history, this was first erected in the vicinity of its present site about the year A.D. 600. In 894 the city was extended and its wall thoroughly repaired, about 200,000 labourers being engaged upon the work. Its circumference at this time was stated to have been seventy li (equivalent to about twenty-four miles), and it was entered by ten gates. The Mongols took possession about A.D. 1279, when a royal edict directed that the cities of the empire which had suffered destruction should not be rebuilt. During a local rebellion (1350-60), however, it is recorded that the people, working day and night for three months, erected a new wall, thirty-six feet thick at base and nearly thirty feet high, its length being 6,400 dzang (or chang). In 1659 it is said that a multitude was again brought together to repair the wall, but that its former height was not reached by nearly one half. There is one later notice of the general repair of the city in the twenty-fourth year of the reign of Kang-Hi. Indeed, the history of almost every large city in China is a record of ruin, desolation, and repeated reconstruction.

In mythological and traditional history, with pictorial inscriptions and engravings, which have to be relied upon until the commencement of the Chow dynasty, there are indications of the Chinese being a settled agricultural nation, with warlike tendencies, living in houses and cities, their written characters bearing striking evidence of Babylonian origin. The reliable historical life of China is admitted, by both the "new" and the "old" school, to date from about the year 800 B.C.; though there is good reason to believe that much earlier histories are genuine. At the date of the invention of the great seal characters, there is mention made of particular buildings and the founding of walled cities. Troglodytic dwellings are to be found in the provinces of Szechuen and Shansi, and are said to be known in other parts of China; but I have no trustworthy data as to their probable age or original occupancy.

In Mr. R. H. Major's introduction to Mendoza's *Historie of the Kingdom of China* a translation is given of an interesting series of letters written by Spanish Jesuits in China in 1555, in which the following particulars appear:—

The Chinese build their towns in the strongest situations, walled in with stone built in mortar, some, especially the large towns, having very strong brick-walls. They contain very large buildings, and bridges of half a league, all of stone excellently wrought with blocks so large that it appears impossible for men to have raised and set them by any contrivance. The Government palace in one town is built on eight columns which two men stretching their arms round did not compass; they appeared to be sixty feet high, little more or less, and it is strange that men should have been able to raise them, and place them where they are. The houses which are upon them are very high, all of wood painted and gilded. The houses are covered with glazed tiles of many colours, and the woodwork is much wrought. The streets are very well made and paved with stone, and the highways are all raised; we went 120 days' journey and found the roads raised and even. We were told it was a four months' journey to reach the court of the king, and that the roads were all alike. Their temples are very large edifices richly wrought, and which cost a great deal, for their statues, which are of large size, are all covered with beaten gold. The roof of the temples is gilded, and the walls ornamented with boards well wrought and painted in pictures.

Mr. T. Watters, in his *Essays on the Chinese Language* (1889), says:—"Carving in wood" seems to have been practised in China from a remote period, and to have been employed for "various purposes. In the seventh century B.C. the projecting beams of the roofs of temples and palaces were sometimes elaborately carved and coloured." Touching this, I may at once say that I do not propose to cover the debatable ground of the "tent theory," or explain

the reasons which led to the adoption of the curved or hollow roofs, the heavy projecting eaves, the finials and arabesques, and the curled and elaborate terminals of hips and ridges. The richness, variety, and novelty of these both in form and colour embrace some of the most marked architectural features, upon which the greatest care and successful ingenuity have been displayed, forming the most picturesque effect producible in her buildings and cities.

The vast forests of ancient China provided the favourite material, and in all modern buildings timber still forms the principal constructional matter; while those magnificent columns of wood and stone, around which are twined and sculptured in high relief the grotesque dragons, may be considered almost as characteristic as the shape of the curved roofs, both of which will be

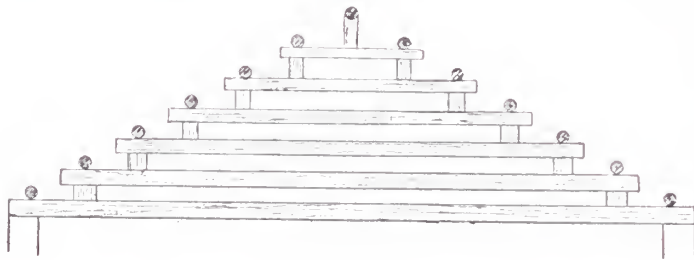


FIG. 1.

seen in the illustrations appended. Some of the timber construction is an interesting study, and worthy of detailed description did space permit. One point, however, may be referred to—viz., the large areas roofed with timbers of small scantling. This is secured by a beam spanning the chamber, near to the ends of which are mortised short upright struts supporting another beam of shorter length, and so on until the ridge is reached, the purlins lying on the ends of the beams. This carries the weight close to the point of support, and when executed with the handsome timbers seen in some of the large temples and halls, covered with red lacquer, carved and gilded, it produces a massive and imposing effect. The sketch [fig. 1] will aid the description.

Nor must I omit a reference to that decorative form so often seen in China, the *yang* and *yin*—the active and passive, or dual male and female principles of nature. The figure

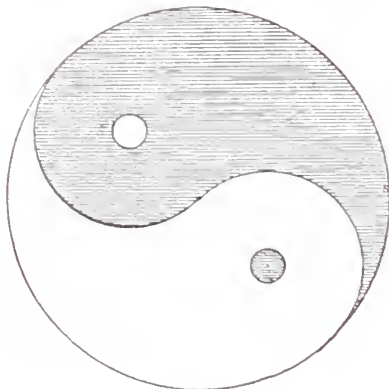


FIG. 2.

is a circle, on the semidiameter of which a semicircle is drawn, and another reversed upon the other semidiameter [fig. 2]. The *yang*, or male, is symbolised by the circle and odd numbers, and represents the celestial—*yang* (or *tien*) meaning heaven; the *yin*, or female, by the square and even numbers, and represents the terrestrial—the word *yin* (or *ti*) signifying earth.

Cities and Walls.—The line of demarcation between the sister professions Engineering and Architecture is so fine that I may, I trust, be excused if I cross it by a reference to the Great Wall. Whether those who erected the Wall were “master-masons,” or whether they were “engineers,” it is none the less a curiously interesting wonder. Winding its sinuous way over mountain tops, through valleys and across rivers, it practically divides the eighteen provinces from the rest of the Chinese empire, and extends the length of three provinces, or a distance of about fifteen hundred miles. It was erected over two thousand years ago, and actually consists of double-battlemented brick walls filled in with earth, the total width at base being about 25 feet, diminishing to 15 feet at summit, its height varying from 20 to 30 feet. It has square towers, about 40 feet high, at irregular intervals of an average distance of about 100 yards, some being two-storeyed. An addition was made to the length of the original wall during the Ming dynasty.

There are in China cities of four classes: that of the first rank is termed *Foo*, the

second *Chow*, the third *Ting*, and the fourth *Hsien*. In ancient China the number of foos amounted to 159. At the present time 1,281* cities are encircled by high crenellated or embrasured walls, generally averaging from 25 to 30 feet in height, sometimes flanked with towers. The simpler form is a single wall, with an earth slope downwards from the top to the general level on the city side; sometimes double, like the Great Wall. They are of stone, of brick with stone or granite bases, or with stone or granite facings; substantial structures of carefully prepared and good material. Three other cities are surrounded by earth mounds or "mud walls." I have endeavoured to make up an estimate of the total length of these vast walls, but the statistics of some are not obtainable. The cities are quadrilateral or circular in plan, the principal gates being placed to face the four cardinal points of the compass, and named the North, South, East, and West gates. A moat usually encircles the walls, and water-gates are placed near the main entrances, over which are the watch-towers or guard-rooms.

Pekin, a *foo* and the present *yellow* capital, covers an area, exclusive of suburbs (which are now often as extensive as the cities), of about twenty square miles. It consists of the Tartar and Chinese cities, each encircled by immense walls slightly exceeding twenty-three miles in length. That of the former is loop-holed, crenellated, and bastioned at intervals of about 60 yards: it averages about 50 feet in height and 40 feet in width, with three-storeyed pagoda-like erections surmounting the principal gateways. In the heart of the Tartar city is the walled enclosure of the "Forbidden City." The walls of the Chinese city are about 30 feet high, 25 feet thick at base, and 15 feet wide at top.

Nankin is a *foo*, and was previously the capital of the empire. Its thick, embrasured walls consist of three concentric circles, the outer pierced with eighteen gates, some of which are now blocked up and disused; the second with thirteen gates; and that of the Imperial, or Sacred, city with four gates. Rich as was this city in architectural monuments in the day of its supremacy, none of its wonders remain except in the ruins of its royal palace, pagodas, temples, and marble-paved causeways, which prove it to have been a fitting centre of power. There are, however, several modern buildings of note in its Confucian temples, &c.

The city of Hangchow has been already referred to. It is a *foo*, formerly the imperial capital, and is of great historical interest. Its walls, which are said to have measured at one time thirty miles, are now only twelve miles in extent, and embrace some interesting relics. Archdeacon Moule, speaking of this city falls into the poetic language of China, and quoting the Chinese proverb, "Heaven above, Hangchow and Soochow below," continues:—"In truth, on that warm summer afternoon, Hangchow looked from a distance like a glimpse of the celestial regions." It might be heresy to ask if distance lent the enchantment, or where a comparative glimpse may be obtained of the regions of which the Venerable Archdeacon speaks.

Soochow (*foo*), the City of Beauty and Pleasure, the Paris of the Chinese, has brick walls on a massive granite base extending for a length of twelve miles, ingress and egress being gained by six gates. As is the case with many other cities, it is surrounded and intersected by a broad navigable canal, which formerly carried the handsome and elaborate barges of the richer classes to the scenes of pleasure.

Canton, a *foo* and one of the first cities of the empire, is known as the "City of Rams," or "City of the Genii." Its walls are some 20 feet thick, and vary from 25 to 40 feet in height. It is again subdivided by other high walls, shutting the city off into sections, with stone arched gateways for the isolation of portions in case of disturbance, and for protection from fire.

Many other huge cities might be referred to, but to prolong the list would mean tables of

* These figures are taken from Chinese sources, and are not to be relied upon as absolutely correct.—F. M. G.

dry statistics, and I shall therefore only mention a few others well known to "foreigners," though of no particular merit as "examples."

Shanghai is a *hsien*, with brick walls three and three-quarter miles in circumference, and seven gates. There is an immense suburb outside the walls, and the adjacent foreign settlements have drained the city of many of its better-class merchants. It contains some interesting temples.

The walls of Foochow (*foo*) are between seven and eight miles in circumference, 30 feet high, and 12 feet wide at the summit, with guard-houses over the four principal gates. The walls of the *Hsien* city of Quinsan are of brick, with stone base encircling a portion of the vast delta of the Yangtze, finishing against a solitary conical peak surmounted by a temple and a partially ruined pagoda, whence a beautiful view is afforded. Chang-zu (*foo*) has walls of large well-burnt bricks on a flint stone base, which, after encircling the city, follow up and enclose a portion of the steep side of the range of the adjoining hills.

Several cities, like Cheng-tu (*foo*), the capital of Szechuen, are clean and in good preservation, with wide paved streets, and in all respects fine cities, hives of industry and centres of trade; whilst others are evil-smelling places, with narrow alley-ways and dense populations. Chung-king is so closely built over that there is no room for a parade ground of even ordinary dimensions. Its walls were rebuilt of solid stone A.D. 1368-99, and extended in 1664. It is entered by seventeen gates, nine of which are open to traffic. It consists of two attached and walled cities, both of the first rank.

Many cities, especially in those portions of the empire most overrun by the Taipings, are now merely vast heaps of ruin; the walls, though dilapidated, being generally intact. Enough, however, has been said to prove that there is further interest to be derived from a careful study of Chinese cities.

Temples.—The word "temple" must not be misunderstood; it is often erroneously applied to guild-houses and others, although buildings originally erected as temples, but now used as places of business and pleasure resorts, often retain their title.

Dr. Edkins, in his highly interesting Paper on "Chinese Architecture," read before the China Branch of the Royal Asiatic Society in 1890, says that "in classical Chinese architecture there is no distinction of an essential kind between sacred and secular buildings. The farther we go back, the more clear does it appear that the palace was a temple, and the temple was a palace." This is in many senses true, though numbers have been erected and employed solely for purposes of worship.

An exceedingly rare example of a three-storeyed erection is the "City Temple of Soochow." Some of two storeys in height are still to be found; but by far the larger proportion are lofty one-storeyed buildings, with massive open-timbered roofs, originally dedicated to the service of individual deities, but now employed in a mixed worship of the triumvirate of Buddhist, Confucianist, and Taoist divinities. The general plan is of three buildings, or halls, parallel with and behind one another, each entered through the other, the third being the largest and most important. The workmanship is solid, with a plethora of ornament. The approach is often by fantastic bridges, or massive flights of steps and handsome gateways [figs. 3 and 9].

Magnificent temples and shrines have been erected in the imperial capitals. Of these may be mentioned the Temples of Heaven and Earth at Peking, each in a square, park-like, walled enclosure of some three miles circuit. The former contains the north and south altars, circular, roofless, terraced platforms, encased in white marble. The northern altar is in three terraces, diminishing from 120 feet to 60 feet, each surrounded by a marble balustrade. The platform is approached by eight triple flights of nine steps each, and carries the circular fane dedicated to the "Queen of Heaven." The roof, rising in three pagoda-like heights covered with

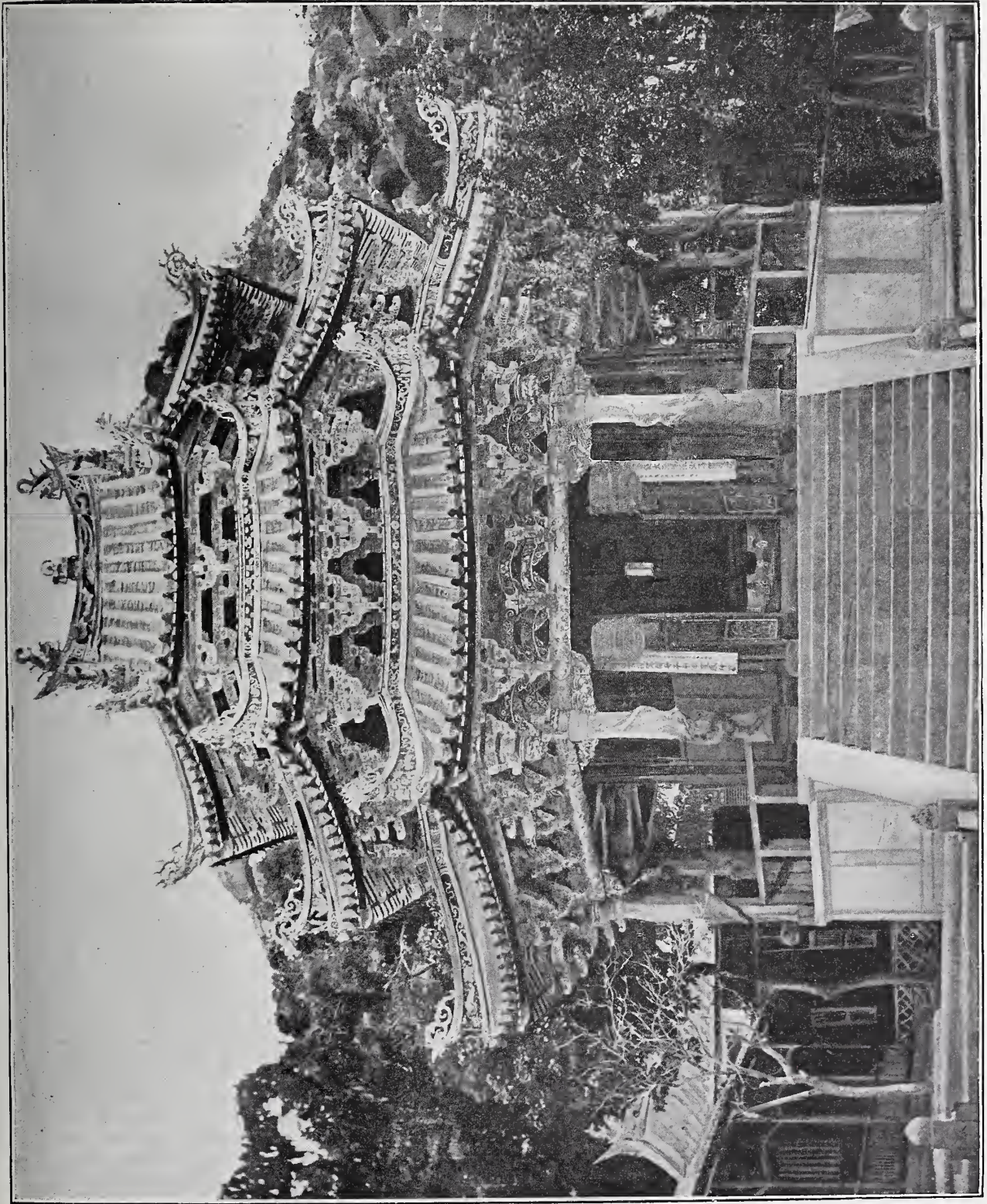


FIG. 3.—TEMPLE FRONT, ISLAND OF POOTOO.

glazed tiles of a lovely cerulean blue, is open-timbered, giving view to the highest point of the gilded interior. The main and second roofs are supported by twelve elaborately decorated columns, and the highest one by four pillars. Midway between the two altars stood the circular tower containing the tablets, also roofed with blue tiles, the window openings filled with blue glass rods, which produced a dazzling effect in the sunlight. The southern altar is very similar to the northern, its approach being spanned by two sets of three beautiful white marble memorial arches (*Pei-loh*). The Temple of Earth is in many respects like the Temple of Heaven, save that the predominating decorative colour employed is green, and that it is much simpler in style and adornment, the altar being square. Temples were also erected to Light, and to the Sun and Moon. To judge from the records, these temples must have been marvels of beauty in the day of their prime. Several buildings have been considerably damaged by fire in recent years.

The Yung-ho-Kung, or great Llama Temple, in the Tartar City, was roofed with brilliant yellow glazed tiles. The entrance was adorned with animals carved in stone, and the interior almost covered with innumerable carvings of birds, beasts, men, &c. In the Main Hall stands an enormous wooden figure of Buddha, some 70 feet in height, coloured to imitate bronze. There are, besides, the "Imperial Ancestral Temple," and the Tai-miaou, or Imperial and National Temple, in Peking.

The rocky isle of Pootoo, about six miles in circumference, is held sacred by the native Buddhists; and its inhabitants, chiefly males, are solely employed in temple administration. It embraces two large and sixty small temples and shrines [fig. 3]. Fortune, in his *Three Years' Wanderings* (London, 1847), speaks of one of them as containing some exquisite bronze statues, which, viewed as works of art, were the finest he saw in China, and would be considered of great value in England.

The city of Canton (in common with Shanghai and others) boasts a Mohammedan mosque. The stronghold of this faith, however, is Hangchow, the capital of Chekiang, in which city are several fine mosques. In Canton is the celebrated *Wau-Shou-Koong*, or Hall of Ten Thousand Ages, once an imperial temple, and still retaining imperial colours, of which Mrs. Gray, in her book *Fourteen Months in Canton* (1880), says:—

We passed through a massive granite arch, and saw the lofty roof of the temple covered with yellow tiles, which denotes that it is a State endowment. We went through two courtyards into a quadrangle enclosed by cloisters. Immediately opposite the large entrance gates stands the great shrine containing the tablet of the emperor. In the centre of the paved pathway, and also on the steps leading immediately to the shrine, I saw two or three figures of dragons, and a representation of the sun engraved on the stone pavement. . . . The shrine is enclosed by red-stained walls, and the roof is covered by yellow tiles. On entering the shrine we saw a facsimile of the dragon-throne at Peking. . . . An altar stands in front of the throne, on each side of which are arranged the insignia of royalty. At the end of the second quadrangle of this temple stands a shrine similar to the one we had just left, which is erected in honour of the empress. . . . All the mandarins, both civil and military, worship in this temple on the first day of the year, and on the birthdays of the emperor and empress.

It is worthy of note that at one period there were no fewer than thirteen monasteries on the "White Cloud" mountains at Canton alone. Fig. 4 gives the plan of a Buddhist temple in that city.

Description.—AA is a handsome paved way, of considerable breadth, leading through the middle of the space occupied by the temple, and composed of large slabs of granite, well laid down. B, the Hill Gate, as it is called, though erected on a dead level, the Buddhist temples being generally in the recesses of mountains. CD, two raised recesses, with various inscriptions in gilt letters on the walls; EE, two colossal figures of gigantic divinities, guarding the entrance. FF, the hall of the four celestial kings, each of them seated on a lofty pedestal, and as large as the two preceding figures; one of them is said to be the benefactor of the temple before mentioned, under the title of "Subjugator of the South." G, the principal temple, in which are seen, fronting the entrance, three colossal gilded images of the Buddhist triad, called the "Three precious Buddhas," the round spot on the forehead of each marking their Indian origin. On each side of the entrance are seated gilded figures, on a much smaller scale, of the eighteen

Lohân, or saints, who take care of the souls of those that die. A huge drum and bell serve in this temple to awaken the attention of the gods to their worshippers. *h*, a single image of "Omîto Fo," or Amida Buddha. *i*, temple containing a very well-executed monument, of a vase-like shape and gigantic dimensions, carved in white alabaster or gypsum, and sacred to the relics (called Shay-ly) of Buddha. The whole is surrounded by lanterns and lamps kept continually burning, and on the sides of the monument stand bowls of consecrated or holy water, said to be a specific for various disorders, particularly of the eyes. *r*, long covered passages or cloisters, leading to the priests' apartments and offices. *k*, temple of Kuân-yin, a goddess worshipped chiefly by women. *l*, apartments of the chief priest or abbot of the monastery, where Lord Amherst's embassy was lodged in 1816. *m*, a great bell, struck morning and evening. *n*, apartments for receiving visitors, where may be seen an idol with many arms, evidently of Indian origin. *o o*, two pavilions containing images of Kuân-foo-tsze [? Confucius], and another warrior demi-god, to whom the present dynasty attributes its success. *p*, a place devoted to the preservation of animals, principally pigs presented by the votaries of the temple. A chief tenet of this religion is to spare animal life. . . . *q*, a book room and a printing press, exclusively devoted to the sacred books of the Buddhist sect. *r*, a place for idols, near which are a number of miserable cells for the inferior priests. *s*, on this side there extends a considerable space of walled ground for the growth of kitchen herbs, and containing besides a mausoleum, where are seen a number of jars in which are deposited the ashes of the priests after their bodies have been burned. Here, too, is the building in which the act of cremation is performed. To the left of the temple are a variety of offices, as the kitchen, common room, &c., &c.*

Beamless Temples.—What are called by the Chinese "Beamless" temples may be seen near to the Ming Tombs at Nankin, at Soochow, and a few other places. They are stone and brick structures of considerable size, with parallel walls forming several chambers, and covered with brick barrel-vaulted arches. Some are now little more than ruins, others have many arches still standing after surviving centuries of neglect; there is an entire absence of wood in their construction. They are said to have been erected about the eleventh century A.D., during a period of great Buddhist fervour, as a fire-proof repository for archives and relics, the gods being supposed to have assisted in the work of building.

Bonze Monasteries.—One of the best maintained of the Bonze or Buddhist monasteries in China is to be seen near to Chêng-tu-foo, the solidity of the buildings, the richness of the decoration, the gardens, groves, and park by which it is surrounded, making an interesting picture. Bonzes are literally *Fohists*, or followers of the sect of *Foh* (Buddha). The word "Bonze" was originally applied by the Portuguese to priests in Japan, and has now become the general term in China and Japan for the shaven-headed priesthood without distinction of creed.

Temples and shrines are numbered by thousands. Every *Hsien* or department of China has its Confucianist temple, apart from numerous others which it may contain. Every town and village possesses its shrine, every wealthy family or clan its ancestral hall of worship, and every poorer family its altar and household god.

Bronze Temple and Bronzes.—Mr. Colborne Baber, who was the first European to explore this region, describes a bronze or copper statue of Buddha, of rude type, 25 feet in

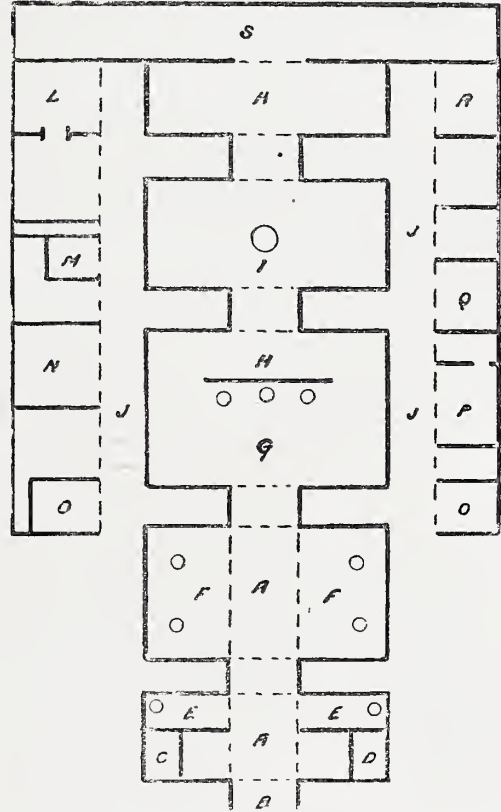


FIG. 4.—PLAN OF BUDDHIST MONASTERY NEAR CANTON.

* *The Chinese: A General Description of the Empire of China &c.* By J. F. Davis, F.R.S. Lond. 1836.

height, near to Mount Omi, in the province of Szechuen ; and in a temple behind Wan-nien-sze (Ten Thousand Years Temple) an elephant with six tusks, about 12 feet high, cast in magnificent bronze, or some similar material nearly as white as silver. Each foot stands in a bronze lotus, and on its back is another lotus flower with an admirable bronze and gilded figure of Buddha enthroned therein ; the total height is 33 feet from the floor. The fane enclosing the casting is curious, being of brick ; the chamber a hollow cube ceiled with a dome (a form rarely seen in China) and roofed in pyramidal shape. The base of the walls is 12 feet thick ; and two arched doorways before and behind the elephant give entrance and light. The whole is again enclosed in a modern timber structure. The writer considers the designers and builders of the original building and casting to have been Indian Buddhists.

Speaking of the Golden Summit of Mount Omi, Mr. Baber says there is a comparatively level space on the top of about an acre in extent, on which he found the ruins of a bronze temple or shrine. Several times had successive buildings been destroyed by lightning and restored, but this one succumbed in 1819 and had not been re-erected. "The masses of metal lying in heaps consist of pillars, beams, panels, and tiles, all of fine bronze. The pillars are hollow, 9 feet long, 8 inches diameter, and 1 inch thickness of metal ; the only complete beam discoverable being a hollow girder 15 feet long, 9 inches deep, and 4 inches broad, the thickness of metal being similar to the columns." He estimated the number of panels, if fragments in view were complete, to be about forty-six, of an average size of 5 feet by 1 foot 7 inches, and 1 inch thick ; with frames of thicker metal ; the panels very handsomely ornamented with seated Buddhas, flowers, scroll-work, and hexagonal arabesques. Tiles of bronze of ordinary Chinese shape but twice the usual size, and many supplementary fragments, such as sockets, capitals, corner-pieces, eave-terminals, and decorative adjuncts, were lying about. It is difficult, he says, to guess the size and shape of the building, an unknown number of panels and beams lying hidden under the heaps of tiles. The priests described it as a two-storeyed building, the height and breadth of interior each 19 feet 6 inches, and length 26 feet. A few yards from this site stood a temple crowned with a golden ball, whence the name "Golden Summit," the approximate height of the plateau of which is about 11,100 feet above sea-level.

Mr. Archibald Little, who visited this district, so rich in its possession of endless temples and shrines, in 1893, mentions some interesting details. He speaks of the range of temples and buildings known as Wan-nien-sze, on the slope of Mount Omi ; of the magnificent trees, and lovely groves surrounding them ; of the colossal bronze casting of the elephant before mentioned, "dating from the seventh century A.D.": and of the thousands of miniature bronze Buddhas on the ledges of the brick building enclosing it. He makes the summit 10,500 feet above sea-level. Eleven of the summit temples were destroyed by fire ; and only one, the *Ching Ting*, or Golden Pavilion, has been rebuilt. Of the fragments of the bronze temple still extant, he says they astonish by their massiveness and exquisite workmanship, many weighing half a ton. According to Chinese records, this unique building was constructed from foundation to roof entirely of bronze, the pieces being cast in Chéng-tu (the provincial capital), and afterwards transported to the summit of the mountain. He speaks of another notable monument, a small bronze pagoda about 15 feet high, apparently all in one piece, and covered with Buddhas in relief, each seated on a lotus. Also of a further bronze *Pusien*, or Buddha, seated on a bronze elephant, older than the more celebrated one at Wan-nien-sze, but no particulars are given. In the ruined temple *Shénchisze* he speaks of a bell said to weigh 2,500 catties = 3,333 lbs.

Bells.—In connection with this subject, and entitled to a place among the great bells of the world, is that which hung in the great Bell Temple of Pekin, a bronze casting of over 17 feet in height, 15 feet in diameter, and 4 inches thickness of metal, covered with Chinese

characters. The largest of the quartette of monster bells at Nankin is nearly 18 feet high, with a circumference of 23 feet; the thickness of metal is 7 inches, and the weight is computed at 50,000 lbs. The deep-voiced boom from such immense bells when struck by the heavy wooden ram is a sound long to be remembered.

Images.—It may be asked why I did not use the word “idols” instead of “images.” My reason is that I see no sign of idolatry in the purely Chinese faith; certainly at the culminating point of the worship of China it is not to be found in the simple solemnity of the sacrificial observances of the Emperor-and-High-Priest at Peking. In Buddhist temples and shrines images innumerable exist; but I have seen the Chinaman remove the table from his burning house, leaving the household “god” to be consumed, the table being more costly than a duplicate of the little clay ugliness representing the guardian spirit which had so signally failed him.

Many temples contain images of Buddha, a triune divinity comprising three persons in one, as in the Hindu and Christian faiths; but none can compare with the serene majesty and impressive grandeur of that lofty production of art the *Daibutsu* of Kamakura, Japan. The thousand-handed Kwannon, or *Kwân-yin*, is well represented in one of the Amoy temples; once a male figure, and usually so depicted in ancient sculptures, now a female figure known as the “Goddess of Mercy”—a canonised Buddhist nun, the patron saint of women, especially during the hour of childbirth, and one of the few female deities in China. Worship is also offered to the *Tien-how*, or Queen of Heaven; but it would be apart from my subject to particularise the thousand-and-one divinities of the various creeds—suffice it to say that the Taoist God which answers to the Buddhist *Kwân-yin* is a four-faced, thirty-two-handed image.

In one of the temples at Canton are to be seen 500 life-size gilded images of the disciples of Buddha, no two alike; another, in the city of Peking, contains 10,000 of varying sizes, and of almost every possible material. Archdeacon Moule thus describes his visit to a Lohan shrine beyond the western lake near Hangchow:—“The great hall contains 500 images, each of nearly double life-size, arranged on each side of a long nave, with side-aisles, and cloisters at a higher level. The nave was broken here and there by the shrines of images of special dignity and worth, with a canopy over their heads and a light-throwing shield of glory behind the shrine.” The sculptured groups in panels of temples, palaces, memorial arches, and elsewhere, representing processions, sports, battles, the drama, &c., are often worthy of careful attention.

Palaces.—In the several imperial capitals of the empire, in the day of their glory, have been erected palaces for the sovereigns and high officials, the object of attack and the culminating point for the vindictiveness of conquerors, who have not stayed to consider their own loss in the thirst for revenge. But few remain. The *Yuen-Ming-Yuen*, or Summer Palace, was looted, but spared the general destruction by fire, which, under the orders of the General in command of the troops, swept away the principal temples and nearly all the great public buildings of the splendid capital, Peking, on the 18th and 19th October 1860, in retaliation for barbarism practised by Chinese officials at a previous date. The palace was a gem of art. It covered about twelve square miles, and contained some thirty distinct residences for the emperor, ministers, eunuchs, servants, and others. Passing through the grand portal into the paved courtyard, the great reception-hall, or Hall of Audience, 120 feet long, 42 feet wide, and over 20 feet high, in all the glory of its gilding, painting, and carving, met the eye, erected upon a granite platform surrounded by a peristyle of wooden columns, with graceful roof and elaborately fretted eaves. Facing the central door was the Emperor’s carved ebony throne on a marble-tiled floor. Here were grouped all the royal luxuries that an Eastern mind could

conceive ; whilst pleasure-grounds, buildings, rockeries, lakes, grottoes, in almost bewildering plenty, occupied the vast and magnificent park-like domain, the private suites of rooms of the emperor and empress containing all that was lovely, attractive, and picturesquely fantastic in Chinese art. Such was one of China's palaces at the time of the Anglo-French invasion, but barely spared from the general wreck of much that could claim architectural merit in her capital.

Benevolent and Philanthropic Institutions.—The charitable institutions of the country are of ancient date. The asylums of various kinds, medical dispensaries, houses for widows and orphans, free schools, foundling, special, and general hospitals, &c., form a striking feature. These, together with the Halls erected by charitable individuals and dedicated to "Benevolence" and other virtues, represent vast sums of money. They are supported by endowment, Government contribution, and the subscriptions of the wealthy. Closely associated to them are the Guilds.

Guilds.—Every trade or craft in China is bound together in a Guild, or union, having a temple, guildhall, or house for headquarters. Many of these corporations are now exceedingly rich, and the buildings erected by them are on a scale of magnificence suited to the class they represent. There is a marked resemblance between them and the great City Companies as they existed in the days when their liverymen practised the various trades which they now represent only in name. Although probably of earlier existence, the Guilds assumed definite form under royal edict or charter during the *T'ang* dynasty, about the sixth century A.D., when they were employed as an easier mode of strengthening or securing the sinews of war than by the taxation of individuals.

The headquarters of these corporations are curious mixtures of club-houses, theatres, places of business, and religious ceremonial. The stage performances are enacted during the daytime, and in the open air, the crowd standing packed in the courtyards, and the upper classes occupying the side galleries. Doubtless the almost theatrical representations of some religious sects led to what now presents the strange anomaly of secular plays of more than questionable morality being performed upon stages opposite to and in full view of the altar, incense-burning, tapers, and outward forms of religion—a gradual decadence from the days when religious scenes were enacted by the priests.

The square stage projects into and is raised above the courtyard some 6 or 8 feet. It is open on three sides, and is supported by wood or stone shafts at the corners, which are generally in one piece from the ground-level, and are continued upwards to receive and carry the curved and ornamented roof, the domed ceiling of which is usually beautifully carved in conventional curls to represent the cloud-covering of the earth, the whole of the court ablaze with rich carvings in wood and stone, decorated in crimson, blue, gold, and yellow.

In no country is greater devotion paid to theatrical performances, which are often given free to the public on temporary stages of from 80 to 100 feet in length, the cost of a first-rate company often amounting to as much as \$120 to \$150 per day. Each Guild forms its own rules and regulations, which in many cases consist of powerful corporations with influential officers and members.

There are two distinct kinds of Guilds. The first and more ancient are known as *Kung-So*, and embrace men who follow the same profession, business, or trade, as the barbers, goldsmiths, clothiers, pawnbrokers, ironworkers, apothecaries, silversmiths, and like handicrafts ; tea, silk, fur, rice, junk, paper, tobacco, jadestone, &c., numbering originally seventy-two trades, with three hundred and sixty branches thereof. The others, *Wei-Kwan*, are instituted by those who, leaving their native places for commercial reasons, and finding themselves a sufficiently strong contingent to warrant independent action, form a company, and erect a building or

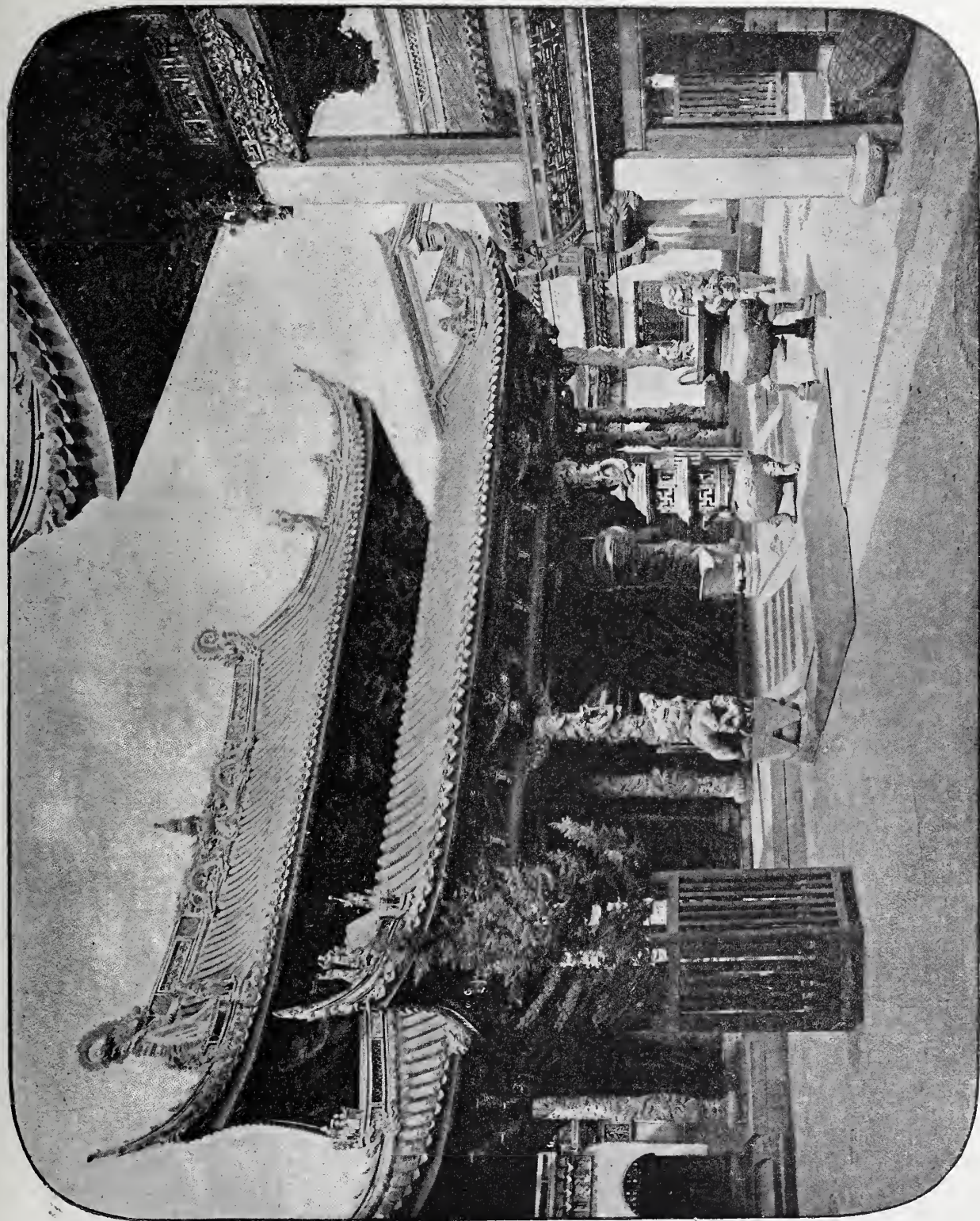


FIG. 5.—COURTYARD OF FOKIEN GUILDHALL, AT NINGPO.

buildings as a place of meeting. These often assume the name of the province or town from which the members have been drawn, as, for instance, the *Ningpo* Guild at Shanghai and the *Fokien* Guild at Ningpo [fig. 5], giving membership to residents, and protecting on foreign soil the rights and interests of the floating population of the city they represent.

A new class (if it may so be termed) has sprung into existence in recent years, consisting of those Guilds directly or indirectly associated with "foreigners," and representing Western trades— as, for instance, foreign stuffs and opium— foreign servants, wharf coolies, ships' stevedores, and others. Several

times in each year these headquarters are opened officially for the entertainment and conference of those interested in the trades. One of the most influential, which may be described as an example, is the Bankers' Guildhall, which was erected in the "foreign" settlement of Shanghai during 1890-93, from plans prepared by the President of the Guild. It is therefore the latest example of its class, and is one of the largest in the empire, the area enclosed by the brick wall of some 25 feet in height, being of considerable extent [fig. 6]. The cost of the buildings alone is said to have exceeded 100,000 taels. The construction is massive, and the carving and decoration exceedingly elaborate. The external effect is somewhat marred by the introduction of a "foreign-made" cast-iron railing at

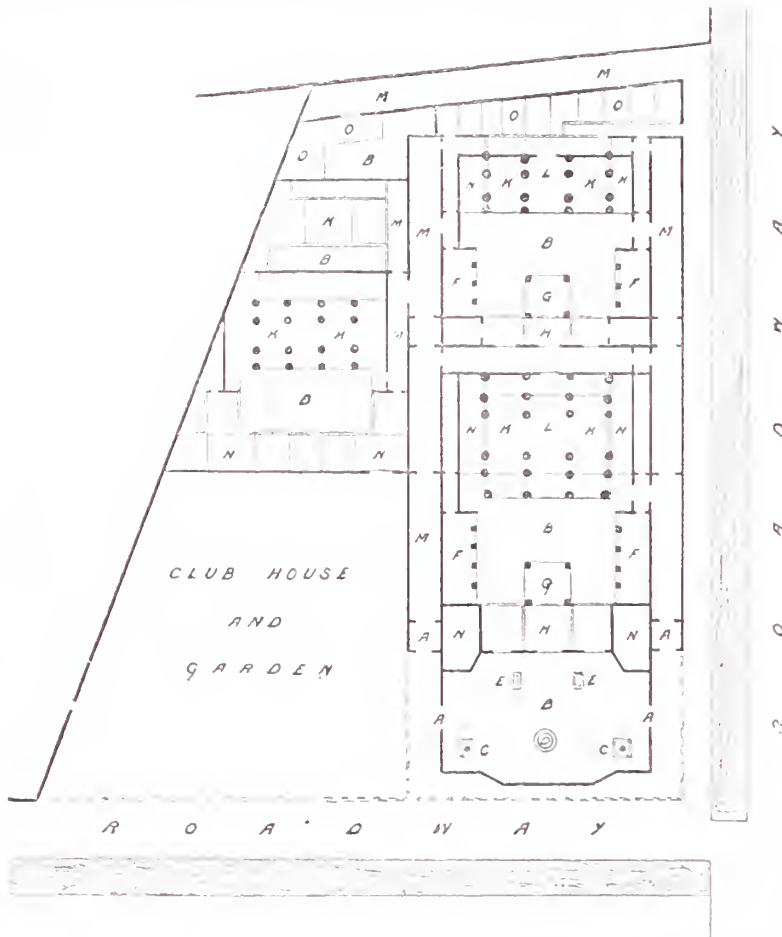


FIG. 6.—THE FOKIEN GUILD AT NINGPO.

A A, Entrances. B B, Courtyards. C C, Flag-staffs. D, Bronze urn. E E, Carved stone mythical animals of huge size. F F, Galleries over courtyard. G G, Stages. H H, Dressing-rooms, &c. K K, Main buildings (Halls). L L, Altars elaborately and beautifully carved, gilded, and lacquered. M M, Passages. N N, Libraries, &c. O O, Servants' living-rooms, &c.

the entrance. The bronze urn standing in the first court was cast *in situ*; it is about 15 feet high, 5 feet in diameter, and weighs some $6\frac{1}{2}$ tons; the cost was about £2,600.

The opening ceremony of the institution consisted of a free public theatrical entertainment on two stages, with refreshments; it continued for twenty-five days, at an outlay of about £300 per day, and an estimated number of sightseers and visitors of 10,000 per day. A detached club-house in a large garden is now in course of completion on an adjoining site, and will form a fitting adjunct to the Hall.

Pagodas.—The meaning of the word Pagoda, or Dagoba—in Chinese *Paou-tâ*—is an Eastern temple or a god, but custom has now almost entirely restricted the use of the term to

the pyramidal towers of Eastern countries. The word is of Hindustani derivation. In China the buildings were doubtless of Buddhistic origin, and had formerly a religious significance; those erected in recent years have, however, a greater tendency to geomancy than to religious character.

They are constructed of various materials, from wood to cast iron, and mention is made in Chinese records of some of white marble and copper. They vary from three to thirteen* storeys in height, nearly always, however, consisting of an odd number, and usually pyramidal in contour. Some are solid with no interior chamber, others hollow; the larger ones of the latter class contain, instead of an altar, a smaller pagoda inside the larger structure. Those of stone or brick are usually ascended by staircases constructed in the thickness of the walls. At each floor-level the roof of the lower storey curves outwards in graceful lines, and supports a balcony for sightseers at each stage.

Pagodas are distributed in considerable numbers all over the country. One of thirteen storeys existed at Peking 275 feet 5 inches high, the figures being formed of moulded brick. The Peh-ta-sze, or White Pagoda Temple, erected in 1100, and rebuilt in 1819, is said to have had the appearance of jasper, and contained 2,000 clay models of pagodas, besides images, its most conspicuous feature being the great copper umbrella-shaped top. The Tung-Chow Pagoda, near Peking, has a heavily-decorated basement, surmounted by one lofty storey and thirteen low decorated tiers or storeys. The Yang-Chow Pagoda is of seven storeys, each about 20 feet high, and was once encircled at the various floor levels by balustrades. A nine-storeyed square brick pagoda is to be seen near this city, and others of the same form are almost common in the province of Szechuen. At Chien-Chow in this province there is a brick pagoda thirteen storeys high, the sides increasing in size from the base for a portion of the height, and afterwards diminishing. Near Nankin were two of the most celebrated, both of nine storeys, that of cast iron between 40 and 50 feet high, and about 8 to 9 feet diameter at the base: it was composed of twenty castings, and was believed to have been of considerable antiquity. Others of similar material are still to be seen.

The porcelain tower of Nankin was originally designed of thirteen storeys, only nine of which were executed: it was commenced in 1412, and took twenty years to complete. It stood on a raised platform, and mounted to a height of about 250 feet. It was octagonal in plan. The general effect is described by a Chinese writer as having been of dazzling brilliancy; the predominant colour was green, and it was one of the best examples of its class. It contained about 2,000 images, and had 150 bells pendent from the roof. It was destroyed by the insurgents in 1856-57, and was an irreparable loss to the country. The Rev. W. Milne, in his valuable Paper upon this subject, gave the cost of this pagoda to the imperial treasury as upwards of £600,000 sterling. The Rev. Mr. Taylor gives the following description of an iron pagoda in the neighbourhood of Chin-kiang:—"It is nine-storeyed, and built of cast iron. The octagonal pieces forming the walls are each single castings. So also are the horizontal plates forming the roof of the several storeys. The whole of this curious structure, including the base and the spire, was cast in twenty pieces."

The Flowery Pagoda of Canton has often been described. The two most celebrated of the old pagodas, both of nine storeys, were known as the "Adorned Pagoda," 170 feet high, erected in the fifth century, and the "Unadorned Pagoda," 160 feet in height, built in the ninth century. One was probably a religious erection, the other a literary one. The latter class have no roofs projecting, and are of simpler and less ostentatious finish.

* Some doubt has been cast by various writers on the existence of thirteen-storeyed pagodas, but I think it is sufficient to refer to Captain Blackistone's *Five Months*

on the Yang-tsze, wherein he speaks definitely of having seen two at Kiang-tsze, to warrant the assertion that they have existed.—F. M. G.

The Hangchow Pagoda has walls 18 feet thick at the base, the octagonal faces each measuring upwards of 30 feet.

The Soochow Pagoda has almost perpendicular sides, with nine storeys of approximately equal height: it is octagonal in plan [fig. 7]. The Twin Pagodas at this city are also

celebrated, their age being about 900 years.

The Loong-Wha Pagoda, near Shanghai, is octagonal, of seven storeys, and extremely elegant in contour.

The hexagonal pagoda of Ningpo, said to be 1,100 years old, is fourteen storeys high, seven of which are pierced with openings. It does not attain a great height, and is now in a dilapidated condition. It is, however, the only one of this shape which has come under my notice.

The Kaou-Ming-tsze Pagoda, on the river Yang-tsze, is in brick coloured a deep red, of seven storeys or 140 feet in height.

The Anching, or Nanking Pagoda, is seven-storeyed, but of inelegant proportions. Like the Kiu-kiang Pagoda, it stands on the site of a former one destroyed by the rebels, the present one having been built about 1873-4. The time occupied and money expended upon the erection of pagodas are almost incredible. Many had originally bells dependent from

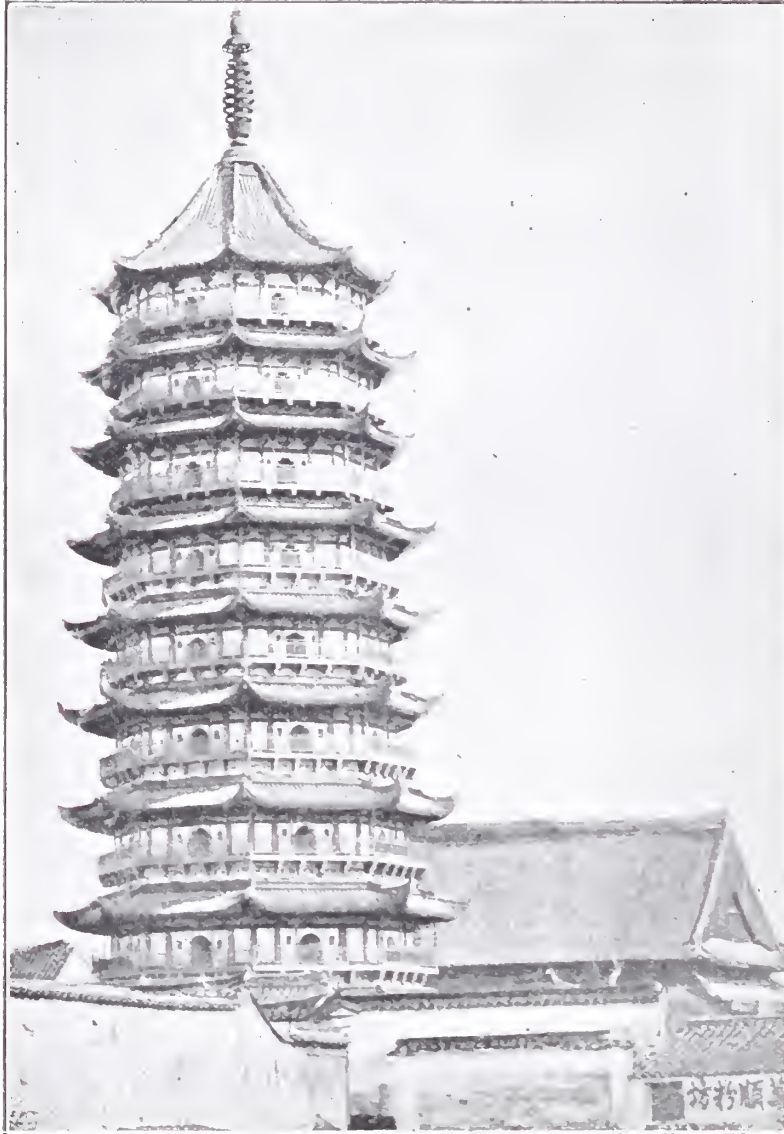


FIG. 7.—THE SOOCHOW PAGODA.

the angles of the roofs, their sound when rung by the wind being described as very weird. When these erections are illuminated they present a charming effect. The reason for so many of these structures being polygonal is doubtless the greater additional beauty to be imparted to the roofs at their junction than could be produced by a circular form.

Towers and Pavilions.—Buildings are occasionally met with which it is difficult to place in any given category. Some so-called pagodas being of this nature, the word "tower" would be more applicable to them. Those of Wuchang and Peking are curiously shaped

structures, with a much greater approach to domestic than religious origin and uses. The summer-houses and garden pavilions are also pretty and attractive to a degree.

Baby Towers.—Among the curious buildings of China these must find a place. They have no connection with the crime of infanticide, which has been so greatly exaggerated by numerous writers. The buildings are of brick or stone, either round or polygonal, in which the dead bodies of infants of parents too poor to buy a coffin are deposited. They are usually about 20 feet in height and 15 feet in diameter, with two openings about six feet above the ground level, one for the reception of male bodies and the other for females. The bodies are generally wrapped in matting and laid upon the sills of the openings, as the Chinese dread to hear the sound of the infant dropping into the tower. The new-comer pushes in the previous one, and is left to be similarly treated—a gruesome, singular, and sad mode of “burial.” The buildings are erected by the charitable societies, with which the country abounds.

Official Residences.—The Viceroy and high officials of provinces, districts, and cities occupy residences which usually embrace a court-house and the means of incarceration of prisoners, where extortion can be practised should delay “accidentally” arise in the hearing of the suit. These buildings are often temples, adapted to the uses of the officials, their retinue, and an innumerable number of hangers-on. The Chinese not being a warlike nation, the dwellings of the nobility are not found walled or fortified, and have thus taken their chance with the other buildings of ready extermination. The feudal system was, however, largely practised, and a wealthy man was expected to provide, besides the dwellings for his legitimate wife and numerous concubines, others for the occupation of a considerable number of servants, who are usually the poorer relations or connections of the family; and as the elder son becomes also the high-priest of the family or clan, so ancestral halls are more numerous than the castellated mansions of prouder and more warlike peoples. The country-houses of the wealthier classes are often of considerable extent, and comprise several detached buildings prettily apportioned in gardens, with quaint artificial rockeries, tunnels, ponds, bridges, &c., and embellished with trees, shrubs, flowering bushes, plants, and creepers. Landscape gardening forms an important and much cultivated art. The general “plan” consists of buildings and courts alternately one behind the other, until the servants’ building is reached, the last of the main buildings being that usually occupied by the women.

Tea-houses and Gardens.—The tea-house, employed much as the Parisian café, is a national and important feature, generally of a kind calculated to induce the people to occupy their leisure hours in the drinking of tea, the use of the soothing opium, and in the attractions of singing girls. They are usually of light timber construction, with verandahs or balconies, and enclosed by movable shutters, which will allow of the sides of the building being entirely thrown open during the sultry summer and the pleasant spring and autumn [fig. 8].

Pawnshops.—Pawnshops in China are of three classes: the *Tien-Tang* under Imperial decree, the *Chi-Tang*, and the *Tsu-Yah*, the two latter only being comparable with similar institutions in England. The former are of a higher character than any we are conversant with, and are of considerable age. Licences are usually granted for a sixty years’ term. They are generally remarkable features in viewing a city, as they tower to a height of four or five storeys beside the level plain of their two-storeyed neighbours. In more ancient times they were strongly built for protection against fire and thieves, and provided with means of defence in the shape of projectiles stored on their flat roofs. They are still important organisations, and employed as store-houses for winter and summer garments, for furs and articles of value, a small charge being made for the purpose. Here also advances are made on the goods stored within, to provide the means for trade, agriculture, and commerce. Especially where European influence and ideas have not yet penetrated, they are not under the stigma

which attaches to them in the West. They possess no architectural features of merit, and do not therefore demand detailed description. The same may be said of Chinese hotels and of ordinary theatre buildings.

Chinese Forts.—Although belonging more legitimately to the profession of a military engineer than that of an architect, forts must be classed as the work of masons, and therefore in the latter category, civil engineers, as we understand the term, being an unknown quan-



FIG. 8.—THE HU-SING-TING (TEA-HOUSE) IN SHANGHAI NATIVE CITY.

tity in the country. The buildings do not, however, present any points of interest, as their construction is rude and unscientific, and far behind the age of the modern armaments which they envelop.

Memorial Arches and Gateways.—The *Pei-loh* (often misnamed triumphal arch) is a memorial arch or gateway, sometimes comparing closely with its probable ancestor the *Toran* of India, and their offspring the *Torii* of Japan. Some are solid and massive erections,

whilst others consist of perpendicular shafts of granite, stone, marble, or wood, with horizontal ties; or, as in the more elaborate examples, with enriched entablatures, covered with projecting roofs at various levels; often with several spans in a row. They are usually erected by imperial consent in commemoration of those whose names are considered worthy of the reverence of posterity, to the honour of widowhood, or virginity or of some great or benevolent action. They are often elaborately pierced and sculptured, richly ornamented with bas-reliefs and inscriptions, the harmony of colouring rendering the effect greater than can be readily described. Some of these have been called masterpieces of Chinese art. Abbé Huc spoke of them as of rich and majestic architecture, the beauty of the sculpture having excited the admiration of all Europeans who had seen them. The Abbé David, in his *Journal de Voyage en Chine*, says:—

Précédemment, dans la seconde partie de mon journal au Setchuan, j'ai eu l'occasion d'exprimer mon admiration . . . non-seulement pour le grand nombre de ces monuments mais pour leur beauté, leur richesse, leurs grandes dimensions, l'harmonie de leurs proportions, et pour la richesse et le fini de leur travail. Je ne connais rien de si artistique et de si bon goût dans le reste de la Chine.

Those covered with embossed and glazed tiles give one the impression of a complete and immense piece of porcelain.

The Woo-fuh-sze, or "Porcelain Gate," near Peking, is an elaborate structure carrying the most minute and beautiful detail, and pierced by three pointed archways. The *Pei-loh*, at the entrance to the Chun-tsiang-cha at Peking, is illustrated in fig. 9. There is a five-span marble memorial arch at the Ming Tombs, which, although of somewhat heavy construction, is of considerable historical interest [see headpiece, p. 37], and immense numbers of these memorials are distributed through the country. There are few now remaining of a date anterior to the Ming dynasty, though history records many of much earlier periods.

Mausolea and Tombs.—Those of the emperors and grandees are, or were, imposing resting places. The Ming Tombs, now in ruins, near Peking, have been elaborately described by various authors. Here the ancient Ming princes, warriors, and councillors found stately burial. The spacious roadways or avenues of approach to these sacred precincts were usually lined with colossal figures in stone or granite monoliths, of elephants, camels, lions, dogs, horses, mythical animals, and men, in successive pairs at regular intervals—the approach to the Ming Tombs having 32 pairs of these images, the largest about 12 feet in height.

The "Tomb of the Kings," near the city of Nankin, was bounded by a wall some 14 feet high, enclosing an area of several acres; it embraced three large buildings separated by spacious courts. The first, the Hall of Entrance; then the Imperial Hall, constructed of wood, about 200 feet long by 100 wide, and containing the tablet of the deceased emperor. The roof covering was of yellow glazed tiles, gleaming golden in the sunlight. The interior was decorated with minute and elaborate painting. It was supported by 36 wooden columns, about 40 feet high and about 3 feet in diameter at the base, each a single stick of hard pine. The floor was of polished marble tiles. The third structure was of solid limestone masonry about 150 feet square. The edifices were surrounded by triple terraces paved with finely hewn stone, and enclosed with an elaborately wrought stone balustrade.

The family tombs of the wealthier classes are sometimes of considerable area, the high mounds surrounded with stately pines, and, where the natural formation of the ground lends its aid, often terraced with stone or granite walling, flights of steps, carved tablets, and dragon guards, the whole enclosed with a wall or fence. Favourite places of burial are the sides of hills, the grave space varying considerably in the different provinces. A depression shaped like a horse-shoe or the Greek letter *omega* is cut into the hill-side, the curve towards the summit, a few steps leading up from the mouth of the shoe. The memorial tablet is placed erect upon

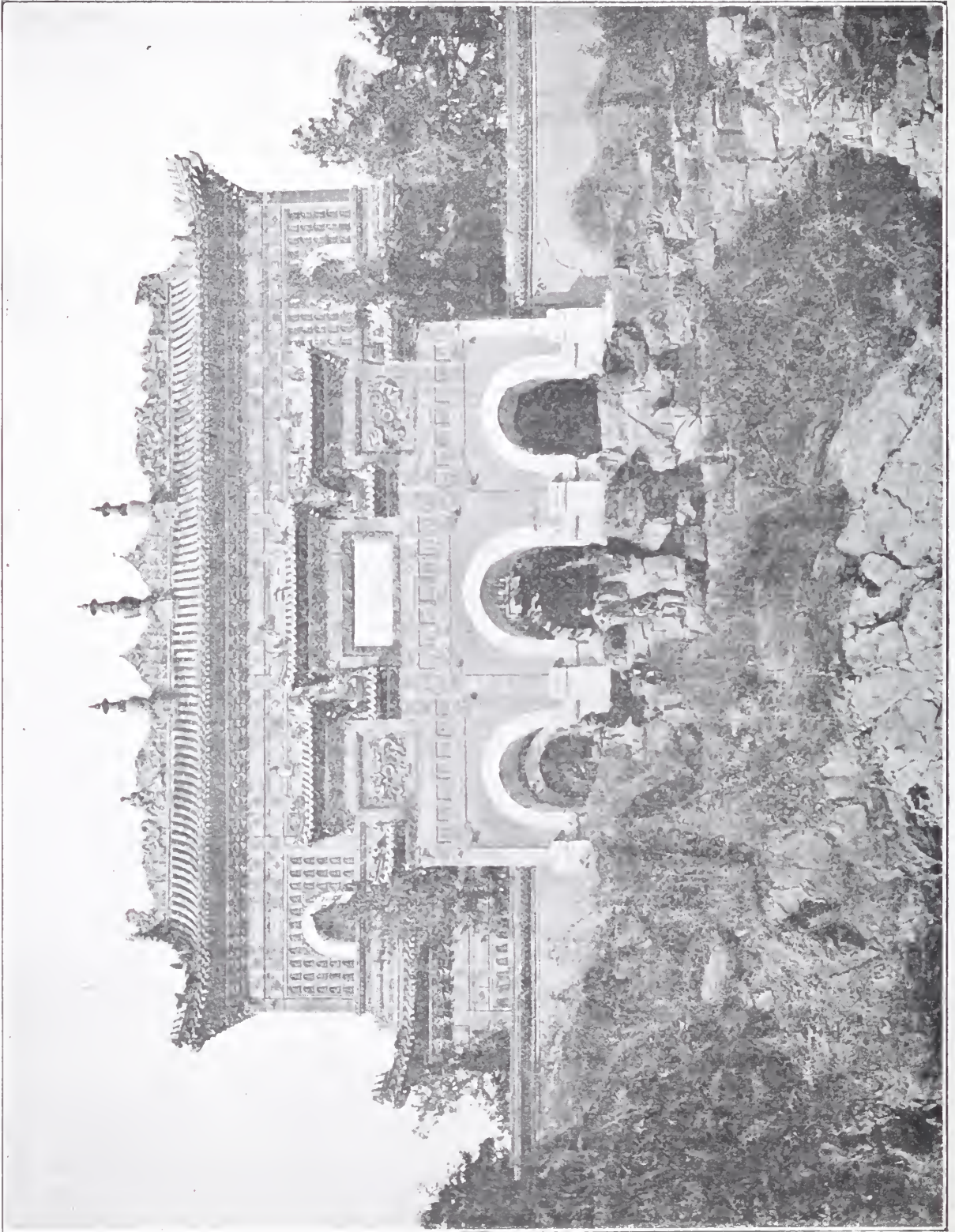


FIG. 9.—GATEWAY AND FRONT OF THE CHUN-TSIANG-CHIA AT PEKIN.

the platform, or against the perpendicular wall of the hill. The sides are lined with stone, and mythical dogs or the Chinese Phoenix guard the entrance. A more general mode of burial is to place the wooden coffin containing the corpse on a stand, above or on the ground, sometimes merely thatched as a protection against the weather, the massive coffin being filled up with quicklime (unfortunately omitted in some instances). When the financial condition of the family admits, this is enclosed with brick walls, and covered with a tiny roof or a conical tumulus of earth. Cremation, once a national custom, is still practised, but now confined to babies and Buddhist priests. In the southern provinces the dead are placed below the ground level, with raised mounds and small headstones. The greatest respect and reverence are accorded to all burial-places; but although fancy runs riot in the form of tablets and grave enclosures, little real architectural effect is attempted in any but the Imperial Mausolea. The magnificent tomb which received the remains of the last Emperor of China is said to have occupied about fourteen years in execution.

Bridges.—Before touching upon this subject, a word may be said upon the innumerable network of canals for navigation and irrigation which are spread over all the low-lying provinces, and of that greatest triumph of engineering skill in China, the vast waterway known as the Grand Canal, which is 600 geographical miles in length, and extends from Tientsin, in the province of Chili, to Hangchow, in the province of Chekiang. The principal highways of China being her navigable rivers and canals, the number of bridges is legion. It is credibly stated that at one time, in the native city and suburbs of Shanghai alone, the drawbridges and others amounted to a round half-hundred. Suspension bridges of rude form, and with but the barest elements of engineering skill, appear at intervals in various parts of the country; but by far the greater proportion are those with flat spans and piers, or arches of varying shapes, built of stone, granite, marble, brick, or combinations of these materials. Chain bridges of 50 yards in length and over are found in the province of Yunan. They are formed of a series of large oval-linked iron chains tightly stretched across the stream, the ends being bedded in masonry: on these the plank roadway is laid.

The *Wan Show Keaou*, or Bridge of “Ten Thousand Ages,” at Foochow, in the province of Fokien, is one of the best known and most celebrated of the flat-spanned variety. The principal portion of the bridge, running from the mainland to a small and picturesque island, is nearly 2,000 feet in length and 14 feet in width. The roadway is of solid blocks of grey granite, some of which are 45 feet long and 3 feet thick, upon which are laid other slabs: it is protected by a stone railing. This rests upon forty piers of huge blocks of hewn granite, the buttresses being wedge-shaped at both ends, the better to withstand the almost irresistible floods. The transport of the material from distant quarries and the mode of fixing the blocks in position is a gigantic undertaking. Nine spans of similar character connect the island with Nantai. The river, according to local histories, was spanned by a bridge of boats from about the year 1100 until 1300, when the erection of the present bridge was commenced under Mongol supervision. It has undergone considerable damage at various times, generally caused by the heavy logs of timber which are floated down the stream. Frequent repairs have been effected, the last extensive works being undertaken about 1830; and it stands to-day a monument of patient toil, ready for further centuries of utility, and defiant of the destroying hand of time.

A bridge near Pekin, commonly termed the “Marble Bridge” [fig. 10], is of seventeen stone arched spans, the roadway being protected by magnificent white marble balustrades. The nine-arched marble bridge near the same capital is more legitimately entitled to the name, as marble is more generally employed in its construction. This is some 600 feet long. Both are exceedingly elegant structures. There is a fifty-three span stone-arched bridge near

Soochow which is of historical interest as the one which "Chinese Gordon" had just left before the portion he had been standing upon was blown away by the fire of the enemy.

The great majority of the arched bridges of China are of stone or granite, the construction of the arch being curious. The *coussoirs*, instead of being thick blocks of stone with radiating joints, are generally of thin curved or shaped slabs laid lengthwise with the arch, the slabs often measuring 4 or 5 feet in length by a couple of feet wide and some 6 or 8 inches thick. Alternating with these long courses are narrow *coussoirs* at right angles to the slabs, keyed into the masonry backing.

General Notes.—Comfort, as judged from a Western standpoint, is almost unknown in China. Fires are principally used for absolutely necessary domestic purposes, and not for comfort or luxury, although hypocausts are employed in the north. Chimneys are seldom

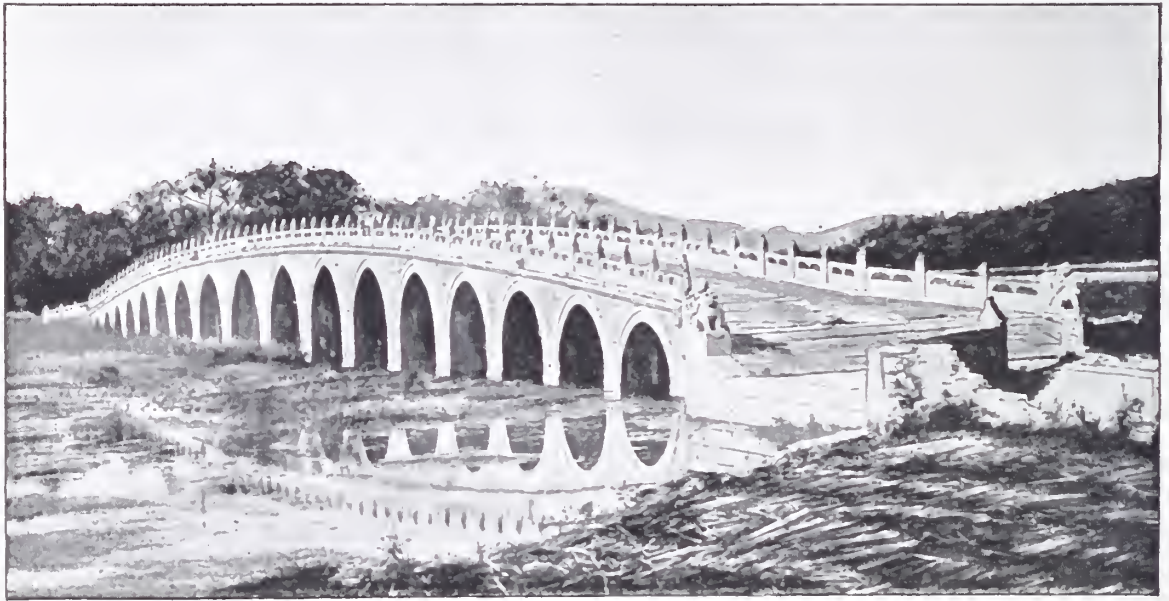


FIG. 10.—THE "MARBLE BRIDGE," NEAR PEKIN.

provided, and the charcoal or wood furnace is generally allowed to eject its fumes or smoke into the cooking apartment with which all the better class of houses is provided. The slight use of coal, however, has its advantages, as the towns and cities are free from the stifling blanket which envelopes most European towns.

The shortness of the winters and the absence of fires or general heating arrangements tend to make orientation a great desideratum, especially in the poorer houses. As a protection against both heat and cold the fronts of houses usually face the south, all other aspects being enclosed as far as practicable; the heavy projecting eaves or verandahs protecting the fronts against the summer sun, and the high wall in front of the courtyard against the winter's wind. Thick and heavily wadded clothing in innumerable layers, with furs, ear-protectors, hoods, &c., are also worn during the cold season. The fronts of the houses, being usually composed of long movable casement windows, are entirely open in ordinarily mild weather; and in the larger houses, when the buildings are ranged round the courtyard, the eastern and western wings are employed as passages and means of communication between the northern and southern blocks of main buildings; or, as in the case of the guild-halls, for the "dress circle" of the better class, the rabble filling the "pit" or courtyard during the performance.

A word on the subject of windows may be said. Glass is rarely used, even where "foreign"

ideas have penetrated. The ornamental panels of windows and casements of the buildings are usually filled with oyster-shell laminæ, which give an exceedingly pretty and effectively subdued light. In the dwellings of the poor, and not by any means wholly restricted to this class, paper is often employed. With a nation so strongly imbued with religion, or the geomantic though modern *Fêng-shui* (the twin Spirits of Wind and Water), the good and ill luck attaching to special sites, aspects, and conditions, many things which to our minds would be additional aids to comfort and luxury are impossible of execution. That it should often be considered necessary to make an opening in the tiled roof for the spirit of the dead to depart after leaving its earthly tenement will be a sufficient example to prove that the religious superstitions of the nation must exercise a powerful influence upon the character and detailed arrangements of the buildings.

In conclusion, I desire particularly to express the opinion that, although there may be nothing *grand* in the Chinese architecture as seen to-day, there are remains and proofs of a distinctly national architectural style. The slender and elegant monolithic columns of stone, bronze, and wood, with base, but without capital; the decorative dragons encircling or enriching them; the shape of openings; the form of roofs, ridges, and terminals; the pattern and design of the ornamental woodwork or pierced stone; the shape of mouldings; the grotesque character of all carved work (except foliated); and the curious but beautiful neutral notes of applied colour—all these, I maintain, constitute a “style” as distinct as the most rigid Gothic or Classic rules can be said to form. Any definite deviation from recognised proportions or accepted conventionalities, and the “custom” established by the work of centuries, should be considered, as it would surely be, as grave an error in the one case as in the other.

To those who desire to gain a deeper insight into the earlier days and general condition of this empire I would commend the great work* by Du Halde, *A Description of the Empire of China and Chinese Tartary* (translated 1738–41), which, although in some respects now out of date, contains a vast amount of detailed information, and is of more general interest than any other individual work which has come under my notice.

DISCUSSION OF MR. GRATTON'S PAPER.

MR. ALEXANDER GRAHAM, F.S.A., *Vice-President*, in the Chair.

Mr. William Simpson [*H.A.*], R.I., writes:—

The mere classification of structures included within the range of Chinese architecture would have been worthy of a place in the *JOURNAL* of the Institute, even if it had not been accompanied with the valuable information presented to us by Mr. Gratton. His account of the Chinese Guilds must be a surprise to those who never heard of them before. The plan of the Buddhist Temple, which is also a monastery, bears a slight resemblance to the rock-cut viharas of India, and yet the Chinese arrangement of an ordinary house plan predominates. The “Beamless Temples” are new to me, and are, I take it, an exception to the usual Chinese mode of building; and Mr. Gratton's description of them suggests the question as to whether they may not have been, perhaps, a rude imitation of the Indian Buddhist Chaitya cave. Mr. Gratton says they were constructed “during a period of great Buddhist fer-

“your.” The *Yang* and the *Yin* [fig. 2] are referred to only as a decorative form. They are, I believe, far more than that in Chinese architecture. The great Temple of Heaven in Pekin is circular in form, because it symbolises Heaven, or *Yang*; the Temple of Earth, again, is square in plan, as the earth is *Yin*. Even the common mounds over graves, such as are seen around Shanghai, are, when new, and not changed by the action of the weather, formed with a square base, which is *Yin*; and upon that is a dome of earth, which is round to represent the *Yang*.

The reference to the words “Pagoda” and “Dagoba” leaves one in doubt as to whether the author means that the one word is only a variation of the other. This identification of these two words has been often made, but there is no possible connection. Dagoba is from *dhātugarbha*, a “relic-receptacle,” the name still given to stūpas in Ceylon. It is not so easy to say what “Pagoda”

* Results mainly of travels of French Jesuits, of whom the Père Du Halde was the exponent, during the latter

half of the seventeenth century; published in 1735 and dedicated to Louis XV.

comes from. The late Sir Henry Yule, in *Hobson-Jobson*, gives a long article on the word. The usually accepted origin has been from the Persian *But-Kadah*, an idol-temple; but Yule is inclined to derive it from the word *Bhagavat*. As to the question of thirteen-storeyed pagodas in China, there need be no doubt as to the number; the northern examples about Peking have merely roofs in place of storeys, and the Pa-li-chang Pagoda at Peking has thirteen.* Mr. Gratton refers to the Tung-Chow Pagoda, which has also thirteen stages.† A pagoda with thirteen rooms, one over the other, would be a huge pile, and not likely to be often repeated, but the instances given show at least that there was no objection to this number.

Mr. Gratton does not venture on the tent theory for the origin of Chinese roofs. In a former Paper ‡ of mine another theory was suggested, which still appears to me far more likely to explain the curves in Chinese roofs than the "tent theory." That is that the form was the result of having used bamboos, or, it might be, some other wood that was liable to bend from weight being put upon it. What is known as the Bengal "thatched roof" was, we know, produced in this way, and it gave birth to certain curved lines which are recognised as beautiful in Indian architecture; and these forms are now repeated in stone and marble. It is in keeping with our experience that architectural forms resulted from the materials used in construction, and this theory would be in accordance with that experience, while the tent theory would be entirely opposed to it. If anyone could work out the meaning and origin of the complicated system of brackets in a Chinese building, this peculiar construction, if it were explained, might throw some light on the first beginnings of the Chinese roof. These brackets are, I consider, entirely of wooden origin, and could not possibly be derived from a tent.

Mr. T. Watters, to whom an advance proof of the Paper had been sent, writes:—

I have dotted down a few observations which may be of some use. On p. 37 the words "the teachings of Mencius" may mislead; Mencius's teachings are always considered a part of the Confucian system. With regard to the statement [p. 38] that the temples are employed "merely for impostures practised on the lower orders by a decaying priesthood," it should not be forgotten that many of these temples have no priests at all, and that many priests do not attempt any imposture, but leave everything to the worshipper.

The figure [fig. 2] called the T'ai-Chi (or

T'ai-Ki) is painted or otherwise exhibited on the middle of the ridge-beam of Chinese buildings. In constructing a house this ridge-pole is the first thing set up, and the rest of the house is built up to and down from it. T'ai-Chi has various uses, but generally denotes "the ultimate beginning." In it are involved the principles which are developed into the "male and female principles of nature."

Referring to the Great Wall, Mr. Gratton says: "An addition was made to it." Should this not be, "A branch was added to the old wall in the time of the Yuan or Mongol dynasty"? Referring to Canton he says:—"It is again subdivided by other high walls." The city wall next the river is that of the New City; through gates in this one passes into the Old City on the north side.

On p. 42 the author mentions the "Queen of Heaven." This is a rather serious slip of the pen. In the Temple of Heaven there is no shrine or place of worship for any one except Heaven. The "Queen of Heaven" is a sailor's goddess of comparatively recent date. What Mr. Gratton calls "The Temple of Earth" is properly the Temple of Agriculture, the semi-mythical Emperor who first taught agriculture being one of the four objects of worship in it. Within the enclosure of this temple the Emperor performs the yearly rite of ploughing the ground.

The Isle of Pootoo referred to on p. 44 is sacred to the votaries of Kuan-yin Pusa. But the inhabitants are not "solely employed in temple administration." There are many families to cultivate the rice crops, and there are numerous shops for the sale of the common necessaries and comforts of life. The description of a Buddhist temple quoted from Sir John Davis seems to be a fairly good description of the Honam Temple, not in Canton, but on the south side of the river. It is known to the natives as the Hai-Chuangssü, or Sea-Curtain Monastery. But the insertion [? Confucius] after the name of "Kuan-foo tsze" will mislead. Kuanfootsze [p. 45] is Kuan Ti, or the God of War, as the context of the description shows. Confucius is K'ung-foo-tsze. Again, "Pusien" is Pu-hsien P'usa, *i.e.*, Samantabhadra Bodhisattva to whom the whole of Omi is sacred. The "bronze and gilded figure of Buddha" which Mr. Gratton mentions is perhaps also Pu-hsien P'usa. He further describes Buddha as "a triune divinity comprising three persons in one," &c. [p. 47]. But the three images are symbols of Buddha, the Canon, and the Church—the Buddha being always between the other two.

The statement [p. 48] that "every trade or craft in China is bound together in a Guild" is likely to mislead. The trades and crafts are not generally bound in any union; some of the large branches of business, as tea and silk, have guilds or committees. But the large buildings all over China known to the natives as "Hui-Kuan" (Mr.

* TRANSACTIONS, Vol. VII. N.S., p. 229, contains an illustration of this pagoda,

† See Fergusson's *Indian and Eastern Architecture*, p. 697, where this pagoda is figured.

‡ TRANSACTIONS, Vol. VII. N.S., p. 236 *note*.

Gratton's Wei-Kuan) and to foreigners as "clubs" are of a geographical character. Thus there is a Fuhkien club at Ningpo, Canton, &c., for all people belonging to that province. As very many of the Fuhkien people are tobacco merchants their guilds may to some extent be like tobacco guilds. But the Hui-Kuan embraces and looks after all kinds of people, officials, merchants, travellers, paupers. It may be interesting to know that some of the finest of these guilds are to be seen at Shasi, a town on the Yangtsu, about 300 miles above Hankow.

Mr. Gratton says of "Pagoda" that "the word" is of Hindustani derivation"; but this is at least doubtful. No one has yet satisfactorily accounted for the word; but the derivation which has most favour is that from the Persian *But-Kadah*, an idol temple or house. The Chinese pagodas, though of Buddhistic origin, are at first sight unlike any tope or other Buddhist structure of India or the countries to the north and north-east of India. But a closer examination shows that many of the pagodas adhere to some extent to the old models as described by early Buddhist writers. Thus, *e.g.*, the Flowery Pagoda of Canton, which Mr. Gratton mentions has the Amalaka and umbrellas, &c., of the old topes of North India, dates from A.D. 537.

Among the curious tower-like buildings in China few are more interesting than the two octagonal structures near Kiukiang. These are on either side of the entrance to a ruined old establishment called the T'ai-p'ing-Kung. This is now a Buddhist monastery, but it has had various vicissitudes of fortune. The towers and other buildings are in ruins. The bridge of Ten Thousand Ages at Foochow—a remarkable bridge—is due to the exertions, zealous and long continued, of a Buddhist ascetic. It was built without any assistance or interference on the part of the authorities, and it is said to be about 700 or 800 years old. The damage which the bridge has sustained from time to time is confined to the top part, and is due not to the floats of timber but to the summer freshets. Not very far from this bridge, on the west, is another which was built by the authorities. This is a very inferior structure, and is generally in utter disrepair.

There is one item in Chinese architecture of which Mr. Gratton does not seem to make any mention—that is, the employment of glazed or polished tiles, which are much used in Chinese buildings of a public and private character. Many of the tiles show the Swastika and other forms of the cross, and some are very handsome.

PROFESSOR AITCHISON, A.R.A.—Sir, I should like to be allowed to propose a vote of thanks to Mr. Gratton for writing this very interesting Paper, and to Mr. Kidner for reading it. As it has been justly said, we architects are the judges,

or at any rate the students, of all the architecture that the world has produced; and we greatly want the lessons, for, although almost every other country has produced a style of architecture of its own, we have yet to make that attempt. I hope it will not be long before we do. I confess I envy Mr. Gratton the opportunity of seeing the splendid way in which the interiors of the temples and large buildings of China are coloured. It is one of the things that we all look forward to seeing more largely adopted in England than it has hitherto been. To speak alone of that discovery which was made by the French, and which but for the parsimony of our Government would have been made by us—the Great Palace of Darius at Susa, which Mr. Loftus began, and which was followed up so successfully by Mons. Dieulafoy. The Louvre has now some of those splendid coloured friezes that were done in common glazed bricks, from which the French, with that aptitude and artistic skill which so distinguish them, immediately took the hint; and at the last Exhibition at Paris almost all the roofs were clearly animated by the lessons that had been learnt from that monumental colouring of Persia. I wish Mr. Gratton had told us a little more about the charming method of lighting by the laminae of oyster-shells. All of us who have been to Florence still bear in grateful remembrance the lovely light at San Miniato that comes through the paronazze to slabs which glaze its choir; Mr. Alma Tadema has used laminae of marble on glass in his windows with great success, and Miss Burke has two marble slabs in two of these windows which give us all the glory of sunset amid storm-clouds. Of course until glass could be cheaply employed very few openings were glazed. In olden time parchment was used for this purpose—indeed, I have seen it myself in out-of-the-way places in Italy—while other houses there had shutters pierced in patterns, not at all like the Oriental lattices, but made of boards put together, in which very elaborate and very beautiful patterns were pierced.

SIR HENRY HOWORTH, K.C.I.E., M.P.—Sir, I am exceedingly fortunate in making the acquaintance of this most hospitable and most influential Society on an occasion like this, when a valuable Paper on my own pet country has been laid before you. When I was presiding the other day over the Royal Archaeological Institute, it struck me very forcibly that the great lesson of art history is continuity. Apart altogether from the practical lessons which you gentlemen as architects can learn even from these painfully uncouth buildings—many of which, however, have features and characteristics which suit most admirably the peculiar circumstances of the climate and the surroundings in which they are placed—there are other great lessons which the historian, and especially the historian of art,

finds at his elbow in almost every one of these photographs. English architects, in transferring to the tropics the buildings that they are accustomed to deal with in this country, have failed sometimes to realise the conditions of climate and position. Take tropical settlements like those on the coast of Africa. There bamboo buildings are essentially the buildings which seem suited both to the climate and to the desperate sun heat, and to the other conditions of the place, so that they have spread, not only to Japan in one direction, but you get them all over the Indo-Chinese countries. This bamboo structure, as I call that peculiar architecture with tall peaked umbrageous roofs that give you deep shade and draught—made of wood which the white ants will not touch, which are therefore exceedingly lasting—I cannot help thinking is one that sometimes English architects, when at work in the tropics, might well take a few lessons from. But the great lesson is that of the continuity of the arts. Whether you take China, or one of our own Western countries, you have very little tendency to ideas sprouting and springing entirely fresh and new in an old country with an old civilisation; and when you see changes—great changes—in the shape of your buildings and ornaments, you may be certain that there has been contact with some other race, and contact with some other civilisation that has brought East and West together, and has diverted the whole course of construction and the whole course of ornament into an entirely different set of lines. Here, for instance, are a set of astronomical instruments preserved in the old Palace at Peking. Those instruments were all designed and made by the Jesuit missionaries who went to China at the beginning of the last century, and made for the great Chinese Emperor Kien-lung. There you have a sample of the contact of European art with that of China so lately as the last century, and one which had a very great effect upon certain branches of industry in China. If you go back a little further, you must let me tell you a quaint story. In a very big book, in many volumes, which I have written on the history of the Mongols, I tell the story of one of the great Mongol chiefs who conquered China and the whole of Asia and the greater part of Europe, and, so far as we know, was the master of the whole world, from the Carpathians right away to the Yellow Sea. He collected together at Peking artisans and workmen from all parts of the great Empire that he had conquered. One day, we are told, he collected together a number of his Chinese workmen, who were very conceited—as the Chinese are apt to be conceited. They were making a fresh code of laws, and in apportioning the death penalty they assessed the death of a Chinaman at some enormous sum of money, while the death of the Persians and Western Europeans was assessed at the value of an ass. Thereupon, the Emperor, who

was Kubla Khan, about whom Coleridge wrote his poem, told people to collect in his hall all the great Persian works which were brought by his troops from the West, and, having collected them together, he ordered in these conceited Chinese workmen and said, “Look, is there a single thing “here that you are capable of making?” and he at once had the particular clause in the penal code altered in conformity with his judgment of the relative worth of the products of the two countries. But here comes the lesson. These Persian workmen who went to China about A.D. 1260 introduced the art of making blue-and-white porcelain. It seems to me that we have made that out beyond question, and that what we call the blue Nankin china is a product that was absolutely unknown before the period when the Persian artisans introduced the art of making it. They had coloured their own splendid mosques with tiles, many made of this beautiful blue semi-porcelain, and the Chinese, with wonderful aptitude, at once adopted it and transferred it to their porcelain; and you will find that the beginning of very fine blue-and-white Chinese porcelain actually dates from the importation of these Persian workmen into China. Now, at an earlier date, we have the reverse process; we have found in many curious out-of-the-way districts (in the caves at Borneo, and all down the Swahili coast, in Africa, in Egypt, and Asia Minor) fragments of Chinese dishes. Those crackle and celadon dishes, all probably dating from the tenth and eleventh centuries, were imported by Arabs, who went all over the known world, like Jew traders; and whenever they imported them they at once started a new development in the art of the potter, and it became the fashion to imitate Chinese ware in all directions where it was possible. Again, when the East India Company planted their settlement in the south of China, two or three of the earliest ships that came to the West brought enormous cargoes of the same blue-and-white china which had then developed wonderfully in China itself, landed them in Persia, and they were taken on horseback to Teheran, the capital of Persia; and the great Shah Abbas of Persia was so struck with the wonderful ware—which was merely an imitation of the ware of his own country many centuries before—that he at once started a new manufacture of it. At South Kensington you may see these beautiful Persian wares, all imitated from China in the last century but one. I have no doubt that a certain style of gateway was imported into China by the Buddhists, because in the south-east and north-west of India, when they put the relics of one of their saints in the ground, they built over him a tope or stone mound, and then around this a walled enclosure—the *peribolos* wall of the Greeks—and in each corner they put a tower built precisely in that style, with projecting beams. There you have a type of

what the Chinese borrowed from India and the Hindoo in the early centuries A.D., when the Buddhist missionaries went from India to China and transplanted that kind of architecture to China, and transplanted a similar kind of architecture into Cambodia and Siam and the isles of the Eastern archipelago. Then we come to these wonderful pagodas; and here I am at one with the fine French scholar who has lately died, and whose brilliant imagination and gifts we all deplore very much—I refer to Terrien de Lacouperie, who, in some wonderful books, has proved that the earliest civilisation of all in China came, no doubt, from the West; that, whether the race itself was an indigenous race in China or not, its culture, its architecture, its arts, came from the West, and among other things the art of making bricks; because the bricks are made of sizes and shapes which are distinctly imitations of those found in the ruined mounds of Elam and Mesopotamia. And here you have in these pagoda temples the same kind of construction that those early Babylonian kings built in the valley of Lower Chaldæa. I have myself written a Paper lately in which I have collected together, not any facts of my own, but the facts collected by another great Frenchman who has been living in this district—namely, De Sarsec—and who has made some very wonderful discoveries there. These pagodas in many storeys, with little figures of gods on each storey, are copied, apparently, from the pyramidal many-storeyed buildings which are found in Lower Chaldæa, and are one of the proofs that the original culture of China must have come thence.

Mr. R. PHENÉ SPIERS [F.], F.S.A.—Sir, I have never been to China, but I have looked at these photographs with great interest. I was struck with the first portions of the Paper—the resemblance to Chaldæan and Babylonian structures; and what Sir Henry Howorth has said has suggested that that resemblance is not accidental, but is due to the fact that in the very early days of China there must have been some connection between the two countries; and that, as it was from the Chaldæans that the Chinese derived their great knowledge of astronomy in early times, so they may have borrowed their architecture. The suggestion which has been put before us as to the existence of these enormous cities, great portions of which consisted of agricultural land, reminded me of the great city of Babylon, which, from the description of its length and breadth, was so immense that one can only imagine that the greater portion of it was occupied by agricultural land, which was necessary for the support of the inhabitants at any time when they were besieged by other nations. One point, however, I have looked for, to a certain extent in vain, in the Paper. The Paper is on the Architecture of China, and the question, of course, which occurs to me now is whether there is anything in the architecture of China which

could be adopted in our own country. Is there anything which gives it a real claim to being a style? One cannot help being struck by the massiveness and the beauty of some of the structures of which we have photographs here. In one of the photographs exhibited [fig. 9] there is a gate with three arches, of which I have for some time possessed a photograph, and often looked at with admiration, chiefly for the simplicity of its lines and its fine construction. It seems to me to suggest a treatment which might well be placed before our students as a model to copy or to imitate in its principles. I am not now speaking of the complex roof, but of the massive construction of the lower portion. Until I had this photograph, I certainly had no conception that the Chinese had ever erected buildings of such solidity, and constructed features which are not of the usual ephemeral nature of their other buildings. There is no doubt that all these pagodas and temples were built only in bamboo for certain reasons—perhaps as being the most economical and best way, and perhaps, also, from the fact that the material of bamboo (Sir Henry Howorth will correct me if this is not true) is of that nature which requires that it be used without being squared. All our timber is at once squared and wrought; but the bamboo must not be touched. It consists of an outer hard casing and an interior of pith, which is so soft as to be of no value; but as long as you retain the outer casing it is of immense strength. It is no doubt due to this quality in its use by the Chinese that they have adopted their system of construction, which is of a totally different character from the framed truss in this country. The system of putting a series of tie-beams one above the other [fig. 1] and supporting the purlins at the end is a scheme of construction of which we have no experience. It has been suggested that the Chinese had better have adopted our system of trussing; but, apparently, they have obtained a lighter structure at far less cost, and possibly far stronger, than if they had attempted to frame their timbers in any way one into another. There is also another point which I think will appeal to all our architectural students at once. If there is any detail which attracts more attention, and to which we attach more value as judging of style, it is that one magnificent feature which we call the capital. What we should do without capitals I do not know; it is the first decorative feature that a student goes to in order to tell the date and style of a structure. Now, the Chinese have no capital; they have never adopted the feature. That is sufficient, therefore, to make it a style of less interest than any other. There is another point which I was interested in; unfortunately Mr. Gratton gives very little information about it, but it is an important one. I refer to what he calls “Beamless Temples,” which, he says, “are stone and brick

“structures of considerable size, with parallel walls forming several chambers, and covered with brick barrel-vaulted arches.” What were those arches, and how were they constructed? The description given here is almost akin to that in which one would describe the famous granaries of Rameses II. behind the Ramesseum at Thebes. These granaries, which are a series of chambers side by side, about twelve feet across, were vaulted with brick vaults, the construction of which was of a very peculiar kind. In the first place, all the rings of the arches were laid on inclined beds; and secondly, all the bricks were laid flatwise, and not endwise. The consequence was that these vaults could be built without centering of any description. That is a peculiar characteristic, and it is curious that in the palace of Sargon at Khorsabad all the arches were built in that way; the arches of the drains underneath were all built flatwise and all laid in sloping rings. The *voussoirs* of the bridges in China are, it seems, all built flatwise. Mr. Gratton says: “The greater majority of the arched bridges of China are of stone or granite, the construction of the arch being curious. The *voussoirs*, instead of being thick blocks of stone with radiating joints, are generally of thin curved or shaped slabs laid lengthwise with the arch, the slabs often measuring four or five feet in length by a couple of feet wide and some six or eight inches thick.” That is the key of the whole system. The Babylonian method of building by laying the arches flatwise enables them to build without centering, or with very slight centering, because these flat *voussoirs* can be laid up against the ring just built, and the friction caused by the flat stone lying up against the previously built structure is sufficient to retain its position until the rest of the arch is built. This suggests that the Chinese have at some period learnt from other nations, or have found out for themselves, the method of building arches without centres. I would suggest that, as Mr. Gratton has gone back to China, he might be requested to turn his attention to some of the similar brick construction of the country, to see if he can ascertain the earliest method of construction adopted in vaulted structures.

Mr. H. S. ASHBEE, F.S.A.—Sir, I could have wished that I had heard this Paper before I went to Peking, or that I could have had the guidance of the gentleman who wrote it, which would have been better still. Of course, as an outsider, one cannot fail to be struck with the marvellous architecture of that very remarkable country. I cannot think, however, that the buildings in China could at all be adapted to our way of living or our state of civilisation. The disposition of Peking itself is so very remarkable that a few words may not, perhaps, be quite out of place. It consists of four cities, one inside the other: the palace and gardens of the Emperor, or the Holy City; then around

that the palace of the high authorities; then around that the city of the soldiery, in which are the embassies and the one hotel; and then around that again the Chinese city, all being shut off one from the other, as has been explained, by walls, the gates of which are closed at sundown and opened at sunrise. Two other things are noteworthy, one of which is the Hall of Examination, wherein there is nothing remarkable from an architectural point of view; but the system of the whole thing is peculiar, each student being shut up in his little cell, the doors closed, and no one being allowed to move out of his prison until his examination is over. Food is brought to him, and he is not allowed to take any books with him, the Classics not being permitted to be printed in small form, so that there should not be any smuggling of that kind; and if anyone dies during the time of examination, the door is not opened, but the corpse is put out through a hole in the wall. Then, again, another curious thing in China, which also, more or less, is connected with architecture, is the House of the Dead. When anybody dies, especially if he be a man of position, he is not buried at once, as a rule, but he has a kind of chamber hired for him in this House of the Dead, and there he is surrounded by imitations of what he has loved during his life. I have seen piles of gold—piles of yellow masses imitating gold; or his favourite servant may be put up in effigy; or a horse, if he is fond of such an animal.

Mr. EMERSON, referring to statues of Buddha mentioned in the Paper as being coloured to represent bronze, asked of what material they were composed. Mr. KIDNER, replying, said he believed they were made of plaster. The various Buddhist figures he had seen in Chinese temples were chiefly plaster casts made in imitation of bronze.

Mr. WM. WOODWARD [A.].—I merely rise, Sir, to add my thanks to those which have already been expressed for the exceedingly useful and interesting Paper on what must be, to most of us at all events, an original subject: and I trust that as many as possible of the photographs exhibited will appear in the JOURNAL. They will form, certainly to those who have not had an opportunity of being here this evening, an interesting and useful study. Mr. Spiers has raised the question as to whether the Chinese style could be adopted in this country—which reminds me that the other day I was in the Queen's Palace at the Hague, where I saw a suite of apartments consistently decorated and furnished in the Chinese style, the effect of which was most beautiful. I do not know that we could afford to build pagodas, or that we should desire to do so; but in the way of decoration, and in the way of furniture certainly, there is a field open to us to imitate in this country.



9, CONDUIT STREET, LONDON, W., 22 November 1894.

CHRONICLE.

THE INTERMEDIATE EXAMINATION.

Probationers who have become Students.

At the General Meeting of the 19th inst. the President announced that an Intermediate Examination to qualify for registration as Student had been held at the Institute on the 13th, 14th, 15th, and 16th inst.; and that of the 55 Probationers who applied 50 had been admitted—forty-eight of whom presented themselves and were examined. Of these, twenty-nine passed, and nineteen were relegated to their studies. The twenty-nine, placed by the Board of Examiners in order of merit, are:—

- MORRIS: Percy; 63, St. John's Park, Blackheath [Masters: Messrs. Stock,* Page,* & Stock*].
- { SHARPE: Thomas, Jr.; Laurel Bank, Kendal [Master: Mr. Stephen Shaw*].
- { SURREY: Christopher William; 10, Neville Terrace, S. Kensington, S.W. [Master: Mr. Sextus Dyball].
- CUBBON: John; 33, Woodchurch Lane, Birkenhead, Cheshire [Master: Mr. T. W. Cubbon].
- SHEPPARD: George Lewis; Sansome Walk, Worcester [Master: Mr. Lewis Sheppard].
- PALMER: Charles Samuel Frederick; 50, Victoria Road, Kilburn, N.W. [Master: Mr. B. Elson].
- STONES: Edgar; 232, Amhurst Road, West Hackney, N.E. [Master: Mr. R. M. Roe*].
- HERBERT: Albert; 24, Upper King Street, Leicester [Master: Mr. James Tait*].
- TRIMNELL: Harold Conybeare; 15, York Buildings, Adelphi, W.C. [Master: Mr. S. R. J. Smith*].
- WATSON: Arthur Maryon, B.A. Lond.; 9, Nottingham Place, W. [Master: Mr. T. H. Watson*].
- { FOWLER: Henry Tutty; 2, Beechwood, Kendal [Master: Mr. J. F. Curwen*].
- { WADDINGTON: Albert Wheatley; Broad Oaks, Mirfield, Yorkshire [Masters: Messrs. Kirk* & Sons].
- GLOYNE: Alfred Harry; Longford Terrace, Edge Lane, Stretford, Manchester [Master: Mr. J. W. Beaumont*].
- { LOVE: Gilbert; Oolite House, Odd Down, Bath [Masters: Messrs. Browne* & Gill*].
- { VOWLES: Thomas Hubert Hardinge; 30, February Street, Chorlton-on-Medlock, Manchester [Master: Mr. J. A. Nuttall].
- CLAY: George Edward; Park Buildings, Crosfield Street, Warrington [Master: Mr. S. P. Silcock*].
- DAVEY: Henry Edmund; 1, Victoria Road, Choumert Road, Peckham, S.E. [Master: Mr. R. Lawrence].
- FORREST: John; Sankey Bridges, Warrington [Master: Mr. W. Owen*].
- DAY: Harry Daborn; 72, High Street, Godalming, Surrey [Master: Mr. Samuel Welman].

- GATES: William Frederick Baron; Wing Park, Wing, Bucks [Master: Mr. M. P. Manning*].
- ELLIS: Henry Augustus; 3 Park Terrace, Cambridge [Master: Mr. W. M. Fawcett*].
- CABLE: Charles Vincent; 176, Stockwell Park Road, S.W. [Master: Mr. Rowland Plumbe*].
- NORRIS: James Herbert; Wolseley Road, Godalming, Surrey [Master: Mr. Samuel Welman].
- STEADMAN: Vincent; Gifford House, Alma Road, Clifton, Bristol [Master: Mr. F. Bligh Bond].
- MORTON: Ralph Henry; 50, King Street, South Shields [Master: Mr. J. H. Morton*].
- STEVENS: Harold; 25, High Park Street, Liverpool [Master: Mr. C. E. Deacon*].
- HARRISON: Edward Lewis; Kenilworth, Hampton Wick, Kingston-on-Thames [Master: Mr. A. O. Collard*].
- TRAYLEN: Henry Francis; 15, Broad Street, Stamford [Master: Mr. J. C. Traylen*].
- BARROW: Stephen Ellwood; 2, Sanderson Road, Jesmond, Newcastle-on-Tyne [Master: Mr. F. W. Rich].

The asterisk * denotes members of the Institute.

These gentlemen have been registered as *Students R.I.B.A.*, thereby increasing the number to 130. The Testimonies of Study submitted by Messrs. Morris, Sheppard, and Trimmell will be on view at the Exhibition of Prize Drawings to be held in January.

Of the nineteen Probationers who were relegated to their studies until next March, six were relegated in all subjects of the Intermediate Examination, two in six subjects, one in five subjects, five in four subjects, one in three subjects, and four in two subjects.

Probationers' Testimonies of Study: Concession to the Royal Academy Architectural Students.

A recommendation of the Board of Examiners in architecture, adopted by the Council on the 5th inst., places architectural students of the Royal Academy of Arts on a special footing in regard to the Intermediate Examination; or, more correctly, removes a difficulty which has possibly prevented some of them from applying for admission to it.

The requirements of the Royal Academy involve the production, on the part of its students, of various drawings, which, but for some comparatively unimportant conditions as to size and arrangement, would be presentable as testimonies of study (in the Art Section) for the Intermediate Examination. Realising that an Academy student may thus have by him a collection of drawings which, though fulfilling the spirit of the Institute's requirements, do not meet the precise letter of the regulations, the Council, on the advice of the Board of Examiners, have passed a resolution which, in effect, makes a student's Academy drawings admissible as testimonies of study in the Art Section, provided that there are among them sufficient studies of Gothic work to cover the requirements of paragraphs 4, 5, and 6. It is intended that those students who have not among their drawings such as will meet the essential requirements of the paragraphs in question should prepare special sheets of drawings

for the purpose, to submit with their Academy work for the approval of the Board. It is perhaps unnecessary to explain that drawings sent in under this new regulation will be considered on their own merits, and if below the required standard will be rejected.

The testimonies of study, which must be approved by the Board of Examiners before a Probationer can be admitted to the Intermediate Examination, consist of eleven sheets of drawings (half double elephant, *i.e.*, 27 inches by 20 inches), neatly and carefully finished; and the seven sheets in the Art Section must be accompanied by a written description, illustrated by sketches, that is to say:—

Art Section.—1 and 2. Two sheets, giving examples (one on each sheet) of any two of the Orders of architecture here named—the Doric, the Ionic, or the Corinthian

fully figured, drawn in outline with the ornament and enrichments filled in; each sheet to contain two columns of one Order with entablature complete, drawn to a scale of half an inch to the foot (the columns being not less than 20 feet high), and details one-eighth full size.

3. One sheet of details of classic ornament in outline.

4 and 5. Two sheets, containing examples (one on each sheet) of any two of the periods here named—the Early English, the Decorated, or the Perpendicular—such as a door, a window, or an arcade, in plan, elevation, and section.

6. One sheet of details of mouldings and ornament relating to such examples, to scale.

7. One sheet of ornament freehand drawing from the round, in outline.

Instead of being obliged to make special drawings on seven sheets of paper, as above described, architectural students of the Royal Academy are now permitted to submit drawings which need not be expressly made for the purpose, but which fulfil the spirit and intention, rather than the letter, of the seven testimonies of study required from Probationers to show their fitness for taking part in the Art Section of the Intermediate Examination.

Royal Academy students will no doubt recognise the action which has been taken to remove an unnecessary burden, and it is to be hoped that those among them who are Probationers will avail themselves of the special facility thus provided. At the same time they must not forget that, before they can be admitted to the Intermediate Examination, they will still have four sheets to specially prepare, in accordance with the following regulation:—

Science Section. 8. One sheet containing diagram of timber-framed roof-truss, not less than 30 feet span, with the nature of the strain on the several parts marked thereon, the ironwork and the junctions of the timbers drawn to a scale of one inch and a half to the foot, in isometrical projection and dissociated.

9. One sheet showing in similar manner at least two varieties of each of the following floors, *viz.*, framed timber, combined iron and timber, and fire-resisting.

10 and 11. Two sheets of details of joiner's work in doors, windows, and fittings, shown in plan, elevation, and section, to a scale of one inch to the foot, with details, to a large scale, of mouldings and framing.

Notice of this modification will necessarily appear in the issue of the *KALENDAR* for October 1895, and also in the Examinations Pamphlet to be published in January. Meanwhile, a communication on the subject has been made to the Council of the Royal Academy of Arts.

Mr. Gratton's Paper.

The Paper on the Architecture of China prepared by Mr. Gratton [*F.*], of Shanghai, which was read at the General Meeting of the 19th inst. by Mr. Kidner [*F.*], formerly of Shanghai, attracted some interest among a few who had given special attention to the subject, and who had travelled in that part of the Far East. Mr. Hugh Leonard [*H.A.*] was kind enough to lend a piece of brick he had taken from the Great Wall at Kopie Koa—the size of the bricks being 20 × 10 × 4 inches—and also a couple of sectional diagrams of the wall he had made during his visit. On the table was the Paper on “Chinese Architecture,” fully illustrated, which, with other Papers, was issued by the Architectural Publication Society between the years 1848–1852 in the form of “Detached Essays and Illustrations.” The Paper by Mr. Wm. Simpson [*H.A.*] read before the Institute in December 1873, and published in the *TRANSACTIONS* 1873–1874, was also at hand. An album of fifty photographs of buildings in China, both old and new, presented some time ago by Mr. Gratton, was exhibited; while the thirty-five photographs he sent to illustrate his Paper, and some of which have been reproduced, were hung for the occasion. Nor ought it to be omitted that Mr. Colborne Baber's book, from which Mr. Gratton has made important quotations, is entitled *A Journey of Exploration in Western Ssu-Ch'uan* (Supplementary Papers of the Royal Geographical Society, vol. i. 80. Lond. 1886. John Murray); and that it is described by Mr. Archibald Little, also a traveller in China, and also quoted by Mr. Gratton, as “one of the finest books of travel ever written.”

The late Frederick Hemings [*A.*].

Frederick Hemings, who was elected Associate in 1882, and died on the 16th ult., at the age of thirty-nine, was the son of Mr. Wm. Hemings, Barrister-at-Law. Among the chief buildings which have been erected from his designs and carried out under his supervision were the south wing of the block of buildings in St. Paul's Churchyard, the site of St. Paul's Schools; the large block of warehouses in St. Paul's Churchyard, at the corner of Paul's Chain; the block of shops and offices in Finsbury Pavement, at the corner of Chiswell Street, formerly the site of the premises of Messrs. Cater, linendrapers; Clement's Inn Chambers, on the same side and facing the Royal Courts of Justice; Cheyne Court, Chelsea, comprising an acre of ground covered with resi-

dential flats; Palace Mansions, Addison Bridge, Kensington, another block of residential flats; and six blocks of residential flats in Greycoat Place, Westminster, now in course of erection for the Governors of Greycoat Hospital.

Additions to the Library.

A Handbook of Ornament, by Franz Sales Meyer, has been added to both departments of the Library. Mr. Hugh Stannus [F.] is responsible for this the second English edition of Meyer's work, which is a characteristic example of Teutonic thoroughness and completeness of treatment. Mr. Stannus claims that no other book of the kind, published either in England or abroad, can compare with Meyer's for the profuseness of illustration (it contains some 3,000 illustrations) or for the order with which its contents are arranged. Mr. Meyer and readers are alike indebted to Mr. Stannus for the correction of errors which occurred in the first English edition, and for his revision of the terminology in accordance with the best authorities [London: B. T. Batsford].

Safe Building, by Louis de Coppet Berg, is the fourth and revised edition of a work which gives in simple forms the practical and theoretical rules and formulæ used in the construction of buildings [London: Macmillan & Co.; Boston: Ticknor & Co.].

Life in Ancient Egypt, a translation by Miss H. M. Tirard of the German *Aegypten* by Herr Adolf Erman, contains 400 illustrations in the text and numerous plates [London and New York: Macmillan & Co.]. The author covers the history of those periods of ancient Egyptian history which have been styled the "Old Empire," the "Middle Empire," and the "New Empire."

Mr. Arthur Cates has added to his numerous contributions to the Library a handsome volume, *Strassburg und seine Bauten*, published by the Architectural and Engineering Society of Alsace-Lorraine, which contains some 655 illustrations in the text, 11 plates, and a plan of the town of Strassburg. Students and others who consult this work may be usefully referred to a letter from Mr. Cates (who has recently visited Strassburg) accompanying the donation, with the object of directing their attention to the buildings most worthy of observation.

The Rev. Dr. Thompson, Rector of St. Saviour's (St. Marie Overie), Southwark, has presented his little handbook of the history and antiquities of this notable mediæval building. The book is designed for the use of visitors, is plentifully illustrated, and has an appendix containing portraits and accounts of some of the eminent parishioners of the district, including Chaucer, Shakespeare, and Massinger [London: Ash & Co.].

The fifteenth edition of Murray's *Handbook to Rome* has been received from the publisher [London: John Murray]. The present edition, entirely

recast and almost entirely rewritten, has been produced under the general editorship of the Rev. H. W. Pullen, who is also expressly responsible for the editing of the notices of the mediæval antiquities. Dr. Alex. S. Murray [H.A.], of the British Museum, has corrected the notices of ancient sculpture, and prepared a fresh description of the most important statues and reliefs. The Roman antiquities have been thoroughly revised by Professor Lanciani [*Hon. Corr. M.*], and the paintings by the late Sir Henry Layard. The book, which consists of 596 pages and contains 92 maps and plans, has been printed upon thin paper made specially for the purpose of rendering it a convenient size for tourists.

A Handbook of Ancient Roman Marbles, being a history and description of all ancient columns and surface marbles still existing in Rome, with a list of the buildings in which they are found, by the Rev. H. W. Pullen (same publisher), has also been presented by Mr. Murray.

The Western Origin of Early Chinese Civilization, by the late Dr. Terrien de Lacouperie, has been presented by his widow, through the publishers [London: Asher & Co.].

Messrs. E. & F. N. Spon present *The Changes in London Building Law: a Critical Analysis of the London Building Act 1894*, by Mr. H. H. Statham [F.], Editor of *The Builder*. This criticism of the new Act is, of course, from an architect's, not a lawyer's, point of view. The articles contributed to last year's *Building News* by Mr. John Leaning on *Specifications* have now been collected by the author, who has extended their matter and published the whole in book-form [London: Sampson Low, Marston & Co.] under the original title. A copy of the book has been received from the publishers.

Among the numerous Transactions received there is only space to mention the following. *The Journal* of the Royal Society of Antiquaries of Ireland (vol. iv., part 3) contains many Papers of exceptional interest; Mr. S. K. Kirker contributes one on *Points of Resemblance between some Recent Discoveries in Greece and Ancient Remains in Ireland*; Dr. Munro contributes his second instalment on *The Structural Features of Lake Dwellings*; and Mr. W. J. Knowles a Paper on *Prehistoric Pottery from the Sandhills, and its Antiquity*. The number is excellently illustrated. Mr. J. Lewis André contributes to the *Collections* of the Surrey Archaeological Society (vol. xii., part 1) a Paper on *Compton Church*, with plan and illustrations, and notes on *An Ancient Lock at Beddington*, a fine example of the locksmith's art which Pugin refers to in his *Examples of Gothic Architecture*. The Society of Antiquaries of London have forwarded *Proceedings* (vol. xv., No. 1) and *Archæologia* (vol. liv.): the contents of the latter include Mr. E. H. Freshfield's Paper *Sword-stands in the Churches of the City of London*,

accompanied by illustrations of ironwork of ingenious design, used for the purposes of a municipal custom, now obsolete; Mr. W. H. St. John Hope's Paper on a remarkable series of wooden busts surmounting the stall-canopies in St. George's Chapel, Windsor; and a commentary by the Hon. Alicia M. Tyssen-Amherst on a fifteenth-century treatise on Gardening by "Mayster Ion Gardener," the original MS. of which is preserved in the library of Trinity College, Cambridge.

REVIEWS. XVI.

(47.)

BABYLONIA & CHINESE CIVILISATION.

Western Origin of the Early Chinese Civilisation from 2300 B.C. to 200 A.D.; or, Chapters on the Elements derived from the Old Civilisations of West Asia in the formation of the Ancient Chinese Culture. By Terrien de Lacouperie. Imp. 8o. Lond. 1894. Price 21s. net. [Messrs. Asher & Co., 13, Bedford Street, Covent Garden.]

Some fourteen years ago the lamented author of this extraordinary book, after twelve years' labour, put forth the theory that the early civilisation and writing of the Chinese were simply derivations from those of Elam and Chaldaea; that in the twenty-third century before Christ the Bak tribes, future civilisers of China, branched off from the vicinity of Elam and Babylonia, and migrated eastwards. This theory, it is alleged, was first promulgated in 1879-80, and Terrien de Lacouperie, a naturalised British subject, was the first to publish it; or, in his own words, it was "the first time that this solution was proposed, and nobody had ever even suggested it before me." He then maintained, and continued to maintain, in a hundred papers and pamphlets, that, in spite of obstacles of time and space, China had never been without knowledge of Western civilisation, of which knowledge she had taken advantage.

The late Dr. de Lacouperie's last work (he had two others in preparation at the time of his death), which consists of more than 400 pages, is not entirely fresh matter. Some 250 pages have already appeared in *The Babylonian and Oriental Record* 1889-94, of which he was the director; but, as they are links in the chain of evidence he had collected, they were properly reprinted in this book. The whole work betrays too surely on every page the laborious learning of the scholar; the ordinary reader may sigh in vain for the skill of the bookmaker, which is nowhere apparent. Indeed, this was patent to its author, who, in the *Introduction*, craves his reader's indulgence, inviting him "to read first the pp. 373-397 before proceeding with any other part"—pages that terminate the text of his book, and form a twelfth chapter, which is a chronological sketch of the Pre-Chinese and Imported Civilisations of China in Antiquity.

The civilisers, the Bak Sings, are said to have

brought with them into China the custom of building in sun-dried brick and of stamping bricks; doors on sockets; pillars for houses and prominent roofs; lofty terraces for astronomical purposes, and large square altars; and other elements of Western civilisation. They introduced the art of writing, arranging their characters like the Babylonians in columns. They also brought with them the Western methods of making canals, embanking rivers, sinking wells; of irrigation and of husbandry. Due to them, further, was the introduction, according to Terrien de Lacouperie, of the composite bow, the archer's tumbler, the sword, the potter's wheel, the mortar, the smith's bellows, the West-Asiatic plough, the plumb-line, the wedge, the balance scales, ox-wagons . . . a canopy over light chariots; the use of gold, silver, copper, lead, and tin (but not of iron nor bronze), and the arts of casting them into vases, bells, war weapons, and other implements; cinnabar; long dresses; peculiar head-dress; special emblems on their rulers' robes and royal staff with auspicious bird on top, and state umbrellas, fans, walking-staffs, rings, personal seals; shoes and sandals; stools, bedsteads, and mats; customs of mullets instead of corporal punishment, tattooing for ignominy; cutting the left ear of slain on battlefield; besmearing the war weapons with the blood of prisoners; notions of eschatology (double soul); the nose as beginning of a human being; 120 years natural length of life; importance of personal names and their inscription for preservation by after generations. As domesticated animals they had the ox as driving beast, the horse and perhaps also the ass as pack animals, the dog, the sheep, the fowl of Media, &c. Some peculiarities of art designs; the single and the double flute; the drum in earthenware and leather, and the tambourine; sort of reed organ and the bell, &c. (pp. 373-80).

The foregoing, which is only an extract from the chapter entitled "Imported Civilisation by the Chinese Bak Sings," is followed by a "Chronological List of Western Relations with China and their Importations from 2300 B.C. to 220 A.D."

The introduction of yoked or car horses is alleged therein to have taken place about the twentieth century B.C. In the sixteenth century B.C. a foreigner from Karashar (in what is now Eastern Turkestan) made the first catalogue of stars, arranged prayers to the hills and rivers, and introduced the use of the divinatory plant (*Ptarmica sibirica*). The importation of jade from Eastern Turkestan occurred as early as the twelfth century B.C. In the seventh century B.C. traders from the Indian Ocean introduced coinage standards of weight and measure, quince fruits of Media, the twelve zodiacal signs, &c. The first arrival of Buddhist missionaries is said to have taken place in the third century B.C., but the official introduction of Buddhism into China was not effected until about A.D. 67. In the second century it is recorded by Lacouperie that Roman merchants, when An-tun (Marcus Aurelius Antoninus) was Emperor, arrived at Kattigara and Canton to open intercourse.

The above extracts are but fragments of the

hundred and odd items which Lacouperie collected for the purpose of supporting his theory. The importation of jade from Eastern Turkestan in the second half of the twelfth century before Christ, if it be a fact, is a startling bit of evidence. The Chinese taste for jade amounts at the present time to a passion, and it appears to have been an article of commerce between China and the West at remote historical periods. This was carefully noted in a review of the book published in *The St. James's Gazette* (15 October 1894), almost at the very moment of Lacouperie's death, under the title of "The Beginnings of China"; and the reviewer, whose knowledge of China and the East was obviously profound, kept a politic eye on the present while discoursing of the past. If, he argued, China has never flourished except when fresh ideas were being continuously borrowed from without, if her civilisation is neither indigenous nor self-sufficient, the modern Chinese should take the fact to heart, and there might yet be hope for the country. Indeed, it was a promising sign, in the reviewer's opinion, that the Chinese ambassador to England, had bestowed his patronage on Lacouperie's book; doubtless because, one may infer, he would find therein that the civilising influences which made China appear to stop short after a few centuries of the Christian era had run their course. It may be added that since then, or at least in later centuries, the Chinese have emigrated and travelled much, taking back to their own country knowledge of wiser communities both west and east of the Flowery Land, but with little apparent desire, or power, of profiting by such experience.

According to *The Academy*, the author of this book was born in Brittany in 1844, and when quite a child was taken out to Hongkong, where he learnt to speak Chinese as fluently as French, his mother-tongue, and became acquainted with the English language and with English life.* Indeed, the interest attaching to his book is of a twofold nature. In the first place, the theory maintained by its author is directly opposed to popular teaching and scholastic tradition, which still point to China as the cradle of Western arts and learning; and in the second, it is the work of a Frenchman who, though he wrote and published in that

tongue which is gradually becoming, if it be not already, the universal language of the East, failed to acquire any claim, other than a moral one, even to the small pension that British Governments now and then extend to genius when political exigencies will allow them to do so. Terrien de Lacouperie may not have been the most discreet of learned men from a worldly point of view, and in the *Introduction* to his book, which is dated "Fulham, June 1894," he certainly protests overmuch. But his death in the subsequent October, after a lifetime of research in a thankless field of inquiry, some few weeks only after presenting to the public at his own expense the book which was to serve as a prelude to a *History of the Civilisation of China*, then in preparation, is a matter of conscience which Englishmen ought not to overlook. It ought not to be in the power of anyone to say that a Frenchman who served this country well in one of the highest branches of archaeology, and who left a widow with very little but the fruits of her husband's learning to support her, was ignored, not only by the British Government, but also by the British people. Yet this is what men who know the facts of the case do say.

(48.)

ROMAN REMAINS AT OLD BUDA.

Aquincum: Guide. By Dr. Valentin Kuzsinszky. With Plan and Illustrations. 80. Budapest, 1894. Printed by the Société Franklin, Budapest.

This interesting little pamphlet of thirty-two pages gives an account of the recent excavations at the Roman station of Aquincum (Acincum). It stood at a bend of the Danube, below the present town of Old Buda, and thus derived great advantages from its central position among the Aravisci. The natural features of the situation also rendered it of the highest strategic importance as the chief town of Lower Pannonia, and the centre of operations on the Roman frontier for checking the invasions of the Sarmatians and the Jazyges. It is mentioned by an early writer as having been a Roman station in 161 A.D., but its first establishment as such dates from a much earlier period; and there are traces proving that the legion *Adjutrix Secunda*, which took up its quarters there, was not the first legion that had occupied it.

* The notice of Terrien de Lacouperie above the initials "J. S. C.," in *The Academy*, 20th Oct. 1894, contained the following:—In 1880 he published *Early History of Chinese Civilisation*, to which Professor Douglas contributed a preface, and which contained the first announcement of his discovery of a prehistoric contact between China and Western Asia. Then followed *The Languages of China before the Chinese* (1887), giving an enormous amount of linguistic and ethnical information about the tribes of the Far East. In 1892 he redeemed a promise made in his earliest volume by interpreting the mysterious Yih-King, or *Book of Changes*, as embodying a key to the derivation of Chinese writing from that of Babylonia—a conclusion which the Rev. C. J. Ball has been

able to support from the point of view of Akkadian palæography. Only this very year there has appeared *Western Origin of Early Chinese Civilisation*. . . . Almost contemporaneously, Mr. Nutt brought out a book of his on the beginnings of writing in Central and Eastern Asia, in which he distinguishes no less than 450 different kinds of script. Meanwhile, he had completed his Catalogue of Chinese Coins in the British Museum, and had been for just eight years editor and chief support of the *Babylonian and Oriental Record*. How much he has left in manuscript, and how far he had advanced with his undertaking of a *History of Early China* for Messrs. Macmillan & Co., we know not.

At first a collection of rude huts, dotted around the fortified camp of the legionaries, and inhabited by settlers, followers, traders, and others accompanying the troops, the settlement rapidly increased in size and importance, its extension and development greatly favoured by the long sojourn of the *Adjutrix Secunda*—quartered there from the time of Hadrian to the end of the Roman dominion in the country. Streets were laid out; dwellings and public edifices of stone replaced the primitive timber buildings; and under Septimius Severus it was raised to the dignity of a colony, receiving the name of *Septimia Aquincum*.

Of the domestic and civic history of the place but little can be told—the writers who mention it do so chiefly in reference to its military status. But it may be assumed that its prosperity culminated during the reign of Valentinianus I.; and it is said to have been within its walls that his son was first proclaimed emperor. From that period its fortunes declined. When the legionaries were withdrawn for the protection of Italy against invasion, Aquincum was left defenceless; and its population little by little emigrated, to seek a home less exposed to the incursions of the barbarians. After the founding of Old Buda the place fell into ruin and was almost deserted. In the fourteenth century its very name was forgotten—Simon de Keza knew it only as *Sicambria*.

The excavations are being superintended by Dr. Kuzsinszky, the author of the pamphlet under notice. They include up to date an amphitheatre, three baths, dwelling-houses, a forum, and a temple to the Sun-god. So far the excavations have been restricted to the northern group of buildings, covered chiefly by fields; but it is to be hoped that permission will eventually be granted to extend the researches within the boundary of the existing town, where probably much of interest is concealed. ETHEL CHARLES.

(49.)

SHROPSHIRE CHURCHES.

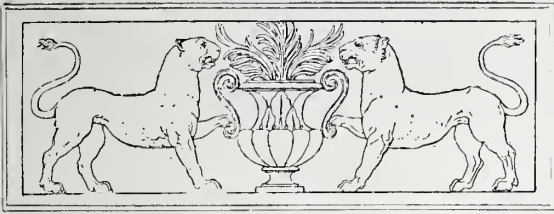
An Architectural Account of the Churches of Shropshire, by D. H. S. Cranage, M.A., King's College, Cambridge. Lecturer on Architecture to the Local Examinations and Lectures Syndicate of the University of Cambridge. Part I., The Hundred of Brimstree. Illustrated with Permanent Plates, reproduced from photographs by Martin J. Harding. With Ground Plans of the most important Churches, drawn by W. Arthur Webb, A.R.I.B.A. 4s. Wellington 1894. Price 5s. [Messrs. Hobson & Co., The Shropshire Printing and Stationery Works, Wellington, Shropshire.]

The first instalment of Mr. Cranage's great work on the Churches of Shropshire has a very promising appearance, and strikes out rather a new line in topographical literature. The author's intention is to make a systematic circuit of the county, giving a full account, of a strictly architectural character, of every church, ancient or modern, interesting or uninteresting, to the ordinary tourist or writer of guide-books. These

descriptions are to be illustrated, not only by plans and drawings of details, but by reproductions of photographic views, taken specially for the purposes of the book. This is, of course, by no means the first attempt to publish a series of notes or illustrations of the churches of a particular county, but it seems likely to excel any previous publication of the same class both in completeness and accuracy.

The part now issued contains descriptions of fifteen churches; but Mr. Cranage wisely devotes most of his attention, as well as nearly all his illustrations, to the three specially interesting structures of Claverley, Shifnall, and Tong—the last, by the way, distinguished for its magnificent series of monuments, which are supposed to be the original of the village church several times mentioned by Dickens in *The Old Curiosity Shop*. The descriptions here given, of these and other churches, are exceedingly clear and thorough; due importance is everywhere assigned to mouldings, as evidences of date and history; and all puzzles of masonry and detail are investigated and discussed quite in the spirit of Professor Willis. Even apart from its value in connection with the particular buildings of which it treats, this book may be recommended as furnishing most useful lessons to students in the manner in which old buildings should be analysed, and their history read; it shows throughout a true scientific method, very different from ordinary guide-book work. The plans (which, unfortunately, accompany only a minority of the descriptions) have been carefully drawn to a good size scale by Mr. W. Arthur Webb [A.]; they have the advantage of being all hatched in a uniform manner, so that the work of different periods may in any drawing be recognised at a glance. Taken together they seem to show that width is one of the prominent characteristics of this group of churches. The collotype plates from Mr. Harding's photographs are from well-chosen points of view, and add very much to the interest of the book. They are all pleasing as pictures; though it is disappointing to find them so small, and in clearness of definition they hardly come up to the standard we now expect in architectural photography. But we may naturally look for some improvement, both in the number of the plans and in the quality of the photographic plates, in the forthcoming parts; and if the author only succeeds in accomplishing the whole of the county on the same general lines as the present specimen, he will have produced a most valuable combination of record and criticism the interest and importance of which will be by no means confined to Shropshire alone. ARTHUR SMYTH FLOWER.

* * In Mr. Henry Reilly's review [45, Iron, Steel, and Timber] of Professor Warren's work on *Engineering Construction* Mr. Claxton Fidler's name [p. 22] was erroneously spelt "Fuller."



NOTES, QUERIES, AND REPLIES.

The Chinese Sense of Architectonic Harmony.

In connection with Chinese architecture, something may be said about *Feng-shui* [pronounced Fung-shooee]. What that is may be shown by a quotation from Mr. Archibald Little's book of travel, *Through the Yangtze Gorges* (London, 1888). Writing of the city of Chung-King, he says (p. 244): "Here in the far west of China nothing has intervened to mar the accord between Man and Nature. *Feng-shui*, in its best sense, reigns supreme. . . . The buildings are all in keeping with the environment. The hoary battlements seem a natural excrecence on the rugged cliffs, and as the city walls follow the sinuosities of hill and dale, there is no sign of that strife with Nature which our bold Western methods encourage. No braggart, upstart building towers rudely above its neighbours, stealing their air and light. . . . Were such an outrage as are the Queen Anne Mansions to London to be attempted here, the Dragon and Tortoise (in the shape of an infuriated mob) would rise from their sleep of ages and overthrow the ill-omened erection until not one brick was left upon another."

The two words *Feng-shui* mean literally "wind and water"; or, more explicitly, the worship of the spirits of the air and the earth. An authority, Mr. Elias, describes it as ordinary spiritualism, and almost exactly the same thing as the Shamanism of Tibet and the Nát worship of the Burmese. But the expression, like the English respect for "ancient lights," also implies a complication of customary law and public feeling which it would be difficult to define. Sometimes *Feng-shui* is vaguely rendered geomancy. The *Feng-shui* of Chung-King was in danger when the Roman Catholic missionaries proposed to build a cathedral overlooking an ancient Taoist temple.

Another traveller, Mr. James, of the Indian Civil Service, in his book *The Long White Mountain* (p. 195), tells us that every building must be situated with due regard to *Feng-shui*, and it is a regular profession to report upon the *Feng-shui* of houses, or to design them so that it may be as favourable as possible. Is there not, by the way, something analogous to this in India, where a pious Hindu will refuse to build a house unless the rooms can all be constructed in rectangular shape, and in size duly proportioned one to another? Referring to the screens sometimes

erected in front of the main entrance of houses in China, their object, Mr. James considers, is rather to exclude evil influences than the gaze of the outside public, and a residence with good *Feng-shui* is as much sought after as a gravel subsoil and a southern aspect in England. Even tombs must be built with due regard to *Feng-shui*. That of Nurhachu at Moukden is considered a perfect example of the kind, being built on a hill which represents and propitiates the wind, with a river below it, on the genial south. Writing on the same subject, Professor Douglas (*Society in China*, p. 340) says that if a railway is proposed, the objection is at once raised that it would destroy the *Feng-shui* of the neighbourhood, by disturbing the sepulchres of the dead. If a line of telegraph is suggested, the promoters are promptly told that the shadows thrown by the wires on the houses they pass would outrage the *Feng-shui* of the neighbourhood and bring disaster and death in their train. *Feng-shui* appears, says Professor Douglas, to be a faint inkling of natural science overlaid and infinitely disfigured by superstition.

When the foregoing extracts are read in the same spirit as that which induced the President, in his Opening Address [p. 5], to refer to the injurious treatment of old edifices of established merit by the erection, alongside, of new and inferior buildings, which destroy the general effect by their mere size, it will be seen that Mr. Penrose's contention is not new, but rather the repetition of ancient doctrine.

Sir Balthazar Gerbier, Architect.

From JOHN HEBB [*F.*].—

That versatile genius, Sir Balthazar Gerbier, who seems to have emulated his patron, the Duke of Buckingham, in the variety of his accomplishments, is commonly credited with having been an architect, although the evidence to support this contention is slight. He is said to have designed a mansion at Hempstead-Marshall in Berkshire for Lord Craven, which no longer exists, the mansion having been destroyed by fire; and a house for himself at York Buildings, Strand, which has also disappeared. These buildings appear to exhaust his achievements in architecture proper, although he seems to have also designed some triumphal arches for the coronation of Charles II., and the scenery and decorations for sundry masques represented at Court. It is not generally known that he anticipated the London County Council in endeavouring about the year 1641 to establish *monts-de-piété* in London on the model of those already established in Italy and a few of the principal towns of France and the Netherlands. Although unsuccessful in England, Gerbier was more fortunate in France, where, in 1643, he obtained a patent from the king, Louis XIV., to establish *monts*, or banks combining pawnbroking with the ordinary business of a bank. The project, how-

ever, met with considerable opposition from the bankers and dealers in second hand clothes, and fell through from want of sufficient capital. It was not until 1778 that *mouls-de-piété* in France were authorised by Parliament. Gerbier wrote several pamphlets in defence of the principle of municipal pawnbroking, setting out the advantages of the system to the poor.

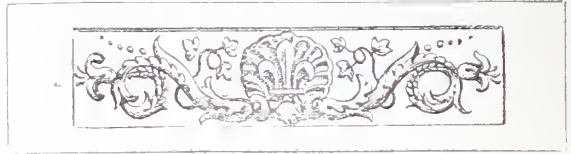
Architectural Education in the "Three Towns" (Plymouth, Devonport, and Stonehouse).

From Mr. HENRY R. BABB, Head-master of the Plymouth School of Art—

The Royal Institute of British Architects will doubtless be interested to learn that the scheme of education recently formulated at the Plymouth School of Art will, as regards architectural students, be more comprehensive in the future. Several classes which have been held with signal success in past years in different branches of architectural study—notably the one on Building Construction presided over by Mr. W. H. Borland (Honours and Medallist, South Kensington)—will henceforward specially bear in mind the requirements of the Institute Progressive Examinations now in force. The movement is, so far, an unqualified success, and architectural students of the long-neglected Western Peninsula are grateful for the facilities that are being inaugurated for them. Letters from far-away Cornwall show that the scheme is capable of still further development.

During the present session arrangements have been made with Mr. B. Priestley-Shires [A.], *The Prizeman*—who is well known in architectural circles, and who, in 1875, with other members of the profession, was instrumental in starting the Leeds Architectural Association (now the Leeds and Yorkshire Society), and also, in 1882, the York Society—to deliver a course of lectures on architectural history and the various Orders and styles, with analytical notes as regards plans, details, modes of construction, ornament, sculpture, and polychromy, together with biographical notices of notable architects and their works. Mr. Shires, in addition, directs the line of study and renders assistance to the pupils.

Another branch of the school work is to be modelling and carving in wood and stone, presided over by Mr. A. Trevenen, a local sculptor of repute. Principles of ornamental design is another subject, which will be taught by Mr. Ernest Babb (Medallist, South Kensington). The study of the antique and studies from life, together with painting in oil and water colour, and drawing from the round and flat, will be under my own direct supervision, assisted by Mr. Darton and others. Before the next R.I.B.A. KALENDAR is published I hope to be able to furnish a complete time-table of the whole work of the school, which is an old one, in order that it may be included among the educational facilities of the district.



MINUTES. II.

At the Second General Meeting (Ordinary) of the Session, held on Monday, 19th November 1894, at 8 p.m., Mr. Alexander Graham, F.S.A., *Vice-President*, in the Chair, with 22 Fellows (including 5 members of the Council), 23 Associates, and 17 visitors, the Minutes of the Meeting held 5th November 1894 [p. 28] were taken as read and signed as correct.

The Secretary announced the decease of the following members, namely:—Charles George Hood Kinnear (Edinburgh), *Fellow*, and Frederick Hemings (London), *Associate*.

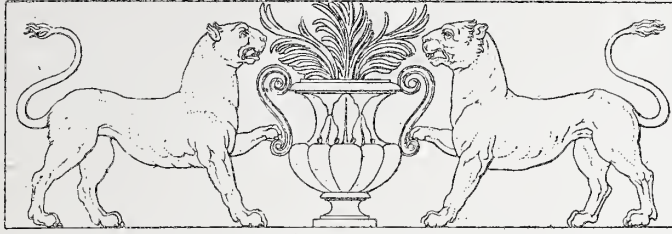
The Chairman announced the results of the Intermediate Examination held on the 13th, 14th, 15th, and 16th November, and read the names and addresses of 29 Probationers [p. 65] who had passed and were registered as Students.

A Paper by Mr. F. M. Gratton [F.], entitled NOTES UPON THE ARCHITECTURE OF CHINA, was read, in the absence of the author, by Mr. Wm. Kidner [F.]; and, the Paper having been discussed, a Vote of Thanks to both was passed by acclamation; and the Meeting separated at 10 p.m.

THE PLYMOUTH SCHOOL OF ART.

The scheme of architectural education recently inaugurated by Mr. Henry R. Babb, Head-master of the Plymouth School of Art, giving facilities to young architects preparing for the Intermediate and Final stages of the Institute Progressive Examinations, commenced on the 8th November, when Mr. B. Priestley-Shires [A.] delivered the opening lecture of a course on "The History of Architecture, including an Analysis of Mouldings, Features, and Ornament." After explaining the object of the Examinations, Mr. Shires said a few words upon the value of private study and the need of accuracy and thoroughness in the training of an architect. The history of architecture was not the history of wars and conquests, but of peaceful development: it was, in fact, really and truly a concise history of the whole human race; remarkable both literally and archaeologically, a lifetime indeed was hardly sufficient for its study. They would trace its rise and progress, from the first efforts of barbarians in forming their huts with branches of trees covered with mud, and without light and air; or the rock-hewn habitations of others, in contrast with the temples of the Greeks, the basilicas of the Romans, the cathedrals of mediæval times, and the gorgeous palaces of the Renaissance. The history of architecture was the history of civilisation, and before the invention of the art of writing, architecture was the great and only reliable historian of the world's progress. After explaining the several styles of architecture anterior to Greek, Mr. Shires spoke of the latter as a temple architecture, and mentioned the different forms of temples. Subsequent lectures will deal with the Orders; modes of construction of each period; and show plans, elevations, sections, and details of notable buildings of the world. The lectures will be continued on Thursday evenings throughout the winter session.

It has been suggested in the locality that an Architectural Association should be formed for the three towns, Plymouth, Devonport, and Stonehouse—the Society at Exeter being, it is stated, inconveniently situated for members of the profession in those towns; and it is hoped that before the opening of another session the nucleus of such a Society will be formed.



SOME OBSERVATIONS ON THE NOTES OF FOREIGN TRAVEL LEFT BY
MR. WOLFE, SIR CHARLES BARRY, AND OTHERS.

By ARTHUR EDMUND STREET [*F.*], M.A.

MR. WOLFE BARRY'S recent gift to the Institute is one of real value and interest. Sixteen volumes of notes, at once full, accurate, and suggestive, are supplemented by three folios of sketches and studies, a considerable number being by the diarist himself, Mr. J. L. Wolfe; of the rest the majority are certainly by Sir Charles Barry, while Mr. Vulliamy and others are possibly represented. Needless to say that in such hands the Parthenon, the Erechtheion, and indeed all that still remains to Athens of her old self, as well as the monuments of Greek energy and culture further afield, at Girgenti, at Syracuse, find an appreciation as sympathetic as it is critical. The most careful large-scale measured drawings of architectural features are alternated with studies of ornament in monochrome, with plans, with elevations and sections. Everything bespeaks the student who wants to tear the heart out of his subject, and if concession was ever made to the claims of the purely picturesque there is nothing to show it.

But while Greek art is so well served, Palladio and the group of Italian architects, who forsook what Mr. Wolfe calls, in the most matter-of-fact way, "barbarian forms" for the traditional architecture of their native country, come in for perhaps even fuller recognition. Here are the Palazzo Porto, the Chiericati, the Spolverini, all at Palladio's native place, Vicenza; here are the Dogana, and the Teatro Filarmonico at Verona; the Redentore and the Rialto at Venice; the Trinità Bridge at Florence; the Farnese, and many other palaces at Rome, forming an invaluable book of reference for the student of Sansovino, Palladio, and San Michele.

But the great storehouse of information is to be found in the singularly characteristic and individual series of note-books, or diaries—for they are both—for which we are indebted to the talent and perseverance of Mr. Wolfe. This gentleman's power of taking pains, and I say it advisedly, with all the diligence and doggedness of to-day's student world in my mind, was almost unexampled. I was going to say that nothing was left unnoted; but, after all, he was human, and his failing was dates. How many different tours these books represent I have been at some pains to discover, and I have not succeeded, but I am inclined to think that they are all referable to the year 1820, the only one I find mentioned; and that they are practically the outcome of a single "Wanderjahr." Sometimes Mr. Wolfe was undoubtedly alone, but generally he had one or more companions, of whom Sir Charles Barry was the most constant, and I think we may assume with some confidence that his critical analyses of buildings represent the views of his friend as well as his own. Sir Charles Barry's dicta are often quoted, not always with approval, for Mr. Wolfe was clearly a man who had an opinion of his

own, as the writer of these diaries had every right to have, but always with the respect due to a master.

The general run of books dealing with France and Italy has either ignored the vast number of works in which the spirit of the Italian Renaissance is paramount, or has treated them in so perfunctory a way that it is somewhat refreshing to find them accorded a prominence such as Mr. Wolfe gives them, even though his sympathies lead him too far in the other direction; and this is of course the case. The gifted architect with whom he travelled was the author of the "Travellers' Club," not the senior member in the partnership which produced the Houses of Parliament. Sir Charles Barry had eyes for little else than classical work; Mr. Wolfe was even more exclusive. How rigorously he devoted every moment to the study of the subjects of his predilection will be understood when I say that almost all he has to say of Notre-Dame is that "the form of the flying-buttresses in the exterior is ridiculous enough"; that the Church of Or San Michele is dismissed in four lines without a reference to Orcagna's Shrine, or Donatello's "David"; that the Palazzo Vecchio in the same place is succinctly described as a "castle-like edifice with an uncommonly high tower of singular design"; that the pedestal of the Bartolommeo Colleoni statue is criticised as being "ornamented with "Corinthian columns, a singularity I have nowhere else observed," but the statue itself passes unnoticed; that the Baptistery at Pisa is set down as "doubtless a compound of the corrupt "and the barbarous," and the Duomo as being "dark, gloomy, and inelegant, unusually "encumbered with old pulpits, organs, and other ecclesiastical lumber" (*sic*). There is some lack of tolerance or liberality here, but it is more than compensated for by an enthusiasm on the other side, which makes no detail, however small, beneath notice, or indeed beneath discussion, if it has somewhat to say, however little, in the general story told by the building. At moments this confirmed classicist is moved to bring some of his untiring patience to bear even on barbarous forms when a structural question, independent of mere details, is involved. The Leaning Tower at Pisa, for instance, is questioned with all the acumen of the familiar detective of fiction. The student builds up its life history from unnumbered measurements and an observation always on the alert; and one specially significant fact he mentions, which is new to the present writer, though it may be matter of common knowledge, viz. that the putlog holes up to the third storey are sloping, while those of the remainder are horizontal; a detail which seems to leave little doubt as to the exact moment when the subsidence took place. But this fervour of advocacy does not blind its possessor to the unsightliness which arises from the juxtaposition of incongruous forms. More than once he takes Palladio to task for an addition to an old—*i.e.* a barbarous—building hopelessly out of relation to it; and "as to Inigo Jones," he says, "the Corinthian loggia added by him to the old Cathedral of St. Paul's evinced "sufficiently that his proselytic ardour would never allow him to surrender his new Italian "prejudices"—the italics are our author's—"to a due regard for propriety."

It is impossible in the comparatively brief space of a notice to do anything like justice to Mr. Wolfe's critical powers, for critic he is above everything. He might have had an advance proof of the recent Address of the President of the Architectural Association in his pocket, so completely does he carry its suggestions into effect. Nothing is sacred for him, so long as it is due to human agency. "O, Michael, Michael!" he apostrophises the great Florentine, when confronted with a door of his design which, to use his words, "exemplifies the most wretched "perversion of every principle of taste"; and then, turning to the world at large: "Observe on "the pier, or post, a Doric capital without a pilaster; while, whereas a double base is added "to the recessed part of the dressings which has no cap, the post itself has no base whatever." He dares to take up an attitude of doubt as to the proportions of the entablature of the Parthenon; and when that is said, everything is said. He even criticises buildings like Giotto's

Tower, for which, at least, he had none of the sympathy which gives understanding ; but however obscure a work, however little known its author, he will do it full justice. He has a bone to pick with Ictinus, but the humblest of the Greek architect's successors sometimes compel him to say that he sees no fault in their work.

His method of comparative analysis must be followed in the works themselves ; but I may call attention to the contrast which he draws between St. Peter's and the Duomo at Florence, the one—Santa Maria de' Fiori—with its cupola, treated as “the grand and predominant feature to which everything else is subordinate, the nave being as its vestibule, and the surrounding chapels as its appurtenances, while at the other the importance of the cupola is destroyed by the immensity of the arms of the cross”—the form of the *Greek Cross*, or something very near to it, being in his opinion absolutely essential when the crossing is crowned by a dome ; or, again, to his very just criticism of the Colonnade which half encloses the piazza of St. Peter's, especially as regards his contention that the curves should have started from the flanks of the west front itself, without the straight line of colonnade which intervenes, because, as he says, the eye is now led from the last column of the curve, at least on one side, directly to the church itself, with the necessary result of seriously diminishing the scale of the great west front, which itself dwarfs hopelessly all behind it.

As for his gift of accurate observation, I have compared his detailed description of the Porta Nuova at Rome with the reproduction of Mr. Prentice's sketch of the same edifice in the last number of the *A.A. Sketchbook*, with the fortunate result of establishing the exemplary accuracy of both parties.

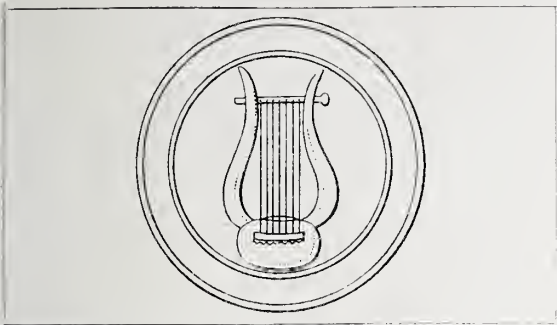
There are many suggestive little essays on relatively abstract points, such as the admissibility of columns on triumphal arches ; and surely there is sound logic in the writer's objection to the breaking out of the entablature, which is simply the confession of uselessness both as regards that feature itself and the columns ; but it is time to turn for a moment to the personal and historical side of the diaries, for Mr. Wolfe was no mere preoccupied student, walking about with eyes focussed for nothing but bricks and mortar. Rather, he was essentially human, an excellent example of the bluff and breezy Englishman of the early years of the century : a veritable John Bull, who is proud of the name, and even accepts the less flattering “Godam” with good-humour, when it is so meant. He does not conceal his amused contempt for manners which are not English, and, when he sees “two hulking Frenchmen” hugging and kissing each other, has a hard to-do not to throw his fricandean at them. The cosmopolitan of the present day may take all this for granted, but there are few so free from insularity or exclusiveness as Mr. Wolfe was, and half the charm of his notes is due to his intercourse with all sorts and conditions of men at a time when there was really something to talk about. And what times those were ! What grit the traveller wanted ! Journeys in jolting vehicles long drawn out, behind a postillion, whose boots—heroic detail—weighed close upon two stone apiece, through scenes and among types from which Sterne might have drawn his raw material ; girls who dance and sing round the diligence, careless that they are posing for the Englishman ; the lame man, the old soldier, who walks doggedly alongside with a fire smouldering in his heart, and picks up the franc thrown to him without relaxing his settled frown ; the ex-Grenadier, who honoured the Englishman as a soldier and loved him as a man, who had fraternised with him in the short hours of an armistice, and as a prisoner had shared his captor's rations. Everywhere, in France, in Italy, in Greece, whether floating down the Rhone in a “coche d'eau,” an omnibus boat, in which the only sitting accommodation is supplied by piles of angular pots and pans, or stranded in an unknown village after dark to beg a mouthful of food and a truss of straw, or afloat in the Gulf of Genoa, running before a gale with the rudder jammed, and the skipper

reduced to his last, as it was his first, expedient, the national *sacré*—everywhere Mr. Wolfe is alert, good-humoured, full of “go,” observant of men and things, never too tired, or hungry, or cross, to add something to his stock of knowledge.

The French trip was naturally the most prolific of human interest; but one may pause for a moment at our writer’s experiences at Missolonghi (the scene of Byron’s death four years later), where we get a picture of the manners and customs, which have made the Turk the “sick man” of our generation: “The traveller arriving for the first time in a Turkish town,” says Mr. Wolfe, “hungry, as I was, curses the deceitful exterior, for on entering he finds a “miserable village, ruinous and shattered sheds, filth in the narrow streets and habitations, “heaps of ordure and stagnant water, sickly and sallow countenances on all sides.” He seeks the British Consul up a broken step-ladder which threatens to plunge him at every rung “into “the Augean heap beneath”; on this follows an interview with the functionary—comic in a high degree—and subsequently an introduction by him to a Turkish official, who has obviously stepped straight out of a burlesque. But, leaving the numerous character sketches unnoticed, I must turn to the writer’s method of making his notes.

It is evident that these diaries are only the summary of the work of the day, carefully posted up at night from a mass of jottings in the rough which are not before us. The pages are thickly strewn with plans, sections, and elevations, but the actual sketches are few in number. The main lines have seemingly been put in pencil with the aid of instruments, and then inked in freehand with a crowquill. It is not always clear how far the drawings are done from actual measurements—occasionally we come across a note that this or that proportion is not quite correct—but most of them, more especially the ground-plans, bear every mark of literal accuracy. The figures which, now and again, appear on the plans refer, as a rule, not to dimensions but to proportions. In some cases Mr. Wolfe refers to the use of the camera lucida, but if he had used it habitually he would hardly have mentioned it. A glance at the book will show that in any case he had a happy knack of giving the effect of a building under a pleasant aspect without any attempt to treat it in anything but the most simple and most truthful way, but his artistic sense always makes itself felt, and perhaps even more sensibly in the few sketches of scenery which one comes across here and there. To visit Genoa, let us say, or Vicenza under his guidance would be a liberal education in itself, and I had almost expressed the regret that he had never made a book from these volumes, but in that little word “made” lies the whole essence of the matter. These notes, neither written for publication nor edited, possess a naïveté and a spontaneity which are half their charm.

. In a letter which accompanied the gift above noticed Mr. Wolfe Barry [*H.A.*], C.B., wrote: “Apart from the merits of the diaries as descriptions and criticisms accompanied by special and “careful measurements, it seems to me that they might be useful as indicating, to the present race of “architectural pupils, the large amount of study undertaken by the generation of architects which “included Professor Cockerell, Professor Donaldson, my father, Mr. Wolfe, and others of the same “date, in order to equip themselves for their profession.” Mr. Barry puts the date of the folio sketch-books at about 1818–20, and states that his godfather, Mr. J. L. Wolfe, visited France about the time of the occupation of Paris by the Allies after Waterloo, and refers some of the entries under France in the diaries to this date. The handwriting in the notebooks is very small, and the ink so faded as to render it at times scarcely legible: but the task of deciphering the manuscript is forgotten in the interest aroused by the perusal of these delightful itineraries. A tiny quill, with which doubtless many of the entries were penned, still reposes in a receptacle of one of the notebooks, where it was placed by the traveller, one may assume, seventy odd years ago.



9, CONDUIT STREET, LONDON, W., 6th Dec. 1894.

CHRONICLE.

District Surveyors in London.

The General Meeting, held on the 3rd inst., was but scantily attended, considering the importance of the question under discussion. Sir John Hutton, Chairman of the London County Council, Mr. Richard Roberts and Dr. Longstaff, also members of that Council, wrote expressing regret at their inability to be present. Mr. Roberts thought it of the utmost importance to maintain the status of the District Surveyors. Dr. Longstaff, whose sympathetic views were clearly put, was of opinion that the present London Council would not, in its last days, deviate from the policy adopted six years ago. Mr. Caröe's introduction to the discussion was attentively listened to, and the President expressed most emphatically entire agreement with him—that the matter should be discussed without any acerbity. It was probable, said the President, that on many points in which the views of the County Council were not exactly in accord with those of the Institute it was not from any wish to be difficult or nasty—if he might use that expression—but from ignorance of what was really the best and most politic course.

“The Dictionary of Architecture.”

At the final meeting of the subscribers to the Architectural Publication Society held on the 11th May 1893, when the Society was dissolved consequent on the completion of *The Dictionary of Architecture*, they appointed a committee, consisting of Professor Hayter Lewis, Professor Aitchison, and Mr. Macvicar Anderson, with authority to deal with the balance of funds at disposal, by presenting £100, or such larger sum as might be available, to Mr. Wyatt Papworth, and applying the remaining balance of about £60 in such manner as the Committee might find to be agreeable to Mr. Arthur Cates, who had acted throughout as Hon. Secretary to the Architectural Publication Society.

Subsequent to that meeting additional sales of *The Dictionary* were effected through the activity of Mr. Cates, with the result that the Committee were able to ask Mr. Wyatt Papworth's acceptance,

as it proved only shortly before his death, of a cheque for £200. This they did with the greatest pleasure, feeling that, at the best, anything they could offer must be but a very inadequate recognition of his devoted and self-sacrificing labours in the cause of *The Dictionary of Architecture*, which had extended over so many years.

The Committee, having ascertained what would be agreeable to Mr. Cates, have fulfilled the remaining portion of the charge committed to them in the manner indicated in the following correspondence:—

5th November 1894.

DEAR MR. CATES,—It is our pleasing duty to remind you of the resolutions which were unanimously adopted at the final meeting of the subscribers to the Architectural Publication Society held on the 11th May 1893, whereby we were appointed a Committee with power to appropriate so much of the balance of the funds as could be safely employed, after allowing for possible expenses, in such manner as we might find to be most agreeable to yourself, in recognition of the very great services which you rendered in securing the completion of *The Dictionary of Architecture*. In pursuance of such resolutions, we have had the ornamental silver plate made which you selected, and we have now the pleasure of handing it to you as a permanent memorial of your energetic labour and invaluable assistance in connection with that great work, but for which it is more than doubtful if it would ever have been completed.—We are, &c., T. HAYTER LEWIS; G. AITCHISON; J. MACVICAR ANDERSON.

To Arthur Cates, Esq.

12, York Terrace, Regent's Park, N.W.

5th November 1894.

DEAR SIR,—I much appreciate the kind manner in which you have carried out the resolution of the subscribers to the Architectural Publication Society of the 11th of May 1893, and the handsome ornamental silver plate—in which you have embodied it—this evening received, with your flattering letter of presentation of this day's date.

I have but one regret, which is that our friend Wyatt Papworth, with whom I had worked for so many years towards bringing *The Dictionary of Architecture* to a conclusion, has not survived to have taken part in this final act.

Pray accept my warm thanks for what you have done herein, and believe me, yours very truly,

Professor T. Hayter Lewis, F.S.A.; ARTHUR CATES.

Professor George Aitchison, A.R.A.;

J. Macvicar Anderson, Esq.

The Philæ-Assouan Dam Project [Vol. I. pp. 573, 605].

In *The Times* of the 27th ult. was published the official memorandum upon the proposed modification in the Assouan Dam project, drawn up by Mr. W. E. Garstin, Under-Secretary of State in the Egyptian Ministry of Public Works. In deference to the protests so emphatically entered against the original scheme, the Ministry have reconsidered the whole matter in detail, with a view to such modifications as will tend to reconcile the interests of Egypt and of science and archæology. Dealing first with the objection that the Assouan Cataract is not the only possible site for the purpose to be found north of Wady Halfa, the memorandum states that the Government engineers and the Technical Commission ap-

pointed to report upon the project, after minute investigation, have arrived at the conclusion that, owing to the nature of the river-bed and the formation of the rock, Assouan is the only site north of the Second Cataract at which it would be safe to construct a work of the magnitude proposed. Kalabsha and Silsila,* suggested as alternative sites, have both been condemned, from the point of view of hydraulic engineering, by Sir Benjamin Baker and Signor Forricelli, who constitute the majority of the Technical Commission. Objectors argued that suitable sites possibly existed south of Wady Halfa; that no detailed survey of the river above the Second Cataract had ever been made. Judging, however, from Sir John Fowler's plans, the result of close surveys which he had made between Wady Halfa and Dongola a few years back, for the purpose of the projected railway to Khartoum, the only possible site would be at the Cataract of Hanneh, or at the Khaibar Gate; but this is in such close proximity to Dongola that it would be necessary to retake the town from the Mahdists before work could even be commenced.

Another point—even if a dam and reservoir were made to the south of the Second Cataract, it would still be imperative, by reason of the waste which would ensue in the long reach of river down which the water must travel before arriving at the point of delivery, to construct a second dam and a second reservoir north of this place, and consequently near to the point where the water must be delivered for irrigating purposes. The technical experts consider, indeed, that, whatever may be done elsewhere, the construction of a reservoir dam at the Assouan Cataract is an absolute necessity if the scheme of water storage is to be carried out at all.

The modified scheme is of the nature of a compromise, and the Government hope that it will satisfy the scientific world, while, at the same time, it will advance the interests of Egypt. The new proposal is to construct a dam at Assouan with its crest eight metres (26 feet) lower than was originally projected. Though less water will be stored, a sufficient supply will be provided for either Middle or Lower Egypt separately, but not for their combined areas. When the region to the south has been explored, a second reservoir can be provided to supply the rest of Egypt. If the new scheme be adopted, portions only of the island of Philæ will be submerged, and the rest of the Nubian monuments will escape untouched. The main buildings of the temples will be entirely above high-water level, and measures can be taken for the protection of the smaller temples, which would otherwise be inundated. The artistic beauty of the group, Mr. Garstin admits, must, to a certain extent, be impaired: but in a land so full

of interesting relics it is impossible to carry out any great public work without interfering in some degree with one or other of them.

In order to minimise any possible loss to science which might accrue from the construction of the reservoir, the Government propose to carry out an archæological and scientific investigation of the whole of Nubia. During the coming winter topographical surveys will be made and plans prepared, the true bearings of the temples fixed, and the preliminary plans of all sites completed. The Egyptian Government will then invite the European scientific societies to depute certain of their members to come to Egypt and complete the work of investigation.

Ancient Paintings: a Competition.

With a view to draw attention to the importance of preserving what is aptly designated, the most conspicuous part of the national patrimony, the Italian Minister for Education has issued a circular, dated 1st ult., pointing out the serious injury often occasioned to ancient paintings by empirical treatment, and offering a prize of 300 lire (£120) for the best Essay on the technique of painting, fresco, encaustic, tempera, &c., and on the results which have been obtained by investigations into the materials and processes used in these different kinds of painting. The essays, which must be sent in to the Public Education Department (Ministero della Pubblica Istruzione), Rome, not later than the 30th June 1895, will be adjudicated upon by a Government Commission (Giunta superiore di belle arte), assisted, if necessary, by scientific experts. The subject is an interesting one, and there seems no reason why British architects who have studied the question should not engage in the competition.

Additions to the Library.

Since the last issue of the JOURNAL, when there was occasion to note the addition of Herr Adolf Erman's *Aegypten* to the Library, there have been received from the publishers two books of scarcely less interest to students of Egyptology. The first of these is a translation by M. L. McClure of Professor Maspero's *Les Origines*, under the title of *The Dawn of Civilisation—Egypt and Chaldaea* [London: Society for Promoting Christian Knowledge]. Professor Sayce, who has edited this English edition, claims that it may be regarded as the most complete account of ancient Egypt that has ever yet been published. The second volume in question is *A History of Egypt, from the Earliest Times to the 16th Dynasty*, by Dr. Flinders Petrie, Professor of Egyptology in University College [London: Messrs. Methuen & Co.]. This volume is the first of a proposed series which is intended to embrace the whole dynastic history of Egypt down to modern times—an equally detailed history of the art, civilisation,

* See Plan of the Nile, JOURNAL, Vol. I. T.S. p. 574.

or literature of Egypt being of too vast a scope to be included.

Mr. T. Mellard Reade [F.] has presented his pamphlet, *The Dublin and Wicklow Shelly-Drift*, which appeared originally in the *Proceedings* of the Liverpool Geological Society [Liverpool: C. Tinkling & Co.].

The *Occasional Papers* of the Association of Surveyors of the Royal Engineer Establishment and other Civil branches of the Public Service (July 1894) are contributed by various writers on Barrack Construction, Contracts, Iron Buildings, Maltese Methods of Building, and the Ventilation of Buildings. *Some Notes on the Ornamental Treatment of Bricks and Iron in New South Wales* and *The Relative Position of the Architect, Engineer, and Builder in Modern Works* are the titles of a couple of Papers in the *Proceedings* of the Engineering Association of New South Wales (vol. viii., 1893). The *Journal* of the Iron and Steel Institute (vol. xlv.), *Minutes of Proceedings* of the Institution of Civil Engineers (vol. cxviii.), *Proceedings* of the Institution of Mechanical Engineers (1894, No. 2), *Transactions* of the Canadian Society of Civil Engineers (vol. vii., part 2), and the *Journal* of the Japanese Society of Architects have also been received.

So many Papers of especial interest to architects are included in the recently received *Proceedings* of the Twenty-seventh Annual Convention of the American Institute of Architects and World's Congress of Architects, held at Chicago on 31st July and 1st August of last year [published by the Board of Directors, A.I.A.], that a list of their titles, which are not conveniently tabulated in the book, may be given here. The Papers appear in the following order:—

- The Organisation of the World's Columbian Exposition, by D. H. Burnham, Director of Works (p. 133).
- The Construction of the Buildings, Bridges, &c., at the Exposition, by E. C. Shankland, Chief Engineer (p. 146).
- The Landscape Architecture of the Exposition, by F. L. Olmsted, Landscape Architect (p. 160).
- Public Competition of Architecture, by J. Guadet (p. 175).
- The Transportation Department of the Exposition, by W. H. Holcomb (p. 186).
- The Building of the Power Plant at the Exposition, by Charles F. Foster (p. 193).
- The World's Fair Electrical Plant, by R. H. Pierce (p. 200).
- Acoustics in Architecture, by A. F. Oakey (p. 217).
- Architecture in Apartment Buildings, by F. A. Bocage (p. 223).
- Economic Conditions of Architecture in America, by Barr Ferree [*Hon. Corr. M.*] (p. 228).
- The Growth of Characteristic Architectural Style in the United States, by H. Van Brunt (p. 242).
- Ethics in Architecture, by A. J. Bloor (p. 254).
- A Review of Recent Plumbing Practice, by Glenn Brown (p. 263).
- On Architectural Practice of the United States Government, by J. O'Rourke (p. 274).
- On the Use of Colour in Architectural Design, by H. L. Warren (p. 281).
- Foundations of High Buildings, by W. R. Hutton (p. 291).
- Fireproof Construction, by P. B. Wight (p. 302).

- Statutory Regulations, by W. W. Carlin (p. 313).
- The Aëration of Cities and their Buildings, by E. T. Potter (p. 318).
- Architectural Engineering, by T. C. Clarke (p. 325).
- Library Buildings, by J. L. Smithmeyer (p. 336).
- Influence of Building Laws on Architecture, by C. H. Blackall (p. 344).
- Defensive Association, by T. M. Clark (p. 350).
- Superintendence in Architecture, by R. W. Gibson (p. 356).
- Engineering in Architecture, by L. De C. Berg (p. 362).
- The Condition of Architecture in Japan, by J. Conder [F.] (p. 365).
- Cohesive Construction—Past, Present, and Future, by R. Guastavino (p. 382).

The Edinburgh Architectural Association have forwarded the second volume of their *Transactions*. The numerous interesting and useful Papers are supplemented by excellent illustrations. The *Transactions* (vol. xxvii., part 1) of the Surveyors' Institution contains the Opening Address of the President, Mr. Thomas Chatfield Clarke [F.].

Errata.—In Professor Aitchison's remarks on Mr. Gratton's Paper, printed on p. 61, 2nd col., "paronazze to" is a misprint for the marble known as "pavonazetto"; and "Miss Burke" was intended for the well-known marble workers, Messrs. Burke and Co.

REVIEWS. XVII.

(50.)

TRADE UNIONISM AND SOCIAL REFORM.

The History of Trade Unionism. By Sidney and Beatrice Webb. 8o. Lond. and New York, 1894. Price 18s. [Messrs. Longmans, Green, & Co., Paternoster Row, London.]

Industry and Property: A Plea for Truth and Honesty in Economics, and for Liberty and Justice in Social Reform. Being a discussion of present-day Labour problems, with proposals for their solution, Counsels to employers and employed, and Warnings to statesmen, politicians, and social reformers. By George Brooks. 2 vols. 8o. 1894. Price 21s. [Published by the Author, Mells Lodge, Halesworth, Suffolk.]

Lord Bacon has it that one of the ancient philosophers was asked in what a wise man differed from a fool, and that he answered, "Send them both naked to those who know them not, and you shall perceive." Now, this would afford as good a test to-day as it apparently did two thousand years ago; but if the newest philosophy be allowed to change the face of the world no such question will elicit any such answer in England a hundred years hence. Men will then be neither philosophers nor wise; all will be fools. This is the reading between the lines of *The History of Trade Unionism*; this is the text of the sermon on *Industry and Property*. The ideal of even the good modern workman, if he be a trade-unionist, is not to attain perfection, but to lower himself so that he may be the equal of the worst of his co-workers. One of the objects, one of the results, of improved education is to level up; but in order to attain ends which are often not attained

after a lifetime or several lifetimes of struggle, the so-called working-man is advised to level down, not so much to prevent genius getting ahead of folly as to prevent the really good workman from earning more money than the really bad one. To carry the argument to its logical conclusion, to realise the heaven of Socialism it invokes, the Peels, the Gladstones, the Balfours, the Salisburys, the Roseberys, and the Devonshire of a future generation must sink, not only to the level of the "working-man," but to the level of the most incompetent of his class. The farce of Fraternity, the dream of Equality, are serious suggestions compared with this. Frenchmen at least aspire to realise a constitutional period—and constitutions are as quickly made on the other side of the Channel as a new play or a new fashion—when every citizen will be a Colbert, a Lafayette, or an Alexandre Dumas; but the Unionist working-man of England and his Socialist advisers aim at reducing everyone, good, bad, and indifferent, wise, great, and wealthy, to the supremely happy condition of a fool with a vote. So, at least, it may be assumed. But is the assumption true? It is difficult to believe that Trade Unionism and Socialism are so intimately allied, so completely part and parcel of each other, as to render it impossible at no remote period for the inhabitants of these islands to be mostly wise men, rather than the fools of Carlyle's caustic wit—if the three authors of the two works on the reviewer's table will pardon an opinion so contrary to the views they publish or express.

The first of these is a book of 574 octavo pages, closely printed, full of facts, and teeming with evidences of inquiry and research—somewhat dry reading at the best, and probably tiresome to those who know of Trade Unionism mainly from reports in the newspapers of strikes and combinations by so-called "working-men," and of lock-outs by so-called "masters." But the book is the only complete work on the subject of which it treats, and it is a monument of industry. Indeed, the hand of a reviewer is stayed by the thought of how much patient labour has been expended upon it; and in his desire to do justice to its authors he dismisses perhaps from his mind another thought, one of regret that so much should have to be told of a movement which has endured so long and produced so little, when compared with the concurrent progress, both educational and social, of human kind, not in our own country alone, but throughout the world. The first chapter of the book treats of the Origins of Trade Unionism; the second, of the struggle for existence among the poorer classes during the first quarter of this century; the third, of the revolutionary period which was illumined by the passing of the great measure of Reform in 1832; the fourth, of the "New Spirit and the New Model" between the years 1848–1860; the fifth, of "The

"Junta and their Allies"; the sixth of "Sectional Developments"; the seventh, of the Old Unionism and the New, between the years 1875–1879; and the eighth, of the Trade Union World at the present time. Then there is an appendix treating of details, followed by a bibliography of much value. Perhaps a chapter wholly devoted to the "Objects" of Trade Unionism would have assisted the outside reader. It certainly would have helped a reviewer, and it might have afforded food for reflection to the professional reader—in other words the trade unionist himself. To enlarge, however, upon the objects of any movement which may have ruffled the course of history is no part of the obligation of historians. At the same time a recital of the Objects of Trade Unionism might have led to a chapter of Results, whereby the outsider aforesaid would have gathered from the book a definite answer to the query whether such objects and such results have been of a high or an intellectual character, or the absolute reverse.

The second of the works under review is a very remarkable production, dedicated to the Earl of Wemyss by the author, "who has himself sprung from the labouring classes, and who has their interests at heart." He, if readers may judge from sundry footnotes, is possessed at his fingers' ends of the facts of Trade Unionism, its aims, means, and weapons, as only a journalist in the swim or in the running of events as they are daily recorded in the public newspapers can possess and retain them. His two volumes are divided into four books, with an appendix giving a history of the great dock strike of 1889 at the end of the first volume. Book I. treats of "Recent Developments of the Labour Movement—Historical." Book II. treats of "Proposed Legal and Political Solutions of Labour Problems, or the Relations of Politics and Law to Capital and Labour." Book III. treats of "Proposed Revolutionary and Socialistic Solutions of Labour Problems, or the Relation of Democracy to Labour and Property." Book IV. treats of "The True Solution of Labour Problems, Economical and Moral; or, the Wisdom of Profiting by Past Experience." The first volume, which contains Books I. and II., was published in March 1893, and the second volume in November 1894. There is also a cheap edition published at two shillings the volume.

It may be imagined by some that the second of the two works under review is introduced with a view to offering readers an antidote to poison; but it would be unfair to Mr. and Mrs. Webb to label their work "poison"; for, regarded at the worst, it is but the history of a political drug the taking of which they neither advocate nor condemn, maintaining throughout an apparently impartial if not reticent demeanour. The author of *Industry and Property*, on the contrary, makes no concealment of his opinions. Mr.

Brooks offers the public an undoubted antidote to the latest phase of Trade Unionism, which he describes as "a bastard of Parnellism." He sees no difference between Irish Land Leagueism and the Newest Unionism except that the former applies itself to agrarian matters, the latter to industrial matters, adding that the two things are one in spirit, in principle, and in aim. A great many architects will probably agree with much that Mr. Brooks, the author of this work, has written. As early as 1865 Mr. Waterhouse, R.A., printed *A Chapter of the History of Strikes** which appeared in Manchester in the form of a letter referring to the difficulties he experienced with the workmen while carrying out the assize courts of that city. In 1877 Mr. Honeyman, of Glasgow, read a Paper, afterwards published as a pamphlet,† in which he called Trade Unionism "the blight on British industries and commerce," whereby it was sought to limit the productive power of the country. And he asked three questions: Do the Trade Union officials sanction (1) the arbitrary restriction of the number of apprentices; (2) the limits of the hours of labour, and the payment of a uniform rate of wages to all journeymen; (3) the direct discouragement of superior diligence and industry? Now, every chapter of *The History of Trade Unionism* seems to accentuate the fact that Mr. Honeyman's three questions must be all answered in the affirmative. Moreover, Mr. J. Macvicar Anderson, who was the arbitrator in 1891 between the Master-Builders and the Carpenters and Joiners of London, and who is quoted by the author of *Industry and Property*, spoke in 1892 to the Royal Institute of British Architects ‡ as follows:—

The great question of capital and labour, which engages so much attention in the present day, consequent on the oft-recurring and disastrous strikes of recent years, is one which we architects cannot disregard. Capital and labour are alike essential to the execution of our designs. Without them we could produce pictorial representations, but not buildings. Hence, the disturbance of amicable relations between them vitally affects our interests. Labour may be congratulated on the manifest desire now exhibited by society to accord to it fair, and even liberal, remuneration. That this may to some extent be attributed to the stand which workmen have by combination and organisation made in defence of their interests may be fairly conceded. To combination for such legitimate objects no reasonable person can or does object; but when trade organisations are used for the purpose of imposing arbitrary restrictions on labour, of depriving the workman of his right as a free citizen to work how and as he pleases, or of arbitrarily reducing the hours of work without a corresponding diminution in wages, such as may be dictated by the law of supply and demand, then it seems to me that the real friend of the working-man is not his leader who preaches such pernicious doctrines, opposed alike to political economy and common sense, but rather he who bravely warns him of blind leaders of the blind, who, be their motive what it may, are luring him to inevitable and

certain disaster. When last year I was—as your representative—invited to settle by arbitration the differences that then existed between the master-builders and the carpenters of London, I did not hesitate when making the award to record my conviction that the result of such action had been to inflict permanent injury on workmen by driving their trade into foreign channels from which it was not likely to return. That this has occurred there is abundant evidence. A significant admission of it was, indeed, afforded at the Trade Union Congress held in Glasgow in September, when resolutions were proposed with the view of moving Parliament to prohibit the importation of foreign work and foreign labour. It is true that the proposal proved too much even for the Trade Union Congress, who betrayed no nervous hesitation in adopting any number of resolutions of an advanced Socialistic tendency; but it is none the less a sign of the times that such resolutions as I refer to should even have been proposed. That the unsound and unwise policy pursued by the Trade Unionism of to-day, if persisted in, will result in permanently injuring the trade of the country I firmly believe. The agitation for the statutory restriction of labour to eight hours, or any number of hours arbitrarily fixed, conflicts with the principle of freedom which we have always, and rightly, regarded with pride; it is repulsive to our inborn feelings, and would make slaves of freemen. Man is endowed with energies, with mental and physical powers, not that they may stagnate by limitation, but that they may be used to the utmost in promoting the welfare and comfort of those dependent on him, and the consequent prosperity of the community. No Trade Union, Parliament, or Power has a right to restrain the energy or restrict the will of any individual.

A Trade Union is a continuous association of wage-earners for the purpose of maintaining or improving the conditions of their employment: such is the description. The establishment of certain trade regulations was the idea originally prominent in the minds of the leaders, to be followed by the provision of certain similar benefits. Take, as an instance, unionists for whom members of the Institute obviously entertain feelings of sympathy. Needless to go back to the severe combination laws of the last century which were repealed in 1824–25; an event which Mr. and Mrs. Webb regard as the most impressive in the early history of the movement. At that time there existed trade clubs; and in 1831 a few carpenters met at their house-of-call in Argyll Street, Oxford Street, to form a "Metropolitan Trades Union," which set aside ultimately all Trade Union aims and "expanded into a national organisation for obtaining manhood suffrage." In 1832, seven building trades—joiners, masons, bricklayers, plasterers, plumbers, painters, and builders' labourers—combined to form an association called the Builders' Union, or the General Trades Union, the object of which was "to advance and equalise the price of labour in every branch of the trade" "we admit into this Society," as duly chronicled in *The History of Trade Unionism* (p. 111). Their grievance was the supplanting of the master-mason, the master-carpenter, &c., by the general contractor, and one of their principal objects of association was to put down the system of

* In the Library. † Also in the Library.

‡ *The R.I.B.A. Journal*, Vol. IX. N.S. p. 29.

monopolising the hard-earned profits of another man's business, a system called, they said, "contracting." They thought they were entitled to the whole proceeds of their labour (p. 115), and that a consummation so devoutly to be wished might be secured by the mere supersession of the capitalist-master thus recently introduced. Little has since happened to show that building artisans have abated a jot of their early pretension. Indeed, they claim to have scored! In 1875 (p. 274), "the Criminal Law Amendment Act of 1871 was formally and unconditionally repealed. By the Conspiracy and Protection of Property Act (38 & 39 Vic. c. 86), definite and reasonable limits were set to the application of the law of conspiracy to trade disputes. The Master and Servant Act of 1867 was replaced by an Employers and Workmen Act (38 & 39 Vic. c. 90), a change of nomenclature which expressed a fundamental revolution in the law. Henceforth master and servant became, as employer and employee, two equal parties to a civil contract. . . . No act committed by a group of workmen was henceforth punishable unless the same act by an individual was itself a criminal offence." This was obviously regarded as a direct result of the action of Trade Unions, but it might also be regarded as an inevitable consequence of education and social development.

The State, it cannot be too often repeated, introduced the building general contractor, that State to which the "working-man" has long looked for remedial legislation—that same Government, of whatever political party, to which he now offers his vote in exchange for favours to come. In the early years of the current century the Government of this country ruined the master-artificers, who had been taught their respective trades—who were, in fact, skilled workmen—and set up in their stead a general contractor whose often sole quality at that time consisted in being pecuniarily able to accept responsibility for the several small tradesmen and artificers he employed, or to whom he sublet the various portions of his contract. Thus, a capitalist, without acquaintance with the building arts, and bereft of any technical education of the kind, became *ipso facto* master of the skilled mason, bricklayer, carpenter, smith, slater, plasterer, and building labourer; and these, instead of being able as of old to seek work from the great mass of employers generally, soon found that the only market for their skill and labour was confined within a restricted circle of "Builders and Contractors," prepared to treat with the world of employers for works to be executed according to a general specification, including every trade, at a lump sum. Before then, an architect had to treat, not with one general contractor, but with eight, nine, or ten small contractors, who were master-artificers, whereby he held the position of

sole and supreme master-of-the-work; and his relations with the real workers in the various crafts were constant and direct. This system, which prevailed in England during the latter part of the last century, is still the rule in Paris and throughout France. In this country an architect, although his labour in the superintendence of works has been undoubtedly lessened, has lost the power of control he originally exercised over the workmen, such control having passed into the hands of a middleman; forming part of a Body, relatively few in number, with whom alone both the designer-constructor and the executants of a new building have now to treat. At the same time it would be unjust to say that the State, as trustee, was wrong to deal with one organiser who could give pecuniary securities rather than accept the task of being its own organiser; and thus having to treat with a dozen individuals who had little, if any, pecuniary security to offer, albeit good master-workmen of acknowledged integrity. Involved in the subject are questions almost impossible to answer—problems that time alone can solve.

Some years ago, when Papers on architects and workmen were before the Institute, Professor Kerr, in one of the best of his many good speeches, said, *à propos* of the latter:—

But what I have personally found is, that the working-man of England is very well in his place, and very much otherwise out of his place. The proper duty of every working-man is to be content to remain a working-man while he is so, but to escape from that condition, if he can, as soon as possible. Therefore, I view with extreme suspicion anything that is founded upon the argument, that the working-man typically spoken of is to remain for ever in the condition of a working-man. The best advice, perhaps, that we can give him, is to try his best to escape from that condition.

But will the Professor say further how the workman, under the system of general contract, is to "escape from the condition of a working-man"? No such escape is easy for him in this country. As the dependent of the Builder and Contractor, it is not extraordinary that he should, in the majority of cases, be bereft of the emulation necessary to true progress. He is and has long been fighting for the possibility of rising to be a master himself, even in a small way; and he conducts the campaign according to his lights. The building workmen's grievance in this respect is a real one, which reacts to the detriment of good building and of the building arts.

Mr. and Mrs. Webb insist that the Trade Union as we know it is not a lineal descendant, nor indeed a connection in any way, of the Guild of an earlier age. But there was little need to do so. The incorporation of trades followed, in the Middle Ages, the incorporation of towns. Ecclesiastical ambition or military intolerance sometimes forced

the burgesses of a community into opposition, the result being that the monarch on their petition granted them a charter the provisions of which were based upon the monastic model. The burgesses swore to give freely aid and succour to one other according to their respective means, and never to allow anything to be taken forcibly from any one of them. Community after community obtained such charters, particularly in Northern France and Belgium. The artificers who exercised their several avocations within the confines of an abbey, and were there subject to monastic discipline, accepted such discipline as a basis of organisation when granted a charter by the ruler of the district in which they lived. They were thus emancipated from ecclesiastical dependence. The rules of trade corporations, which will be found in a work* of the thirteenth century by Estienne Boileaux, related to the hours of work, the number of apprentices and assistants, and the exemptions of duty which long service allowed, as far as concerned the trades which relate to architecture. The corporations, both of Paris and London, occupied themselves with the training of young men who aspired to be masons, bricklayers, plasterers, carpenters, joiners, &c.; and, as time went on, they imposed the test of examination, which is, if not the main, the most powerful incentive to study that has yet been devised. In the best days of the great City Companies their halls were centres of education and of moral, if not political, discipline. But Mr. and Mrs. Webb do not make this statement, for it has nothing whatever to do with the history of Trade Unionism. They allege, or at least infer, that in the fourteenth, fifteenth, and sixteenth centuries combinations of workmen attempted to organise, or had organised, opposition to their overseers or their masters. They quote (p. 17) from a Petition of the Carpenters' Company in 1681, that "the fundamental ground of incorporating handicraft trades and manual occupations into distinct companies was to the end that all persons using such trades should be brought into one uniform government, and corrected and regulated by expert and skilful governors under certain rules and ordinances appointed to that purpose"; and they add, in their own words: "The powers and duties of the mediæval gild have been broken up and dispersed." Out of the chaos resulting from this dispersal sprang Trade Unionism, one of the main causes of which was the divorce of the worker from the ownership of the means of production (p. 35); and another, the monopoly enjoyed by the skilled handicrafts (p. 75).

In *The History of Trade Unionism* there is only one instance, unless the reviewer has tripped in his search, of any attempt or desire on the part of trade-unionists to include education among the

objects of their movement, and this appears to have been at once dismissed as a chimera or a dream. To improve the quality or character of workmanship, to teach apprentices how to excel in a particular craft, to hold up as worthy of emulation the ancient or the mediæval stone and rubble work, the brickwork of the Reformation and of Sir Christopher Wren, the plaster work of the brothers Adam, is no part of the functions of the Trade Union Civil Service. Nor has the quality of building work advanced. There is not a public monument in London erected during the last fifty years which can be honestly described as containing better work, in all trades, than Sir William Chambers's Somerset House. Then, as to rapidity of execution, take the opinion of an expert like Mr. Leaning. In a letter to *The Times* (20th November 1894) this gentleman said:—

The use of the word "sweating" in connection with building operatives is profoundly absurd. To compare their condition with that of those unfortunates who make shirts for a penny, or who are herded together in close rooms for very long hours, working at starvation wages, is even amusing. A complete absence of hurry at his work is the conspicuous quality of the builder's workman.

The confidence engendered in the workman's mind by the triumphs of the Trade Unions has made him lazier than ever before. Systematic loitering is common. The labourer with a hod filled with bricks shoots them out again as he hears the first stroke of the dinner hour, and the carpenter driving a nail leaves it half driven. As a consequence, work costs much more than it did but a few years ago. Brickwork which cost about £3 per rod for labour often costs £5 and sometimes £8; other prices are rising in proportion. Moreover, strikes or threats of strikes occur on very small or no provocation.

If the Trade Unions insisted on a "standard" man as well as a "standard" rate of wages one might be comforted, but the only qualification for membership is the payment of a subscription.

The employment of men . . . without the intervention of a contractor would aggravate these evils. Moreover, it is well known that no public body which directly employs labour obtains as much work from mechanics as does a private employer. Add to this the fact that directors of labour know that the difference between 5 per cent. profit and 5 per cent. loss on a building contract is dependent almost entirely on the quality of management and supervision, and the value of these forecasts of efficiency and economy may be easily estimated.

All experience contributes to prove that no public body can do work as cheaply as an outside contractor, and all the weight of expert opinion is on that side of the question.

Mr. Leaning, be it observed, above speaks of the "triumphs of the Trade Unions"; and he is opposed to the abolition of the middleman, the capitalist-contractor, whom he will not consent to call a sweater so far as the building trades are concerned, adding that the exceptional favour shown to those trades, at the instance of the Trade Unions, is and must be at the expense of all other classes. Herein lies one of the secrets of the newest philosophic system; and what was said by a correspondent of *The Times* nearly seventeen years ago is even truer to-day than it was then. "A Sufferer" wrote (9th January 1878):—

* In the British Museum Library.

The British workman fights with a feather bed always ready for him to fall upon. Let things come to the worst, there is the legion of utterly mismanaged charitable institutions, with outdoor relief, in the background. That myriads of strong and skilful men should be under such a spell that they must knock off and go about with their hands in their pockets at the orders of some mysterious junta is ridiculous enough, but hardly more ridiculous than the collateral and highly significant fact of large populations and classes in which the very law of existence is for the father of the family to spend every sixpence he earns, with the certainty that his wife and children are safe in the hands of the gentry and clergy, vying for the honour and merit of their maintenance. It is not too much to say that there are whole towns, handsome suburbs, residential districts, beautiful watering-places, in which innumerable families of women and children are entirely fed, clothed, educated, and even housed by their "betters," while the husbands are rejoicing in perpetual bachelorhood. What is there to hinder a strike against a master or anybody else under such circumstances? Such a basis of society may seem rotten enough, but as it affords the opportunity of cheerful co-operation and society to the collectors and contributors of charitable funds it commends itself all round.

Mr. Auberon Herbert's "Revolt of the Rich," wittily shadowed forth in *The Times* (4th October 1894), and largely quoted in the second volume of *Industry and Property* (p. 513, vol. ii.), is by no means premature. Of this, Mr. Brooks thinks that "intelligence and property can hold their own under any system if they like to put forth their power, and there is nothing to fear as regards the future of England if the educated and propertied classes will simply do their duty. . . . The forces of intelligence are not vanquished yet; nor are the resources of reason and morality exhausted."

The trade-unionist who is religiously convinced that, by doing half a day's work and receiving a day's wages for it, he is benefiting his weaker colleague will doubtless candidly admit that the Sufferer whose letter is quoted above also has a grievance. The trade-unionists who decline, for conscience' sake, to discriminate between a wise man and a fool in prosaic language between a competent and an incompetent workman and combine in order that each may receive the same wages, will probably extend their condolence to the said Sufferer, with the comforting assurance that it is the Sufferer's own fault. Why does not the Sufferer also abase himself? Why not share and share alike with his poorer brethren—poorer in an intellectual, a social, and a pecuniary sense? State Socialism is the Unionist remedy for a Sufferer's grievance. There is no question now of dividing the lands of the rich among the poor—a proposal of which Cobden was accused, and which he repudiated—but of vesting the whole surface of these islands in the State which is to be administered by functionaries who, to be logical, will be individually not less foolish and impecunious than the rest of the community. It is worth while, therefore, to study some of the practical results of such methods. Mr. Brooks gives some in the

third Book of *Industry and Property*, which is entitled "Warnings from History and Experience: the Failure of Socialism." Not the least interesting is a Socialist scheme started in a territory of a quarter of a million of acres in South America called "New Australia" (p. 117, vol. ii.). Barely a year ago, another attempt to establish, by circular and prospectus, a new Utopia, under the name of "Freeland," on some unoccupied highlands in the interior of Equatorial Africa (p. 121, vol. ii.) was commenced, and it is stated that the process of forming this ideal community is still going on. But all the Socialistic experiments described by Mr. Brooks have failed. "Because," he says, "they have taken no account of the simplest facts and factors of human nature; because they have refused to recognise that prosperity is built upon freedom, and that if that foundation is removed the superstructure must crash down; because they have set themselves to do battle with the great law that what the individual earns, the individual must own and enjoy." He might have added: Because the law of the Survival of the Fittest has, until very recent years, been the universal law, even among the most civilised communities; and because, in spite of the "State," or any other Tyranny or Domination, aristocratic or democratic, it is likely to remain so while the British Empire continues to hold its own in the world.

When a few Englishmen, in search of fame or fortune, find themselves face to face with hostile Asiatics or savage Africans—when one gets a bullet in his heart, and another lies wounded, a third rushes at the foe, determined to help his mates, or avenge them, and die. That was, and still is, the custom of all classes of the English race; and the knowledge of this fact among the peoples of India has more to do with the success of our rule over Hindustan than the untravelled workman is aware. Or, again, in places nearer home, when a storm is raging on the coast, and out at sea there are ships flying signals of distress, the Lifeboat is launched, and hardy sailors—lifelong comrades, brothers, fathers, and sons—struggle with each other to get aboard, share the honours of the rescue, and participate in the rewards. Such scenes may be witnessed in all seasons, all round the British Isles. But the motives and the aims which inspire brave men to noble deeds are of a different kind from those which, to all appearances, animate the trade-unionist. If work has to be done, all the men of his trade must begin and leave it at the same moment; all must be paid alike; all must strike work and consent to remain idle for unlimited periods if one or two, or a few, are aggrieved. So, if the unionist is to run any risk, all his immediate comrades must share it. Say that the French have landed and are marching on London, and that there is a cry for men. Say that, on appealing to one, he asks

for more money and fewer fighting hours; that another has a sick headache, or another a wife who keeps him with her earnings; and that therefore they cannot come: the unionists of their trade are bound to support them, and retire. That they would not do so in the hour of national danger is certain; but it does not alter the principle under which the "working-man" acts on behalf of his trade. Encouraged by the advisers he alone trusts, he fights the battle of life under the banners of the lowest, the least skilled, and the most unfit.

(51.)

SPECIFICATIONS.

Specifications for the use of Surveyors, Architects, Engineers, and Builders. By J. Leaning, F.S.I., Author of "Quantity Surveying," "The Duties of a Clerk of Works," &c. Sm. 8s. Lond. 1894. Price 4s. [Messrs. Sampson Low, Marston, & Co., St. Dunstan's House, Fetter Lane, Fleet Street, London.]

This handbook contains a great deal of information, indexed, and is itself an index to the requirements of a specification writer. It is written to a great extent from a quantity surveyor's point of view, and contains traces on numerous pages of its origin. There are a few errata which illustrate how difficult it is to pass a technical work through the press and explain the preference which surveyors have for lithography over letterpress.

The basis of a specification written on this pattern is the dimension paper. Its preparation is the conversion of the dimensions into instructions to the builder. An architect's specification is the conversion of the information conveyed in the drawings into such instructions, and the architect finds when he comes to write his descriptions that he must go through the whole of his design in a fresh frame of mind. After building up his structure on paper with assumptions of support and connections, he has to pull the whole to pieces, and to be sure that there are no assumptions and nothing forgotten.

Year by year more is expected from the writer of a specification, and not always are the expectations fulfilled. In the "twenties" a specification for a church was contained in three pages of print. In the "fifties" ten pages of demy was sufficient for a mansion. They were written in general terms; there could be no mistake about the meaning of the drawings; the terms used had but one signification; the architects intended to use the ordinary materials available in the district; the mode of working the material and the nature of the design were what were generally employed. Since then every word has been wrested to mean a better or a poorer class of work, and the specification is required to draw the line between them; the drawings furnished have in many cases been insufficient or unfinished, and the specification has had to make up for the deficiencies in them; mediæval, obsolete, and

foreign modes of construction have been introduced, and the production of every material has been varied in quality and in accessibility. Each of these points is a further tax upon the specification writer, who has to meet both the requirements of the clerk of works and the ingenuity of the contractor.

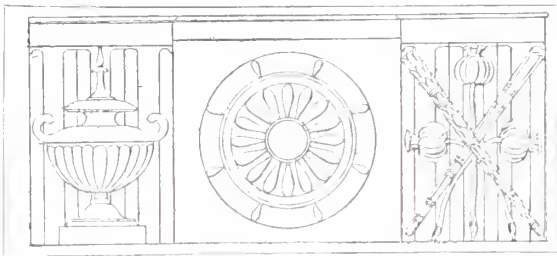
There is one point on which perhaps hardly enough stress is laid in this work—the importance of evenness in descriptions. If one part is much elaborated, all should be worked up to a similar pitch, otherwise the absence of detail will be taken advantage of in one trade, or the exclusion of one item assumed from the mention of another. There is great temptation to a writer of a specification to put in all he knows on one subject, while he may be led to slur over another from want of equable knowledge. The apportionment of suitable detail is an art pertaining to the profession.

The author does well to enforce the importance of the use of simple sentences. The most important noun should be got into the sentence as soon as possible. One does not know till they have been tested by the oblique views of a foreman and of a clerk of works how far other than the intention of the writer, phrases may be contorted to express.

As to the combination of specification and quantities in one document, which on page 4 the author deprecates, he would, on inquiry, find that there are architects of large practice, and not all practitioners in the country, who prefer an annotated bill of quantities, when such bill forms part of the contract, to two separate documents each of great length and not arranged in the same order. It may be thought by many that the use of a printed form of general specification, to be altered by the writer to suit the particular case, would facilitate the operation. It is feared that this is not the case. The number of sentences which can be re-used without alteration is (except the heading clauses of the trades) very small, and many errors and difficulties may be traced to such a source. To write a specification which shall be correct is possible, if the building be a new one; to adapt such a document to an altered plan, or to suit "variations after the reception of tenders," and to make no error, is, in the opinion of those who have tried it, hardly within the faculty of the best specification writer.

Most of the advice given by the author will be found of great service, and is evidently the result of large experience. There is, however, on page 9 an intimation that if alternatives are given in a specification, the selection should rest with the architect. Alternative materials are usually only given when the writer is unacquainted with the materials available in the locality, and in such cases, if two descriptions are given, the builder knowing the locality should have the opportunity of selection.

THOS. M. RICKMAN.



DISTRICT SURVEYORS IN LONDON.

THE RECENT FALLING OFF OF CANDIDATES IN THE STATUTORY EXAMINATION FOR THE OFFICE OF DISTRICT SURVEYOR. BY W. D. GARÖE [F.], M.A., F.S.A.

Mr. President and Gentlemen,—No apology is, I feel, needed in asking your attention to this very important subject. You, Sir, very aptly alluded to it in your opening Address of this Session. It has been quite recently under discussion in Committee Room No. 13 of the House of Commons, and our attention has been ably and concisely directed to it by Mr. T. H. Watson in the issue of the *JOURNAL* of 8th November. No words of mine can increase the interest which we all must feel in the appointment of the very best men and best architects who can be found to fill these very important offices. My purpose in addressing you is to lay before you, in order to open a discussion, certain statistical facts, and I desire to ask for a frank expression of views upon these facts.

I ought to say that my only qualifications for the choice which has fallen upon me at the instance of the Council are doubly negative. I am neither a District Surveyor, nor am I a member of the Statutory Board of Examiners. I approach the subject from an entirely independent point of view, merely that of a practising architect; and I would desire to point out to those members of the London County Council who have honoured us with their presence, and whom we cordially welcome here to-night, that it is the public, and we architects, and also the builders, who are the servants of the public, who are most affected by this question. I believe that the moment we approach the question—as it was mainly approached (or rather turned out of its true course) in the recent House of Commons Committee—from the point of view of the emoluments of the District Surveyors, we are apt, as the Committee did, to get away from the proper track.

Given that a proper method is secured for the appointment of the best qualified men to act in an efficient manner as District Surveyors, I believe that the question of emoluments will settle itself satisfactorily to all parties. Some four years ago a discussion took place in this room and in the press as to whether or not a greater latitude and wider discretionary powers should be given to the District Surveyors. That matter is now settled

for us under the new Act, and I may briefly state a few instances where fresh important powers are conferred upon them.

In several cases—as, for instance, the approval of plans under Part V. and the approval of Public Buildings (just as formerly)—the District Surveyor's judgment can be made subject, by appeal, to a higher authority, now the Tribunal of Appeal; while in other cases—as in the construction of bay or oriel windows—his opinion is subject to that of the Superintending Architect of the London County Council. I believe that in most cases, to save the time and trouble and expense of appeal, the District Surveyor is likely to be permitted to have the last word in these matters. Nevertheless I dismiss them and give others where his discretionary power is absolute. For example, oak or teak in internal walls; bressummers; chimneys; party-arches over and under public ways; sky-signs. The additional importance of securing an ample supply of able men is all the more urgent than it was before, under these new conditions brought about by recent legislation.

Now let us look at the statistics of the Statutory Examination. In 1880, due, I believe, to the action mainly of the late Mr. Whichcord, who was backed by the late Mr. Street, the following Resolution was passed by the Statutory Board:—

“That in future the Examination of Candidates for the office of District Surveyor shall be more strict than it has hitherto been, and that it shall include some test of the Candidate's skill in making working drawings.”

In 1874 a Parliamentary Committee had carefully considered the question as to whether it would be advisable to prevent District Surveyors taking private practice, and decided against the change. In 1890, however, the London County Council required all candidates for the appointment of District Surveyor to sign a Declaration, from which I will read you the main points which concern us:—

I hereby declare that I become a candidate for, and that if appointed I will accept, the office on the following understanding; that is to say—

That I will personally discharge the duties of the office, subject to section 35 of the Metropolitan Building Act 1855.

That I will give my whole time to the duties of the office.

That I will not during my continuance in office (except in the discharge of the duties thereof) carry on business as an architect, surveyor, or builder, or directly or indirectly as a partner or otherwise be interested in such business.

That I will make no claim for compensation in case a diminution of my income shall at any time hereafter arise.

That I will retire if required to do so on attaining the age of 65, or at any date subsequent to my attaining that age.

NOTE.—The Council reserves to itself the exercise of its powers of dismissal if the District Surveyor so appointed should not act consistently with the understanding above set forth in any of the matters referred to therein, or for other sufficient reason.

This resolution was come to after considerable discussion on the part of the London County Coun-

oil, and with a letter before it from this Institute strongly deprecating the proposed change. Mr. (now Sir) John Hutton—the then Chairman of the Building Act Committee of the London County Council—based his support of the change mainly on the ground of dissatisfaction on the part of the public with a system which he called “devilling,” and justified his view by quoting a Paper* which had been read in this room.

Now, as the present character of the examination was instituted in 1880, it is, I think, fair to draw a comparison between the examinations which have been held since the institution of this Declaration, and the examinations before it. The details are shown in the following tables:—

BEFORE DECLARATION.

Year	April		October		Total	
	Entered	Passed	Entered	Passed	Entered	Passed
1886	13	7	8	6	21	13
1887	9	4	6	0	15	4
1888	11	2	5	2	16	4
1889	13	4	2	1	15	5
1890	5	5	—	—	5	5
Total	51	22	21	9	72	31

AFTER DECLARATION.

Year	Entered	Passed	Entered	Passed	Entered	Passed
1890	—	—	3	1	3	1
1891	4	2	1	0	5	2
1892	6	4	5	1	11	5
1893	4	2	0	0	4	2
1894	0	0	2	0	2	0
Total	14	8	11	2	25	10

SUMMARY.

—	Entered	Passed	Average	
			Entered	Passed
Examinations before July 1890	72	31	8	3½
„ after „ „	25	10	2½	1½

The percentage of passed to entered is in the first case 43 per cent. and in the second 40 per cent., although, speaking from my own experience of examinations—which is not small—as a general rule with fewer candidates the percentage of passes generally rises, for fairly obvious reasons, I think. Be this as it may, however, we have the evidence before Parliament of Mr. Douglass Mathews, President of the District Surveyors' Association, and for many years a member of the Examination Board. In answer to question 3,906 he stated that since the Declaration the candidates had, in his opinion, not been quite of the same stamp. Perhaps other members of the Board who may be present may be able to assist us upon this question, so that we may have further material to test the force of Mr. Mathews's surmise that we shall in the future be having architects' assistants or even builders' clerks applying for the post.

I am now compelled to trench upon a side of

the question which I would rather leave untouched, for I feel that it is treading upon delicate ground, and I must ask you to bear with me in doing so. We have to face the fact that not the County Council alone have referred to possible abuses under the old Act of 1855. They have been alluded to before in this room in more special terms, which I am not going to repeat. They were alluded to in the recent House of Commons Committee in a manner which I refrain from characterising, because it seemed to me to be done for the obvious purpose of drawing a red herring across the path of the genuine inquiry. Let the County Council be assured, however, that we are ready to go hand in hand with them—and I am sure I can say the same of the District Surveyors' Association—in any action they may take to prevent any possibility of the recurrence of abuses, supposing they have ever existed, always provided that such action does not impair the quality of the men who are appointed to the posts, whereby we think it would defeat itself.

Now, the only abuse, if it be such, which the Declaration will check is the relegation of his duties on the part of a District Surveyor to a clerk. I maintain, and I think it is obvious, that if the County Council think that other abuses were possible before 1890, they will be more possible under the new regulations, if, as is surmised, less responsible men are appointed to the posts with greatly enhanced discretionary powers.

But enough of this side of the question. I now come to the question of emoluments, asking you to bear in mind the remarks I have already made upon it. On this head, Mr. Mathews again gave us some valuable evidence. For twenty years he has been District Surveyor of Stoke Newington. For two or three years his fees averaged about £500 a year. Last year they were £87. We can only congratulate Mr. Mathews that he has not had to sign the Declaration, and point out to the London County Council that in the future, when the old generation has passed away, and all the Surveyors are appointed under the Declaration, they are likely to have some very difficult questions to settle. One foresees such contingencies as the constant transposition, amalgamation, and separation of districts and parts of districts from year to year, in order to prevent the fortunate District Surveyor from becoming rich, and his less fortunate neighbours from being on the rates.

Let it be understood that the law upon this question is the same now as it was under the Act of 1855. The London County Council endeavoured to give themselves distinct legal sanction for the Declaration by adding the words to the clause empowering them to appoint—“such appointment to be subject to such conditions as the Council may think fit.” These words were thrown out. On the other hand, the amendment

* TRANSACTIONS, Vol. VI. N.S., pp. 134-5.

proposed by the Duke of Westminster, which would have rendered the Declaration illegal—an amendment supported by the Royal Institute, the Architectural Association, the Surveyors' Institution, the Associated Landowners, the Ecclesiastical Commissioners, the Institute of Builders, the City, and others—was thrown out. At the same time, the Section XXXVII. of the old Act has become 144 of the new; this clause not, as is generally supposed, preventing a District Surveyor practising in his own district, but preventing him acting as District Surveyor upon any works which are under his private control.

I have specially referred to this point because I have heard the argument used that the present action of the London County Council is illegal. I do not attempt to express an opinion upon the point of law. Undoubtedly, the London County Council have the power to make the signature of the Declaration compulsory; and we, as a body of professional gentlemen, have no desire to suggest that men should not be bound by what they have been willing to sign.

As I have said already, I have come before you to state facts, hoping that others more qualified will be able to lay before the London County Council an efficient solution of an undoubtedly difficult problem. It is enough to say that there is a splendid roll of names of those who have honourably filled the office in the past; and when so many are still fortunately with us, it would be invidious to mention a long list, easy though it would be. Let me mention only Sir Digby Wyatt and Professor Donaldson as the type of men we all desire to see filling these honourable and vastly important posts, and I assert, without fear of contradiction, that you cannot get this type of men unless you permit them to take private practice; and not only so, that it will be impossible for you to secure a proper and efficient class of men except responsible and practising architects dealing with problems of construction, and working under the Act, as well as supervising its operation, keeping in touch with ever-recurring, fresh methods of design and construction.

I do not say that safeguards should not be found—I think they should—to prevent a District Surveyor neglecting his district for the sake of his practice. But I infinitely prefer the District Surveyor's clerk, with the competent architect over him, to the merely public official which the District Surveyor must become under the present regulations.

It would be easy, too, to make definite rules as to the status of the assistant clerk, where such is required. I think also that there is no doubt whatever that a District Surveyor should be absolutely prevented practising in his own district, whether he does so on his own account alone or with a partner, and he should be prevented from competing for works in his own district. He

might, perhaps, be required in his returns to state whether he or his assistant attended a building at each visit reported.

Reasonable regulations in such direction would soon bring back the competition of the candidature for the Statutory Examination to its former level, and we look for suggestions towards the same end from other speakers—such, for example, as one you, Sir, have already made, that every District Surveyor should be qualified to be a Fellow of the Institute.

Would not some arrangement be possible by which every Associate of the Institute could be allowed to proceed to the Statutory Examination, coupling or dovetailing the two examinations in some way together, whereby the London County Council would have the complete range of our members to choose from, so soon as they had qualified for Fellowship?

Two points only, and I have done. It was argued in the House of Commons that the lack of candidates for the Examination would care itself. Can anything be more feeble than the making of bad laws and leaving them to be repealed by the necessity created by their badness and evil action? It has also been argued that, from the point of view of architects, it is against their own interests that District Surveyors should be allowed to practise. Such argument is, in my opinion, beneath contempt.

I will now remind you of the words of the Petition of this Institute to the House of Commons, that "it is not in the public interest to make District Surveyors only public officials, forbidding them to practise as architects. This tends to lower their status. It is very desirable that District Surveyors should be in touch with the practice of architecture."

Finally, may I venture to say that I feel nothing will be gained by this Meeting if we get violently in opposition to the London County Council, who have even the power to take the Examination out of our hands? Let us, at least, credit them with a desire to improve the public service, but endeavour to point out to them as forcibly as we can, in a friendly spirit, that the action they have taken is, in our view, a mistaken one; and with this object I beg to move as follows: "That this Meeting is most desirous of seeing the high status of District Surveyors maintained, particularly having regard to the increased responsibility placed upon them by recent legislation."

Discussion.

The President, F. C. PENROSE, F.R.S., in the Chair.

PROFESSOR T. ROGER SMITH, F.R.S., seconded the resolution proposed by Mr. Caroe, and thanked him for taking the trouble of bringing the subject before them. His Paper in the main had been devoted to advocating what many of them had advocated very strongly—the great desirability, if possible, of returning to the old system, which enabled the District Surveyor to act as a practising architect. Anyone, he thought, who had had an oppor-

tunity of carrying on architectural work in country towns, as he (the speaker) had to some small extent, and as no doubt others in the room had had to a larger extent, must be aware that the kind of official one had to fall in with, who was the officer of the local municipality in those towns, and who devoted the whole of his time to the duties of his office, was not, generally speaking, so conversant with building, and was not as a rule so firm in his judgment upon architectural points, as, it had always seemed to him, the District Surveyors of London were. He believed that difference was largely due to the fact that the District Surveyor, from his greater or less share of architectural practice, more thoroughly understood, and was more in touch with, the necessities and difficulties of building. If, on the one hand, he understood what might be without danger disregarded, he certainly, on the other hand, understood from experience what it was of great importance to insist upon. It was of importance to the builder that the officer who had to control his work should be as well acquainted as possible with the building work; but he was quite sure that to the architect it was also important; and they were present, of course, to consider in the main that which related to architecture. He did not imagine that as a rule the architects of London would desire that all the District Surveyors should be men who had either given up or had never undertaken the practice of architecture on their own account, especially where the District Surveyor was controlling the erection of a public building. To give his own experience, very shortly after he was appointed District Surveyor, when he was young at the work, he had a very large public building going on in his district. The builder became bankrupt, the architect died, and the proprietors, who were no doubt exceedingly anxious to open their building by a certain time, drove on, engaging their own men and their own foremen, and for many weeks he (the speaker) was the only professional man connected with the undertaking. Now that was a very awkward position for a man to be placed in who had no experience of acting as an architect by himself. All kinds of points were put to him during that time as to whether he would approve them or not; and had he not had some little experience of the responsibility of an architect he thought he should have been beaten altogether by that position. Well, the Building Act placed the conduct of public buildings in London under the control of District Surveyors very largely, and his own experience with regard to that particular building might be the experience of any District Surveyor who was appointed. On that ground, he was a great advocate for the maintenance of the connection between practice and the appointment of District Surveyors, which had hitherto always been maintained. In the conduct of the examination, in which he had had the honour to take a share for several years past, they had endeavoured to direct it towards ascertaining to some extent the practical qualifications of the candidates, as well as their knowledge of the construction and theory of architecture. He was bound to say that, referring to one of the suggestions which Mr. Caröe had made in his Paper—namely, that the District Surveyorship should be thrown open to all Associates of the Institute—he thought that their own or some similar Board ought to have an opportunity of testing the qualifications of candidates if the Board were to be in any way responsible. It appeared to him quite possible that what might satisfy, and more than satisfy, the examiners of Associates of the Institute might fail, without another class of questions being asked, to satisfy a body of gentlemen who were very familiar with the difficulties, perplexities, and anxieties of the post of District Surveyor. He hoped, therefore, that if that suggestion, as to which there was a good deal to be said in its favour, were ever carried out, it would not be considered necessary to abolish the Board of experts. He hoped that

members of the Institute would consider that this matter was of importance, not only as regarded London, but as regarded England generally. London practice to a large extent was copied in the country; the old London Building Act was really the model upon which the Model Bye-laws were fixed, and the practice in London in various ways had filtered over the country. The Institute was an Institute for the country as well as for London; and if he were told that in pressing a London matter upon their attention one was rather restricting its aim, he should like to answer that, if by any means the Institute could succeed in recovering for its members the position which they occupied with regard to the office of District Surveyor up to 1890, it was exceedingly likely that the same kind of thing would follow in the country, which would be a matter of considerable advantage to architects out of London as well as to themselves.

Mr. J. DOUGLASS MATHEWS [F.] said that he fully appreciated the remarks the President had made as to the undesirability of introducing anything like acerbity into the discussion, and he was also very glad indeed to be able to say that there was no feeling of that kind existing between the London County Council—at any rate, the Building Act Committee—and the District Surveyors. During the time that the Bill was proceeding, both before it entered the House and when it was in the House, the District Surveyors' Association and the Committee which had the matter in hand were in constant communication. They had spent, he believed, three afternoons with the County Council, going through the Bill in its first form, and they left with the satisfaction of knowing that they were quite agreed on almost all points; they had been treated all through with the greatest courtesy. He was very sorry that Mr. Caröe's Paper had not been read in that room twelve months, or even six months, ago. If it had been, they would not have had to meet, as they were then doing, to deplore the clause which had been introduced into the Bill. He could not help saying that he considered it was due in very great measure to the Council of the Institute that that clause had been inserted. It must be remembered, and Mr. Caröe had referred to the fact, that a petition was presented by the Institute to the House of Commons suggesting various alterations, and among them the alteration that had been mentioned. That petition, for some reason or other, was never followed up; counsel was never instructed; and the District Surveyors felt that that was a matter which would come with far more grace from the Institute than from the District Surveyors' Association. Therefore they quite expected—in fact they were assured—that the matter would receive the attention of the Institute and would be urged upon the Committee of the House. He was sorry to say that no representation had been made by the Institute beyond the mere presentation of the petition. In most of the other cases the petitions were followed by the attendance of counsel. Finding that the Council of the Institute did not take the matter up, the District Surveyors' Association wrote to them requesting them to do so, and were informed that they were not represented by counsel and could not do so. Further than that, the District Surveyors suggested that they would themselves be at the expense of counsel if the Institute would follow the matter up. He felt bound to say that in answer to that letter, the District Surveyors received a curtly official letter from the Secretaries of the Institute, stating that nothing could be done in the matter. He would go further than that, and say that if the Institute had been properly represented before that Committee all the other opponents of the Bill would have been with them, including the Surveyors' Institution, the Institute of Builders, the Corporation of London, the Duke of Westminster, and others—in fact, every one of the opponents to the Bill. That was shown when Mr. Boodle, the agent for the Duke of Westminster, tried at the eleventh hour to get that clause reconsidered and the

objectionable portion taken out, and he was so far successful that the clause was reinstated as in the present Act. The harm had been done. He sincerely hoped that the County Council would see that there was a great deal in what Mr. Carøe and others had said, and that they would deem it desirable to withdraw the undertaking which they asked from candidates who offered themselves as District Surveyors. If there were some District Surveyors who did not discharge their duties themselves, but trusted to their clerks, they all admitted that it was undesirable. The District Surveyors had themselves suggested to the London County Council that instead of the clause as proposed to be inserted in the new Act, and as in the former Act, they should substitute these words:—"On a vacancy occurring in the office of District Surveyor, the Council may appoint another qualified person in his place; such appointment to be subject to his undertaking personally to discharge the duties of the office and according to the conditions contained in this Act but no other." That, he thought, would quite carry out the suggestion Mr. Carøe had made. As to the importance of the District Surveyor being a practising architect, he quite agreed with what Professor Roger Smith had said upon the subject, and he felt sure that every one present took the same view. Speaking of the District Surveyors with whom he came in contact, he was sure that there was no body of men who interested themselves in the difficulties of complying with the Act than District Surveyors. It was not a curt "I will not have this," "You shall not do that"; and he felt sure that the ease with which the Act had been administered during the last forty years had been in great measure due to the desire to put as few obstacles in the way as possible, and to assist those who were young and had had less experience than the District Surveyors themselves. With regard to the results of the Examination, he was not at all surprised; he was only surprised that a lower class of men had not presented themselves for examination. The Examiners were bound to examine all who presented themselves. Of one thing he was certain, that no man with any degree of respect for himself could undertake the office on the conditions offered by the County Council. He held in his hand at that moment the returns of many districts, and although, perhaps, his own had been the worst, yet in many cases the income had been reduced, perhaps twenty or thirty per cent., or even fifty per cent.; and it was not surprising, because, in the past, the larger returns had been from those districts which had been, before the commencement of this Act, open land; then as the ground had been covered there had not been so much work for the District Surveyor. There were two kinds of districts—the inter-Metropolitan districts and those beyond. In the older districts there were always building and alterations going on, but in the other districts, when the ground was covered, there was very little to do, and therefore there must be a varying income, while a District Surveyor under the new scheme must take this risk and also retire at the age of sixty-five years. How was it possible for a man, unless he had a very large income indeed, to put by sufficient in the few years that he was a District Surveyor to buy himself an annuity at the age of sixty-five? Or else, if he were to commence again as an architect, he might expect to have very little to do for the remaining years of his life. The inducements, indeed, to men of reputation were not enough, and inferior officers would be appointed. He hoped that the resolution would be sent to the London County Council with an explanation that there was a real necessity for it—that it was not simply the opinion of a few men, but the expression of the architects of London, who had more to do with the District Surveyors than any other class, except, perhaps, the builders. He (the speaker) believed the Institute of Builders would unite in that resolution, because he was sure the builders were quite as anxious to

have a body of men equal, if not superior, to those who at present carried on the office of District Surveyor.

Mr. T. H. WATSON [F.] said that his attention was specially drawn to the matter when he found that the only candidate for the certificate was one whom the examiners found it impossible to pass. It occurred to him then that it might be possible that the action of the Institute was misunderstood by the County Council; that when no certificates were sent up to them of men competent to perform the office it might appear to be a reflection upon the Institute. Upon that he asked himself whether it would not be better that the members of the Institute should qualify, at least, for the office and should be certified to the County Council. Then, if they found that the conditions which were offered with the appointment were such as they could not accept, they would not present themselves for the office. At any rate, the County Council could not then be in the position to say, The Institute has failed to send us any candidates from whom we can select men to undertake these duties. It occurred to him that perhaps a Committee of the Institute might consider that subject, as well as that of the conditions imposed upon the candidates for the office, and so arrive at some practical solution of the difficulty. Now that an examination had been instituted in three stages (the last stage of which should be a guarantee that the men who passed it were competent to perform the duties of architects), instead of those men being put through such a general examination as was rendered necessary when it was found that candidates were presenting themselves for the District Surveyors' examination without any general education in the principles of the architectural profession—those men who had passed the Final Examination qualifying them for Associateship, and satisfied the examiners of some practical acquaintance with the exercise of their profession, should be submitted to a strictly technical examination upon the Act and such matters as came under the special notice of District Surveyors, and then receive a certificate and be reported to the Council as competent. If there were a list, it might be perhaps almost as large as that of the London Associates of the Institute. Then he thought the work of the Institute would be done: there could be no reproach, and nothing could be said against the Institute in regard to their share of the matter.

Mr. H. H. COLLINS [F.] thought that the futility of the Meeting was evidenced by the back benches. Those who were most interested in the question were not the District Surveyors who were in practice to-day, but those who would emanate from the Institute in future; and how little interest they took in the appointment was evidenced by an inspection of Mr. Carøe's tabulated statistics. The whole question lay, he thought, with the London County Council, and not with the Institute. That the Institute had thought so was established from the observations made by Mr. Mathews. The District Surveyors, naturally, in the great—perhaps the most crucial—question that had arisen in later times, so far as the body of Architects was concerned, naturally looked for protection, support, and assistance from the Institute. Mr. Mathews had told how far their expectations were in any way realised. It was left to the Institute of Builders; and he had heard the Institute of Builders contemned in that room. It was left to the Surveyors' Institution; and he had heard it said that surveyors were denied admission to the Institute. It was left to a distinguished nobleman to come out of charity to assist the District Surveyors, who were most deeply indebted to Mr. Boodle and to the Duke of Westminster for the timely and energetic assistance afforded them. The District Surveyors, with very small funds indeed, spent a large sum out of those funds in defending their position. The Surveyors' Institution expended no less than £900 in endeavouring to uphold their claim—he might say to support the position of the profession. They felt the

difficulties, and they recognised the necessity of having a body to act, as they had hitherto acted, as District Surveyors. Not so the Royal Institute of British Architects. The District Surveyors were left absolutely alone and in the cold, and probably there was no body that ought to have had more influence with a Committee of the House of Commons or the House of Lords than the Royal Institute. He could not refrain from making these observations, because he thought they had serious cause of complaint, and because he thought that they had been deserted when they ought to have been stood by. It was not necessary to go over the fact that the action of the London County Council had reduced the number of applicants to zero. That was shown in the statistics quoted. Nobody thought it worth his while now, unless it were some very necessitous person indeed, to come to the Institute and pass the examination, with the prospect of starvation in the end. The Institute, in its desire to uphold the position of District Surveyors, had thought it even worth while to say that they had no right to be Fellows of the Institute; that, however, he would say in parenthesis. There were present in that room two distinguished gentlemen—distinguished by common sense—who, so far as they had had an opportunity of meeting them, both at the Surveyors' Institution and in the District Surveyors' Association, had shown that they were open to reason, and were very desirous of making the Act an Act which would be of use to the Metropolis at large. Both Mr. Bruce and Mr. Marsland were thoroughly acquainted with the subject, from A to Z, and he hoped they would favour the Institute with their views before the meeting closed. It must be evident to them, from the observations Mr. Mathews had made, and probably from some statistics that Mr. Carøe might further afford to them, that it was absurd to suppose that men of any education, men of any position, men of any practice, could afford to take a District Surveyorship under present conditions. Then there was the question of age. Well, age, no doubt, carried with it, or ought to carry with it (it did not always), experience, that *savoir faire*, that knowledge of the method of one gentleman meeting another. He agreed with what Mr. Mathews had said—it had been his own good fortune even in later days to meet with gentlemen who had filled the presidential chair of the Institute, and it would be very disagreeable and very dissonant with their views to have to meet some jack-in-office who had no authority of his own, but who must rush off to Spring Gardens before he could give an answer to a plain question. Those officials (for they became mere officials of the Board) had no power of their own, no self-will, no self-dependence, to construe the Act of Parliament—possibly through fear of getting into disgrace at Spring Gardens—and they had to go there to get the answer, which was not always—and he hoped he would be forgiven for saying so—comprehensible when it was got. The County Council, he was sure, were desirous of carrying out the very difficult Act which would soon come into force—an Act which he did not think they comprehended themselves, although they had passed it—an Act which would puzzle, he thought, generations of architects for some time to come, which would afford the Courts opportunities of giving judicial interpretations, which would trouble architects in the future probably a great deal more than the former Act, even to understand the language in which it was couched. They had with them that evening a gentleman who he hoped would make some observations—Mr. Statham, who had written a book on the subject, and whose book itself was not very comprehensible, for the very reason that the language he had to quote was not in itself comprehensible; and therefore there would be a great many difficulties in that way. What they wanted was a body of gentlemen who had experienced the difficulties themselves in their own profession by practising, and who had come in contact

with gentlemen who had had large works to carry out and had also experienced difficulties, and who were able to interpret not only the letter but the spirit of the Act. That was what they had had in the past—such men as Professor Donaldson when the Act of 1855 first came into force—men who had not read absolutely the lines, but read between them, and been able to assist and sympathise with their brethren, and endeavour to get over those many difficulties and angularities which new Acts, and even old ones, were continually presenting. He hoped the County Council would look at the question from the only point of view which was calculated to raise the condition of District Surveyors. He appealed to the sense of the members of the County Council present, and trusted they would see the necessity there was of having educated men to fill the position of District Surveyors—educated not only as architects, but educated in the ordinary sense of the word; and not only educated men, but men of the world—men who were able to meet their fellow men and make use of their intellects even behind an Act of Parliament. When he went up for the office of District Surveyor he was told by those who had the elective power, "You know, Mr. Collins, all the men who come here are equal; they have all passed the same examination, and we do not know any difference between any of them." The Institute, they were told, had no power to make any selection; they had to take any man who chose to come, no matter what his belongings; they did not go into his position, into his parentage, his genealogy; they took him as they found him; and if he passed that particular examination, then, of course, the London County Council might say, "All those who come up here are equal." But that was not what was wanted; and that was what they had to drum, if they possibly could, into the mind of the London County Council. Here he might be allowed to say that at all events during the passing of the Bill they simply did their duty. Dr. Longstaff had been unremitting in his endeavours to satisfy all parties, and he had nearly succeeded. He used the word "nearly" advisedly, because it really had been a work of very great anxiety, and it had been carried out with remarkable urbanity and courteousness, combined with a great desire to produce a perfect Act of Parliament.

Mr. BENJAMIN TABBERER [F.] (Hon. Secretary, District Surveyors' Association) was sure that the County Council could have but one object in view in the regulations they had framed, and that was, to secure the best men to carry out the duties of the office. The more they looked into the question the more they would see that the system which they had adopted and now carried out was not the one to secure the best men, and not that which would carry out most effectually for the benefit of the public the provisions of the recently passed Act of Parliament. He trusted that the matter would be further discussed, and on a further examination of the question he had little doubt but that an alteration would be effected. He thought they could not have more eloquent statistics than those which Mr. Carøe had provided. It was very evident that the inducements held out would not draw in the men who were most fitted to carry out the duties of the office. He should like to make one correction of what Mr. Collins had said. The District Surveyors' Association had not been so very extravagant with regard to the opposition to the Bill. They had not spent hundreds; it was, he believed, between £100 and £200. Their funds were very small, and they had to depend upon the contributions of their members; and they naturally looked to an important and comparatively wealthy body like the Institute to back them up. He was very sorry that they could not see their way to doing that more effectually than they had done.

Mr. H. H. STATHAM [F.] expressed his general concurrence with the opinions expressed by Mr. Carøe in his Paper, and said that he had reason to think there was a considerable party on the London Council who had come

to the conclusion that their By-law was a mistake; and if a strong Resolution was forwarded from the Institute he thought that probably it would receive every consideration, and would perhaps just be the one influence which would settle some of the waverers. That there was that sort of chance might be seen from the fact that the London Council had not attempted to incorporate the clause debarring District Surveyors from practising in the Act. When he first read the Act he had come to the rather too hasty conclusion that they had in fact given it up altogether; but the By-law had been passed. At the same time, it had been passed only, he thought, in a sort of business routine, and it would probably be found that there was every disposition on the part of the London Council to reconsider it.

Mr. ALEXANDER PAYNE [F.] asked whether he might make a practical suggestion to Mr. Carøe about the motion. The resolution, he thought, hardly went far enough; it only stated that it was most desirable that the status of District Surveyor should be maintained. The answer of the County Council—of the Building Act Committee—would be at once that that was precisely the thing they wanted to do. Because they were under the impression that, by increasing the size of a district and combining districts where necessary, they were maintaining the status of the District Surveyor. It was really impossible for anyone who was not an architect and not practising every day to understand the question, how detrimental the conditions imposed by the Council were, even if the work were increased, and how keenly architects felt about it. By the Council's plan they got only one man of inferior stamp, whereas, under the old plan, they had two men with smaller districts, practising architects. It had to be considered which was best for the public of London: two practising architects with assistants, or the one man only, and he not a practising architect; because, he believed, since 1890 there had been no man of very great eminence as an architect appointed District Surveyor. If Mr. Carøe could amend the motion by saying that it was most important that the status of District Surveyor should be kept up by permitting private practice, he would move that as an amendment.

Mr. FORSTER HAYWARD, F.S.A. [F.], seconded the amendment, as an old member of the Institute, and he thought he might observe that in the very last meeting of last session he took the opportunity to make some remarks upon the subject which was now under discussion, and he thought those remarks, which were published in the *JOURNAL*, had been of some use, for he had handed the report in the *JOURNAL*, at his request, to Mr. Boodle, who was the gentleman who took the greatest pains to bring the matter before the Committee of the House of Commons. The Institute was thus given an opportunity of saying a word; but not one word could be got out of the Meeting on that particular subject, although the discussion was entirely upon a subject connected with it. He had very early recollections of the District Surveyors' examination; and, as the examination was the practical point to which Mr. Carøe had directed their minds, he might observe that when it was first instituted, Mr. Nelson, who was then the Honorary Secretary of the Institute, was very jealous indeed of the character of the examination; and at that time, they must remember, there were no other examinations at all. He said, "If you go in for this, you must promise us, and the first question we shall ask is: 'Are you going in for the office of District Surveyor?'" He (the speaker) rather contended against that, and after some years that question was dropped. He (the speaker) looked at it from this point of view: "Whether I go in 'or not, to know the subjects required of a District Surveyor is of the utmost importance to a professional man, and I should like to pass it." Then they said: "Well, you may use it as a testimonial." Exactly, nothing better could be desired. The importance of the examination for that

purpose was evident. He could not help thinking that if Mr. Carøe's suggestion were acted on—if all the Associates of the Institute were enabled to pass, subject to the suggestion made by Prof. Roger Smith, that there should be a separate and additional examination afterwards on certain practical points—that would be an excellent plan. As Mr. Carøe said, it would throw open the position to all the Associates of the Institute, and that would be an advantage for some of them, at any rate if at some future time it might be a valuable appointment. Before he passed the examination he used somewhat to despise the District Surveyors' work. He had learnt, however, to do otherwise, and was delighted to be one of them. Why should the Institute throw away all those various appointments, and put them in such a position that no member of the Institute could safely and properly compete? They should do their best to retain them as appointments suitable for a great many of the members, if not all of them. It had been remarked that, if it were not retained in the Institute, or in some way commended to the profession, others of a different class might come in. He should like to state that, while that very committee were sitting, and the subject was before them, and it was well known that the architects were debarred from practising, and therefore that a different class of individual might be likely to come into the office, he actually had letters asking him how he could assist individuals such as auctioneers to become District Surveyors. One remark with regard to the Committee. If the Institute had properly instructed counsel to bring the matter before the Committee there would not have been that ignorance on the point that there was, and that impatience to hear some of the remarks that were made. One gentleman, a Scotch member of the Committee, had actually said, "Well, but why should they want to practise?—they have got their fixed salaries. Our Town Surveyor has £500 a year, or £700 a year; we should not give him leave to practise, because he has a fixed salary—and why should they have it?" It had to be explained that the District Surveyors were not paid by fixed salary at all, and Mr. Mathews's case had to be brought forward. If the thing had been clearly laid before the Committee such a misunderstanding would have been cleared up.

Mr. W. WALLACE BRUCE (Chairman of the Housing Committee of the London County Council), having been called on by the President, said that he had no special qualifications to speak on the matter. He had been a member of the sub-committee that had charge of the Bill, but he had looked at it entirely from the point of view of the Committees in which he took a leading part—viz. the Health and Housing Committees. Still, the present was an interesting subject, and he had gladly availed himself of the opportunity of hearing what there was to be said from the point of view of Mr. Carøe and the District Surveyors whom he had heard. In those matters in which he was personally interested, in the Council, there was a case that, at first sight, appeared to be parallel, where great advantage had accrued to London through an arrangement somewhat similar to that under discussion, and that was the Medical Officers of Health. Undoubtedly there had been great advantage there, in the rule which was now so frequently adopted, that the Medical Officer of Health should not take private practice. There the districts were undoubtedly far better looked after than they formerly were; but then there was the great difference that the salary of the Medical Officer of Health was a permanent one, and did not depend upon the amount of work that he might have to do; so that, of course, was not on all fours with the matter then in hand.

Mr. JOHN MARSLAND (member of the Building Act Committee of the London County Council) said that he did not know that he had anything to reply to in any form as a member of the Building Act Committee, and in

a measure responsible for one of the regulations of which complaint was made. He had really listened to no argument whatever, from first to last, why the County Council should take that regulation off the books, except this, that it would be for the benefit of the Royal Institute of British Architects, and of their members, that they should be allowed to retain private practice as well as act as District Surveyors. That had been the opinion of every gentleman who had taken part in the discussion. He had been struck most forcibly with that idea, that almost every one, with the exception of the reader of the Paper, was a District Surveyor who already possessed that privilege. They had not heard from any member of the Institute that any District Surveyor who had not the privilege of private practice had ventured to give the reason why he should have it; neither had they heard any of those younger members of the Institute, who hoped to be District Surveyors, as well as to have private practice, give any reason why they should have the privilege. Really there was nothing at all, on the part of the County Council, to answer in the arguments advanced during the Meeting as to why they should remove that regulation from the books. Mr. Bruce had given a good illustration as to why that regulation should stop on the books, because in another part of the work in which he took an interest they had adopted the regulation; and it had been adopted under statute, he believed, that the Medical Officer of Health should not carry on private practice. He had been rather struck by a remark made by Professor Roger Smith, in first opening the debate, in which he said that when any one practised in country towns one was surprised at the status of the man one had to meet as the Building Surveyor. That was the very thing that had been in his mind as the reason why they should insist upon having the District Surveyor himself to be a properly qualified man, who should attend to his own duties, in London. It was because over and over again, as a builder, he had had to meet with the District Surveyor's clerk in the district. He (the clerk) might have been a qualified man, but it would have much more satisfied him (the speaker), when there had been a difference of opinion, if he could have met the District Surveyor himself. There were some districts in London in which the District Surveyor was never seen except when there was some question in dispute. If that was the case it would be much better, as men of business—it was logically right—that the man who was really responsible for the work should be always accessible—that the man who had to carry out the work should do it himself. That was the reason why a District Surveyor should be compelled to do his own work and should not employ a clerk. How were they to arrive at that? Only by passing the regulation and getting the District Surveyor to sign the agreement. To look at the matter logically: there was a personal examination, and the man had to pass that examination, which was of a very personal nature, for the purpose of carrying out certain duties; but the moment he was appointed he might appoint somebody else to do them. Jones was to be examined and pass, but Brown might do the work when Jones had got the job! That was what it had been under the old rule—logically it was so—and he was sure they would see with him that that ought not to be so; that, if Jones had been examined and had to do the work, Jones should do the work afterwards, and not, "If Robinson is good enough to do it, all very well!" That was what struck the members of the Building Act Committee when they were making the alteration, and he begged to state that so far as appointments had been made since the alterations had been in progress they had been as satisfactory as any that existed before.

Mr. EDWIN T. HALL [*F.*] said that, with the exception of Mr. Statham and the reader of the Paper, the matter before them had been discussed entirely by District Surveyors, all of them gentlemen of great experience, and it

was very right that they should give the Meeting their views. But in the interest of the subject before them he thought it would have been better if more independent members had spoken to it. Mr. Collins had referred to the fact that few of the younger members were present, and he (the speaker) thought one reason for that was that those who were aspiring to be practising architects felt that they had no interest in the subject, when they knew that if they became District Surveyors they could not practise as architects. He agreed, also, with Mr. Marsland's view—and he was sure he spoke in the name of every member present when he said they all agreed—that it was utterly improper that a District Surveyor's clerk should do his work—if such were ever the case. They must all know that they did meet District Surveyors' clerks sometimes; but he presumed that every architect also knew that the District Surveyor's clerk had no right on a building whatever—no statutory right whatever. He was merely there by the courtesy of the architect and the builder, and went to report to his principal; and, if he took an improper position, the only thing for the builder or architect to do was to ask him politely to leave the works. Mr. Forster Hayward had laid stress upon the fact that the Institute ought to look after these appointments because they were valuable to members of the Institute. He (the speaker) hoped sincerely that that would be repudiated by all present. If the Institute took so low a view of its public duties as to say that it existed to safeguard appointments for the benefit of its members, the sooner they ceased to be members of the Institute the better. All throughout the trouble they had taken on the Building Act they had been guided by a far higher motive. They had recognised and realised that they were responsible to the public in matters appertaining to the Building Law of London, and they had endeavoured absolutely to sink their own interests in endeavouring to get a good Building Act for London. He was sure that all who had been thrown into contact at all with the Building Act Committee of the County Council knew that their most earnest desire had been to make a good Building Act, an improvement on the present one. That they had succeeded he himself had no shadow of doubt. They had been most desirous to listen to advice from those who knew from technical experience; they had amongst themselves able men who knew a great deal about building in London; and he was sure their desire had been, even in the regulations to which exception had been taken, to improve the status of District Surveyors. He ventured to say that the difficulty which weighed with Mr. Marsland as to the clerk representing his principal (and he had told them why he objected—because Jones passed the examination, and Robinson did the work) was a thing that could be cured by a different regulation from the one objected to—namely, by a declaration on the part of the District Surveyor that he should do his own duty; and if it were necessary for him to have an assistant, let that assistant be a man appointed under such regulations as the County Council might, if they pleased, make. But the point of view from which, as practising architects, they approached the matter was this: that the District Surveyor was a gentleman who, from his very position, acted in many cases almost as a sort of judge of first instance. The County Council, in their desire to have the Act well administered, should be exceedingly careful whom they appointed as a judge of first instance in so important a matter as the administration of the Building Act. It was, of course, the Council's desire that that Act should be administered with justice, with wisdom, and with discretion. A learned judge recently reproved the appellant in a case who was contending that the literal wording of an Act was to be considered in preference to the spirit of the Act. The spirit of the Act was what the older District Surveyors had carried out. To take a point under the new Act. Very greatly increased responsibilities were thrown upon the

District Surveyor; but, without considering them, among other things, a public building must absolutely be constructed to the satisfaction of the District Surveyor. Take the case of the London County Council building a fine hall to adorn London. It might happen that it would be built within the jurisdiction of a District Surveyor who had had no practice whatever, who had not actually designed a public building in the whole course of his life. Now, that building must be constructed to the satisfaction of the District Surveyor. Was it desirable, in the interest of the County Council, which meant in the interest of good building in London, that there should be a man of wide experience in the district occupying the position of District Surveyor, or that the work should be relegated and left to a young man who had simply passed the examination? Unquestionably it was highly desirable that the District Surveyor should be a man who had passed through the fire of considerable experience before he had taken the post upon himself at all; that he should be one who was competent to deal with all manner of intricate questions, such even as the building of a palace in the centre of London. A young man, however, could not possibly have the experience which entitled him to the weight that he should possess in the administration of the Act and in the oversight of a large public building. Therefore the argument of the Institute was that, in view of the new responsibilities which were thrown upon him under the Act, a man of power was required for the post. It had been remarked that in former times such gentlemen as Professor Donaldson held those posts; and at the present time there were eminent members of the profession as District Surveyors, such as Professor Aitchison, Professor Roger Smith, and Professor Kerr, all men of large experience. Now if the regulation which said that men should not practise were withdrawn, that would mean that the older men, and the men of more experience, would go in for these appointments. At present they were prizes for young men not in practice. That was really the only thing which would draw men into the examination. They were very honourable prizes to which any man might legitimately look. But the County Council were not seeking to give prizes to young men; it was seeking to appoint able men, and men of considerable experience, to administer the Act. Perhaps the difficulty might be met if the County Council could make some regulation stipulating that a man, before he became District Surveyor, should have been in practice for at least a given number of years. By the expression "in practice" he did not mean that he should simply have had an office, but that he should be a man of experience and knowledge, and that the examination he had to pass at the Institute should test his qualifications in other ways than in his knowledge of the Act; and then the Council would receive, as it were, a diploma from the Institute that the candidate, in the estimation of the examining members of his profession, was a man able to undertake the grave responsibilities of the position which lay before him. If the regulation could be amended somewhat in that way, and leave to practise be given, it would, he thought, meet all the necessities of the case. He sincerely hoped that Mr. Marsland would give the Institute credit for the fact, which was a fact, that in what they were seeking they were acting, not in the interest of the members at all, but in the interest of the capable administration of the Act.

MR. LACY W. RIDGE [F.] said that, having had experience on the Statutory Board of Examiners during the whole of the time covered by the statistics prepared by Mr. Carøe, and having taken considerable interest in it, he felt that he had one argument to offer which was well worth the consideration of the London County Council. He could take that table, which already showed the disastrous result of the regulation on the class of candidates that they were likely to have in the future as District Surveyors, a great deal deeper, because those twenty-five men who had come up since the regulation was passed had not been

at all on a level with the seventy-two men who came up before. It might safely be said that since the break there had not been a single architect in any appreciable practice who had presented himself for examination. If he had done injustice to any one of the men who had passed by making that remark, he must ask his forgiveness; his case might have slipped his memory, but that was the impression left upon his mind—they had not been practising architects who had presented themselves for the examination. He only wondered that the thing had not got wind, and that they had not had plenty of candidates of an inferior class. By an inferior class he meant the class of man that was met as the local surveyor in a country town or a country district. Any one who did any work in the country at all must know the extreme difficulty of dealing with men of that class. Doubtless, in the very large towns in the north, and so on, where he had had no special experience, they might have men as surveyors, as salaried men, quite on a level with London District Surveyors, but that was not the case throughout the country generally. More difficult men to get on with, men more unconscious of their powers, men with greater inclination to stretch their powers, and with less appreciation of when their powers should be enforced absolutely, and when modifications in their regulations were necessary, it was impossible to imagine than the ordinary run of small surveyor who acted as the representative of the local authority, especially in country districts. If in London they were to meet on important work District Surveyors of that class, it would be the greatest possible misfortune to building in London—a misfortune to them as architects, a misfortune to the public who build, and ultimately a misfortune and a disgrace to the local authority who brought it about.

MR. HERNARD DICKEE [A.], referring to the statement that no one who had been appointed since the regulation had been in force had addressed the Meeting, said that there was a point of statistics he could bring forward which did not appear on Mr. Carøe's tables. The second time that he (the speaker) was a candidate, in 1891, he believed there were 33 candidates; between then and 1893, when he had the good fortune to be elected, there were 8 or 9 passed, he thought; whereas, at that 1893 election, there were only 18 candidates, or about half the number that there were at the previous election. But what they wanted to do was not so much to find fault with the County Council for their regulation, as to show how they could get at what they were aiming by another method. What the County Council were afraid of was not that they would not have a good enough man, but that they would have too big a gun, who would not be able to attend to the work. That, however, had already been met by the Act. There was a clause in the Act of 1855 (which was re-enacted in the new Act), that when a District Surveyor, through pressure of business or through any other cause, was unable to carry out the work of his district, the County Council might appoint an assistant surveyor, and that assistant surveyor was to receive the fees for what he did. They had never yet heard that the County Council had done that. He believed it was done once or twice by the old Metropolitan Board of Works when a man got very old; but the Council had that power at the present time. If any District Surveyor were not looking after his district personally (and the Act required him to do it personally—he was to hold a certificate, and the inference was that he was to do it personally), there would not be the slightest objection to putting in the Declaration that the District Surveyor should personally carry out the duties of his office. No one would object to that. But, as long as he did so, there certainly could be no reason why (if he had not signed the Declaration, of course) the District Surveyor should be debarred from practising.

MR. WILLIAM WOODWARD [A.] said that it was quite

impossible for a District Surveyor to visit all his buildings at one time, and he spoke from experience when he said that, although he might not have seen the District Surveyor himself on all occasions, he never yet carried out a building without personal intercourse with the District Surveyor himself. He wished, however, to make a few observations which he thought would have been unnecessary after the remarks which had fallen from Mr. Hall. With regard to some remarks made by Mr. Collins and Mr. Tabberer in reference to the action or inaction of the Institute in the matter of the proceedings of the Bill in Committee of the House of Commons, he wished to say that the other day he had called upon Mr. Rogers, the Secretary of the Surveyors' Institution, to congratulate him on the admirable expenditure of £900 in opposing the Bill and in defending the interests of the Surveyors; and Mr. Rogers paid ungrudging testimony to the great help that he had received from the Royal Institute throughout the whole progress of that Bill. He (the speaker) had occasion to be in conference with Mr. Arthur Cates, who, as was well known, attended every day, or nearly every day, the Committee of the House; and who had clearly shown that, although he was acting in a capacity not exactly representing the Institute, he had brought to bear for the benefit of the Institute, in conjunction with the Surveyors' Institution, all the points that he would have brought to bear had he officially represented the Institute. His acquaintance with the counsel engaged in the matter and his great knowledge of the intricacies of the Bill enabled him to do all that could have been done on behalf of the Institute. Mr. Tabberer had given a hint on behalf of his Association as to the reasons for their not employing counsel; and those reasons, he thought, should be considered with regard to the Institute. They had not the funds out of which to spend £900 in employing counsel to defend the points of this Bill. Those points had been so well defended in every detail by the Surveyors' Institution (and many members of the Surveyors' Institution were also members of the Royal Institute) that, to a certain extent, when the Surveyors' Institution expended £900 in opposing the Bill, they were defending the interests of their profession, and were also watching the interests of the architectural profession. He thought it quite uncalled for to attack the Institute for not having done its best to represent the interests of the architect. He himself knew from his own observation, and from personal intercourse with Mr. Cates, that everything had been done that could have been done with the funds at their disposal in order to do justice to the Institute.

MR. W. HENRY WHITE [A.] rose to show that a little interest might still be expected from the back benches. He should have thought that it was the best testimony that could be laid before the County Council that the District Surveyors at present acting as District Surveyors were the men who were instituting the present inquiry. It seemed to him a very strong point, which showed their disinterestedness in wishing to lay before the Council reasons for keeping up the status of the present District Surveyors. He thought it might have been overlooked, but he should like to call attention to it very strongly. They must all agree with Mr. Carøe's Paper, and the aim of the Institute should be to assist in every possible way in keeping up the status of the District Surveyors for London. Mr. Hall had made an excellent suggestion, which he hoped would be borne in mind in any action that might be taken, and any representation that might be made to the London County Council. He thought that many of the reasons set forth by the County Council against District Surveyors practising would be obviated were it strictly laid down that District Surveyors should not practise on any account whatever in their own district. Some regulations were required to ensure that men who did apply for the post should be men who had been in practice for a certain number of years and had obtained experience

to enable them to carry out the duties of the office. One suggestion had been made that District Surveyors should not have an assistant. That seemed to him unreasonable. Architects could not carry on their work and see to all their buildings without certain assistance, and the District Surveyors under proper regulations should also have assistance. He might add that they had never known of any case where a practising District Surveyor was not accessible to any one in his district - if not at the moment, certainly by very early appointment.

MR. C. H. BRODIE [I.] observed that the junior members of the Institute had been rather sat upon that evening, and, if he might say so, without the slightest reason. They were twitted for not having come down in their hundreds to support the meeting. What business had they in it? Was it worth the while of any one of the younger members of the Institute to fag up for an examination, and pay a fee for being examined, and apply two or three times for a position, and then to get a salary of £87 a year? That was the point. Mr. Marsland had very kindly come to talk to them, but he seemed entirely to mistake the scope of what they were aiming at. It might be all very well to say that a District Surveyor should attend to his own work. Certainly he should do so. Nobody objected to that, or had objected to it; in fact, quite the reverse. All those who had spoken had said that he should. But he would point out that he could not do it all. Every other profession had assistants. Mr. Marsland, he presumed, had assistants in his business, and was perfectly within his right in employing them. In case of any dispute, as he very well put it, of course the senior should be accessible. He (the speaker) did not know whether it was right or wrong, but it seemed to him perfectly reasonable that every District Surveyor's clerk who had responsible work to do should also have passed the Statutory Examination. It seemed to him that that would give some of the younger architects the opening which some of the seniors desired they should have, and they would thus start a school of District Surveyors who would in time become principals. But the real point seemed altogether to have escaped Mr. Marsland. He (the speaker) had pointed out to a gentleman, who was a builder in a large way of business, and a colleague of Mr. Marsland's, the result of the regulation which had been discussed at that Meeting, and his reply was, "Oh, well, we must raise their salaries." That remark needed no comment.

MR. ALEX. PAYNE [F.] then moved an amendment to Mr. Carøe's resolution, so that it should read, "That this Meeting is most desirous of seeing the high status of District Surveyors maintained by permitting them to practise privately, as heretofore, under such restrictions as may be thought necessary, particularly having regard to the increased responsibilities placed upon them by recent legislation." The reason for that was that the whole point which had been made by every speaker was the one point of private practice; that was why it seemed to him it would be better if that were added to the resolution.

MR. W. D. CARØE, M.A., F.S.A. [F.], said that the reason why the resolution had been put in the form in which it first appeared was that they were not the final body in the matter at all; they were entirely under the County Council; and they thought they had no right, and did not wish to appear to dictate in any sense whatever to the County Council. At the same time there was no doubt that the cause of the falling off in the examination at the Meeting was called to discuss was due to the fact of the Declaration. That being understood, he was perfectly willing to accept the amendment. He thanked the Meeting for the kind way they had received what he had said or done. It was such an important matter that he was sure they must all be only too ready to do anything that they could to advance it. He was very

sorry indeed to hear Mr. Marsland affirm that they had not produced any evidence for the alteration which they hoped the County Council would make. Mr. Marsland could not have seen the statistics of the examination exhibited on the wall, and could hardly have listened to some of the arguments which had been brought forward. He hoped that when Mr. Marsland saw the discussion in print he would reconsider the view that he had taken. He (the speaker) did not wish to be misunderstood in what he had said respecting Sir Digby Wyatt, who had passed the examination, but who was never appointed a District Surveyor. He did not feel called upon to say much with regard to what the President had very rightly called the defence of the Institute in regard to their action in the House of Commons. They were all well aware that action was not taken, perhaps as some might have wished, simply because there were not funds to take it. He ought to say that the petition of the Institute was acted upon; it was taken up by the Associated Landowners, and Mr. Arthur Cates was in the room to give evidence. He did not give evidence on this question, for the very honourable reason that he was a member of the Tribunal of Appeal, and he did not feel that in that position—he (the speaker) believed he was correctly stating Mr. Cates's feeling in the matter—he ought to appear before the Committee on that special question. But he (the speaker) himself appeared and gave evidence on this very point before the House of Commons Committee as a member of the Institute Council. He hoped, therefore, that the District Surveyors would not feel quite so hardly against the Institute in the matter as they had expressed themselves during the discussion. After all, the matter was done with. They had met for another purpose, and they hardly bettered that purpose by reflecting upon themselves in the past. The question that Mr. Bruce had raised about the Medical Officers of Health was on an entirely different footing, and it was to be hoped the County Council would reconsider their determination.

Mr. COLLINS asked what was to be done with the Resolution: Was it to be referred to the Council to take action in the matter, or was it to be a dead letter?

The PRESIDENT said the Resolution must come before the Council of the Institute, who were bound to carry out the wishes of the General Meeting.

NOTES, QUERIES, AND REPLIES.

The Great Wall of China p. 41 and the Ming Tombs p. 55.

From HUGH LEONARD II.1.

Though I am one of those who visited several of the places and buildings noticed in the interesting Paper read on the 19th November [p. 37], my national modesty prevented me from making any remarks at the Meeting. I think, however, that a few words on one or two points to which I have given especial attention may be of some interest.

I visited the Great Wall at, and for some miles east and west of, Kupei Kow, and made sections of it in two places. One [fig. 1] shows the wall near the town, where it is in a remarkably good state of preservation: the other [fig. 2], shows it a couple of miles west of the town, where it is much smaller in section, less carefully built, and more dilapidated.

The character of the wall at the town is fairly well represented in fig. 1; the end view was

exposed where a passage through the wall exists, so that the section was easily got. The brickwork is in wonderful preservation, supposing it to have been built, as stated, by one Tsin Chiwhangti, 220 B.C. The bricks are of a blue-grey colour,

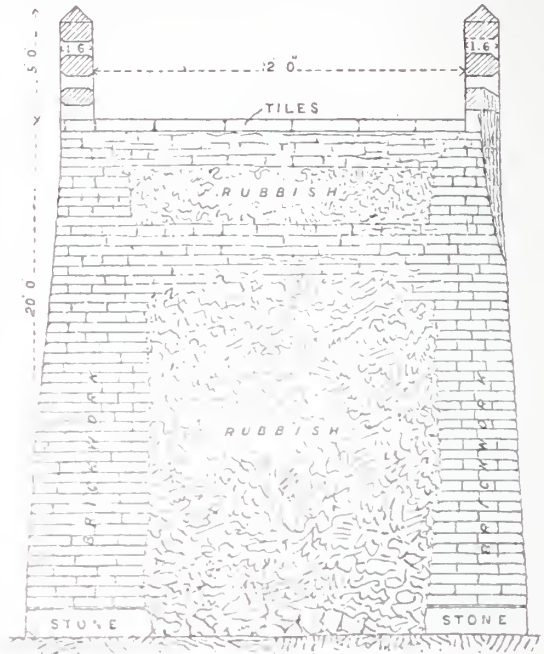


FIG. 1.—SECTION OF GREAT WALL AT KUPEI KOW.

size 20 × 10 × 4 inches. The bond is irregular and bad; consequently, in several places a brick in depth of the outside has fallen off. Mortar is visible, and seems to be almost entirely of lime.

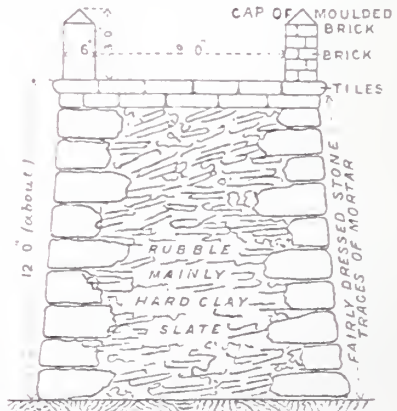


FIG. 2.—SECTION OF GREAT WALL, WEST OF KUPEI KOW.

The base is formed of a course of rough stone clay-slate. The roadway between the parapets is in wonderfully good condition, formed of two layers, at least, of large tiles of the same colour as the bricks; very little trace of having been worn by traffic is visible.

The town itself is surrounded by a wall of similar style, but neither so strong nor so good in work. There are towers on both the town and main wall, as far as could be seen, the most important being near the town: they are at irregular distances, placed generally where there is a change of direction in the wall either horizontally or laterally. They are of no architectural interest.

On the west side of the town, which is built on the river Tchow Kho, the wall is carried up a stiff incline, in one place, at least, at an angle of 25°, and on the high ground some thousand feet over the town it sometimes runs along the edge of a precipice, and branches are thrown out from the main line on ground that no enemy could mount even without the wall. I was quite unable to understand why some parts of it were built at all. On the high ground, where stone is abundant, the character of the wall is different from that on the plain near the town; the section is much smaller, the material stone, and the building less carefully done. Up the hill-face it is in fairly good preservation; on the high ground it is a ruin; in many places it was merely a mound of loose stones and impossible to walk upon. Here and there, close to the towers, portions of it are standing. Fig. 2 shows pretty fairly its size and style of work. The floor and parapets are of brick; the coping of the parapet, of one piece (in section), specially moulded for the purpose. The doors of some of the towers here are covered by arches of one stone, hewn to the arch shape, for effect only, I suppose. The stone is a schistose slate.

I should like to say a word about another place referred to very briefly in the Paper—the Ming Tombs. When I visited them I was greatly struck by their picturesqueness and grandeur, and, indeed, the beauty of much of the work. A good description of them from a competent person would, I think, be most interesting. They are situate at the head of a narrow valley. At a certain point in the valley, on the way up, there is a screen formed of a series of five opens, of different widths. The illustration on p. 37 of the JOURNAL may be intended to show it—and it is similar in character; but I thought the opens much higher, and put the centre one at 20 feet wide and 30 feet high. The whole screen is of marble, with the exception of the roof, the uprights being of one solid piece and beautifully ornamented. Then, some half mile further on, there is a second screen, much more solid and less ornamental than the first, but very grand and imposing. Some distance further on there is a third screen, small but beautiful—small so as not to dwarf the animals and men forming the avenue, which commences here and continues up to the main tomb. The avenue is bordered by figures, similar on each side—first two lions standing, then two sitting; then two hippopotami standing, then two sitting; the same with camels, elephants, horses and men; and finally two beautifully propor-

tioned octagonal marble columns. Then another small screen, the entrance to a raised walk on arches leading to the tomb. The tomb and its surroundings consist of, first, an enclosure with a fine entrance; then a small solid building in which are several bronze censers; then an open space prettily ornamented; then a really grand building, the room being 240 × 90 feet. This room contains a fine stone sarcophagus, with a solid marble base 21 × 6 × 2 feet, and a lid nearly equally solid, with a beautiful marble column standing on it. Another passage leads out of this hall, and then a very solid Egyptian-like building containing the remains of the emperor. Here, again, a very fine column stands over the place where the body is laid. Beyond this the ground rises rapidly, and is laid out in walks and beds, gradually ending in wood. The whole seemed to me singularly grand and beautiful.

The District Surveyors' Examination [p. 27].

From HENRY LOVEGROVE [A.]—

In consequence of the many incorrect statements which have been made in the press, the public have an impression that all the new Surveyors receive £600 a year salary, and that they will shortly be provided with orange waistcoats and blue coats with "D.S." on the collars.

The appointments are just as they have always been, except that the District Surveyor does not practise.

If the Institute Council intend to do anything practical, I would suggest that a Sub-Committee be appointed, and that they arrange to confer with the London Council Building Act Committee in order to get over the following requirements of the London Council:—

How to secure a proper personal attention to the duties by a District Surveyor who is carrying on a private practice.

How to enable the public to consult the District Surveyor at fixed times.

The other conditions of the appointment are not worth discussing. I would ask—How can District Surveyors who do the work themselves be more servants of the Council than those who carry on practice?

If the candidates for examination are not numerous, the London Council may answer that they are not required, because the present stock of District Surveyors will last for many years by amalgamating districts as the smaller ones become vacant; and the London Council will be able to show that only four new District Surveyors have been appointed, viz.—the late Mr. E. J. Tarver, Mr. Crow, Mr. Josiah Goodchild, and Mr. Dicksee, the first two being Fellows, the two latter Associates, of the Institute.

Now is the time for immediate action if anything is to be done.



MINUTES. III.

At the Third General Meeting (Business) of the Session, held on Monday, 3rd December 1894, at 8 p.m., Mr. F. C. Penrose, F.R.S., *President*, in the Chair, with 28 Fellows (including 8 members of the Council), 20 Associates, and 6 visitors, the Minutes of the Meeting held 19th November 1894 [page 72] were taken as read and signed as correct.

A list of donations to the Library was taken as read, and an expression of the thanks of the Institute to the several donors was ordered to be entered on the Minutes.

The following candidates for membership in the various classes were elected by show of hands, namely:

As Fellow (1).

EDWARD INGRESS BELL, A.A.

As Associates (6).

WALTER HUGH BARKER (Wrexham).
EUSTACE GODFREY BIRD (Ontario).
HARRY JEFFERIS (New South Wales).
ROBERT JOHN THOMSON.
ALFRED WRIGHT TOYNTON.
HARRY HARRINGTON.

As Hon. Associates (3).

ALFRED GILBERT, R.A.
WILLIAM BLAKE RICHMOND, M.A. Oxon. A.R.A.,
F.S.A.
FREDERICK GEORGE HILTON PRICE, Director
of the Society of Antiquaries, F.G.S.

As Hon. Corr. Members (5).

EMERICH STEINDL, Professor of Architecture
(Medieval) in the Royal Polytechnic School
(Budapest).
ALOIS HAUSZMANN, Professor of Architecture
in the Royal Polytechnic School (Budapest).
CHARLES BULS, Burgomaster of Brussels (Brussels).
HENRI EDOUARD NAVILLE, D.Ph., D.Litt. *Cor-
respondant* of the Institut de France (Geneva).
BARR FERREE, B.Sc., University of Pennsylvania
(New York).

Mr. W. D. Caroe, F., M.A., F.S.A., having read a Paper on THE RECENT FALLING OFF OF CANDIDATES IN THE STATUTORY EXAMINATION FOR THE OFFICE OF DISTRICT SURVEYOR, a Discussion ensued, and it was

Resolved, That this Meeting is most desirous of seeing the high status of District Surveyors maintained, by permitting them to practise privately as heretofore, under such restrictions as may be thought necessary, especially having regard to the increased responsibilities placed upon them by recent legislation.

A Vote of Thanks to Mr. Caroe having been passed by acclamation, the proceedings terminated at 10 p.m.

PROCEEDINGS OF ALLIED SOCIETIES.

THE NORTHERN ASSOCIATION.

Mr. Oswald's Presidential Address.

On the 14th November, at the opening of the Winter Session of the Northern Architectural Association, the

following Address was delivered by the President, Mr. Joseph Oswald [F.] :—

In the name of the Association I have the privilege to-night of greeting its members on the occasion of the commencement of another Session, which promises (judging by the published syllabus) to equal, nay excel, in interest and value all preceding ones. Now, yesterday was the birthday of the Association. It then completed the thirty-sixth year of its existence. During this period it has undergone changes and chances, as all things mortal must; but it survives to-day in sturdy middle age, healthy, vigorous, and hopeful for the future. On its roll there are now (including those elected this evening) 42 Members, 49 Associates, and 35 Students, a total of 126; exceeding all previous records, and being an increase of 9 Members, 5 Associates, and 6 Students (that is, 20 altogether) since last year at this time. To many of our present constituents the early history of the Association may not be very well known. I have been occasionally asked: What has the Association ever done for the profession? A question which, asked in good faith, deserves an answer; but which, too often made in another spirit, displays a wilful ignorance of facts. Bear with me, then, while I refresh the memory of those who already know, and enlighten those who do not, as to some points connected with the early days of our Association which, I think, should not be overlooked. Its activity more recently is vouched for by the yearly increase in the number of members.

An old proverb—"The wisdom of many and the wit of one"—says that a worn trodden on will turn at last, and the formation of this Association was due to a circumstance which vindicates the adage. A local competition was at that time being promoted, the conditions of which were flagrantly unfair. Twenty-seven architects practising in the district met together by common consent, not a hundred yards from this spot, on the 13th November 1858, to protest against these conditions, and embraced the opportunity to combine together for the purpose of promoting the advancement and elevation of their profession. So out of evil came good. The proposal to form an alliance of the various similar Societies then existing in the kingdom emanated from this Association as far back as 1860. It drafted the scheme upon the lines of which the Architectural Alliance, as it was called, was subsequently established and maintained for many years. Our Association was also, I believe, the very first (for it did so in 1861) to formulate a Scale of Professional Charges, which, with only slight modification, is now the recognised scale of the profession throughout the kingdom. It was also from its outset active in offering suggestions to promoters of competitions, now the general practice of the Institute and all Local Societies. The net result has been the amelioration, at least, of many evils.

The Architectural Alliance, it is true, in name no longer exists; but its place is more than filled by that wider alliance which has been established between the Royal Institute of British Architects and various societies of architects throughout the kingdom, fifteen in number. This arrangement, comparatively of recent date, is destined, we cannot doubt, to confer many benefits upon the Provincial Branches, and also upon the Central Institute, and through them all upon the profession at large.

Nine of the Societies I have mentioned are represented upon the governing and deliberative body of the Royal Institute in London, in the persons of their Presidents. This Association has the good fortune to be one of the nine so represented, and I have, therefore, the honour, on your behalf, of a seat at the Council of the Royal Institute. Your Presidents (being Fellows of the Institute) will be entitled to that distinction so long, and so long only, as the Northern Association comprises within its ranks a sufficient number of Fellows and Associates of the Institute,

as compared with other Allied Societies; and therefore I would appeal to those who are eligible, or who are willing to make themselves eligible, to become members of the Institute. Also, I would like to see all existing members of the Institute resident within the two northern counties of Northumberland and Durham (which have been allotted to our Association as its Province) enrolled within our ranks. Out of thirty-five such, only some six or eight remain outside, and I venture to suggest to these gentlemen, and also to all other honourable practitioners within our Province not being already members of either Body, that, by holding themselves aloof, they are neglecting an obligation almost tantamount to a duty. I have heard some of our professional brethren ask, "What shall I *gain* by becoming a member?" That, I submit, is not the question. The real question is: "What good can I *do*?" And surely no man, however modest, can esteem himself so lightly as to deem himself powerless for good to his profession and to his neighbours in it. Manifestly, there can be no method of exerting such influence so readily and effectively as by meeting on common ground, under the auspices of an Association like our own. The words of Bacon occur to me as appropriate to be quoted here: "I hold every man a debtor to his profession, from the which as men of course do seek to receive countenance and profit, so ought they of duty to endeavour themselves, by way of amends, to be a help and ornament thereunto."

To our younger members I desire to bring home the importance of qualifying themselves, as soon as possible, for the Associateship of the Institute. To them I say: You must not allow yourselves to drop behind the times. Wherever we turn, tests of knowledge are instituted or being instituted. The Church, the Law, the Civil Service, the Army, the Navy, the Practice of Medicine in all its branches, even down to the mere selling of drugs, Accountants, Surveyors—all have their tests; and rightly so. Why should young architects be different? The passing of an examination is not an end in itself; it is only a means to an end. I deprecate the system of "cramming" in order to pass; but surely it must be satisfactory to every earnest student to know that there exists a standard (a minimum standard perhaps) by which he can have his own progress and attainments gauged. Such a standard of measurement is now provided by the Examinations which the Royal Institute holds from time to time, and of which full particulars can be attained from our Hon. Secretary; but which, I may briefly remind you, are divided into three stages—the Preliminary, the Intermediate, and the Final. The sooner the Preliminary Examination is passed the better. A youth should be able to do so when he leaves school, and, if he holds certain certificates and produces certain drawings, he will be exempt from actually sitting for it. The reason that he should enter for this examination as soon as possible after leaving school is that the *details* of the knowledge acquired there are liable to become obliterated in the course of a few years, and it is difficult to find time afterwards, when other matters are pressing, to revive those details. After he has served two or three years of his articles, the youth should, if he has made proper use of his time, be able to present himself with confidence for the Intermediate Examination; and at or soon after the expiry of his articles, the Final Examination should present no appalling difficulty—that is, provided he has, concurrently with office routine, availed himself of the opportunities open to all of acquiring the knowledge after which every ardent student thirsts.

I do not believe any would-be architect can be taught his profession—he must learn it for himself. Of course, tuition will assist him, and assist him immensely; but the true education is drawn out of a pupil, not that which is forced into him.

In the days of my pupilage (I am speaking of five-and-twenty years ago) we had in this town not one tithe of the opportunities for advancement now presented to the rising

generation. This Association in those days did not hold out the helping hand to pupils that it does now. Its meetings were few and far between; there were no outdoor meetings, such as we now have; there was no Association Library. But some of us had enthusiasm. We established a small Society of our own. We read Papers and discussed them; we organised visits to ancient and modern buildings for ourselves. And I should like to see your Sketching Club more actively responsive to the efforts of your indefatigable Secretary during the summer months; and I should like to see you in the winter holding regular meetings of your own in this room (our old Students' Society was indebted to the Literary and Philosophical Society for that), at which you would read and discuss your own Papers, and exhibit and criticise your own designs and sketches.

As to the writing and reading of Papers, I sometimes think beginners in our profession scarcely realise the importance of being able to do something beyond mere draughtsmanship. Remember, there is the art of literary composition to be fostered. In after life, you will have important documents to write, specifications of all sorts, reports of all kinds, which should be masterpieces of definite diction, terse, lucid, precise, concise, and elegant withal. Nothing will help you more in this direction than the writing of Papers or Essays, to be read before such meetings as I have suggested. And there is the art of speaking before an audience to be acquired, not necessarily a large audience, but one, perhaps, more critical. As architects you need not be elocutionists. In our profession we are men of works, not of words. But the time comes to every architect when he has to explain his designs before a body of clients, or to give evidence before a tribunal, and the man who is, by nature or training, or both, capable of expressing himself distinctly and succinctly then makes his mark and carries weight.

To show that I am not exaggerating the importance of passing the Institute Examinations, let me point out that on its books there are at present the names of not fewer than 658 men who have passed either the Preliminary or Intermediate stages. Also that for the Preliminary Examination this month there have been 116 candidates, and for the Intermediate 55, whilst for the Qualifying Examinations, to be held immediately, there are 180. These figures prove how widely it is felt that the future is fraught with possibilities which these Examinations provide for. A word to the wise is sufficient.

Observe, too, that the lay mind is constantly becoming more educated upon architectural subjects, and as Professors of an Art we must keep ourselves not merely abreast with, but ahead of, other people. I think we have only to look at the crowded audiences which Mr. Cranage has brought together at the University Extension series of lectures this year to see that Architecture is deeply interesting to a large section of the community, and carefully studied by them; and we must therefore become ever deeper and more thorough in the ethics, the technique, and the history of our Art, or we shall fail to impress our minds and work upon our generation.

And, by the way, let me here disclaim the credit which the R.I.B.A. KALENDAR, just published, inadvertently gives to our Association for bringing Mr. Cranage to Newcastle. The credit is entirely due to the University Extension Committee. At the same time, when your Committee learnt that arrangements had been made for such a course of lectures, they took every available means of bringing them before the notice of our members and their friends, and so, we trust, have helped, in some degree, towards the success of the series. On the application of your Committee, Mr. Cranage has kindly consented to deliver a lecture before this Association, his subject being "The Elizabethan and Renaissance Periods," and therefore, in a measure, supplementary to his course on Gothic architecture. Such an experience as this series of lectures in

Newcastle is, let us trust, a foretaste of what we must not cease to hope for in connection with the Durham College of Science in this city. I mean that which we can now congratulate Liverpool upon having just obtained the foundation, at its University College, of a Chair of Architecture, and the appointment of a Professor thereto, now an accomplished fact.

A few words as to our Library. It is fortunate that this new but important feature of our Association is under the care of Mr. Charlewood, an ideal librarian; a book-lover, not a book-worm, who delights to see books properly used, and who is sparing neither time nor pains to make the library as useful and complete on its necessarily small scale as circumstances permit. I understand from him that the library is being fairly well used, no fewer than 141 volumes having been lent out during the year; but we invite you to use it still more freely. It now contains about 180 bound volumes (some exceedingly valuable, which will repay your study of them a thousandfold) besides many, as yet, unbound pamphlets, Reports, Proceedings of Societies, &c. The Executive of the Public Library in Newcastle have been approached by your librarian in hopes that they may be induced to purchase, for their Reference Department, certain books recommended by the Royal Institute which are neither in our library nor in that of the Literary and Philosophical Society. When we publish our next catalogue, we intend to give lists of the architectural books in the Reference Department of the Public Library, and in the Literary and Philosophical Library, as a Directory for Students. The President then referred to the outdoor meetings and the annual excursion of the Association, and continued:

And now let us turn to matters not immediately connected with our Association, but of great interest to architects. And I may note here, in parenthesis, that there seems to me no profession equal to our own for inspiring and stimulating intelligent interest in all that goes on in this busy world of ours. To paraphrase the words of Terence: "We are *Architects*, and, therefore, nothing "appertaining to humanity is alien to us." The re-election of our Past-President, Mr. W. H. Dunn, as Mayor of the sister borough of Gateshead calls for our congratulations on the double honour thus bestowed upon him.

During the year now fast drawing to a close, two Acts of Parliament have become law which are no doubt fated to materially affect our profession. I allude, first, to the Local Government Act 1894, commonly called the Parish Councils Act. So much has been recently published respecting this Act that I will not repeat its details: suffice it to say that, among other provisions, it creates numerous administrative bodies all over the country, and gives them powers to establish Public Libraries, Science Schools, Art Schools, Art Galleries, Museums, Baths, Laundries, Parks, and Cemeteries. There can be little doubt that in many cases these powers will be exercised, and the services of the builder and architect called into requisition, to what extent cannot be foretold. We know that the passing of the Education Act in 1870 gave, and continues to give, rise to an enormous amount of building, affording perennial employment to the building trades at the expense of the long-suffering ratepayer. We have also seen that the establishment of County Councils has resulted in much building. It can hardly be doubted that the Parish Councils will emulate in their humbler spheres the example of their older and bigger brethren. Money easily obtained is quickly spent; and debts, municipal or corporate, quickly grow to appalling magnitude. Local public debts in England and Wales alone, between 1875 and 1892, have increased from under 93 millions to over 207 millions, an increment of nearly 115 millions of pounds in seventeen years. In this facility for borrowing money on the security of the rates lies, I fear, one of the rocks ahead to be encountered in the coming century. Public bodies are permitted to extend the repayment of loans over lengthened

periods and if posterity is to derive benefit therefrom, it is only right that posterity should help to pay the piper. But we must not forget that posterity will have its own special necessities to provide for, its own hobbies to ride, its own fads to indulge in; and the ever-increasing rates will, some time or other, reach a point when any long period of national depression may result in a crisis which will tax to the utmost the ingenuity of Chancellors of the Exchequer in the twentieth century.

The other Act of Parliament which I think is bound to affect the building trades more or less is the Finance Act of 1894. The largely increased death duties thereby imposed upon the property of wealthy men will fetter the owners of landed estates, will probably restrain the expenditure of money upon the erection and maintenance of large mansions and other estate buildings, and so react upon the building trades of the country.

The architectural aspect of our city must always be a matter of prime concern to us, and so I cannot refrain from referring to a matter which my predecessor touched upon last year. I mean the way in which our streets and buildings are defaced by advertisements, enormous letters and signs, attached to or surmounting the façades of our buildings, with entire disregard to their structural lines. To my mind, nothing more vulgar can be conceived than the mania for advertising which runs riot in such shapes. They are a standing menace, too, to public safety; for, in course of time, the probable neglect of these features, accompanied by inevitable corrosion and decay, may result in serious accidents. I am far from advocating too much interference by public authorities with the liberty of the subject, or with the ownership of private property, but I do think these authorities occasionally strain at gnats and swallow camels in a remarkably inconsistent way. Not only in towns is this defacement going on, but the traveller by rail or road must needs have his sensibilities shocked by " execrable shapes " which rear their " miscreated fronts " athwart his way." I allude to the boards stuck up by the advertising fiend in quiet country lanes and fields. And not only by day are these things forced upon us, but even when night has fallen our buildings, no matter how sacred or stately, are threatened by a new development of the craze. By means of limelight and lenses the praises of anybody's manufactures can be projected across the dome of St. Paul's, and I believe actually have been, upon the Nelson Monument in Trafalgar Square.

As architects we might do something to curb the use of objectionable signs by providing upon our elevations panels or spaces where letters and the like can be inserted or attached. The architect too often overlooks the fact that such things are necessary and, in their proper place, legitimate; and if he covers every superficial foot of his building that is not plate-glass with architectural detail, he tempts the owner or tenant (as a rule, a modern Gallio, who cares for none of these things) to eclipse the mouldings and the carving, however refined, with things never contemplated by the architect's academic rules. (Mr. Oswald, adverting to the subject of Restraint in Design, cited some recent buildings, and observed with gratification that the value of plain wall-surfaces was becoming more and more appreciated. Continuing:—

Every owner, I presume, of every little twenty-foot frontage in a business street wants to make the most of it, something quite different from, and always taller (if he can manage it) than, his neighbour's on either side. So the architecture of our modern streets becomes a heterogeneous mixture of narrow vertical slices; whereas, one has but to look at Grey Street, and the old part of Grainger Street, to see that horizontal combinations only can give real dignity to the whole. And yet the streets I have named are free from monotony; but if we go out into the suburbs we see row upon row of houses as like to each other as peas in a pod. I never saw a town of the size and wealth of Newcastle with so little beauty in its suburban streets.

Of course, architects are not to blame for this, or, at any rate, very remotely. These houses are run up, half a dozen at a time, by speculators who build to sell. But if we cannot practise, we may, at any rate, preach. One of the great difficulties in securing a more lovely state of things lies in the system of back streets which obtains in this city. Why should these be omnipresent or so unpleasantly obtrusive? In many towns you may look far to find them. Instead, you will see semi-detached villas, with gardens where our back streets would be. Each block being separate from its neighbours, there is scope for individual treatment architecturally, and sanitarily there is better circulation of air. The cost need not be greater, for although more frontage is called for, and more external walling, there is no back street to swallow up land, to pave, to flag, to sewer, to scavenge, to watch, to light. Let us hope that in some of the building estates about to be laid out in the neighbourhood an attempt will be made to get out of the groove into which we in the North have fallen, and to provide modest but attractive detached or semi-detached dwellings, not too large or expensive for the average family. Years ago (and from time to time since) correspondence on this subject took place in the local newspapers, but as yet its ventilation has brought no tangible result. A word, too, in condemnation of the dog-in-the-manger-like way in which grounds and gardens are hemmed in by high walls, and semi-rural roads or lanes converted into avenues of brick and stone instead of verdure.

Newcastle is not rich in architectural interiors. A year or two ago we lost the Central Exchange—a very noble apartment. This year we have, to a large extent, lost the interior of the Central Station. Our first President's great work, with its subtle charm arising from the harmonious blending of curved plan with curved roof-lines, and the archivolts of its openings, has been irreparably marred as a work of art. There has been a gain in accommodation, and therefore possibly in convenience; but I confess that I cannot look without depression upon the low sheds that have been tacked on to the east end of the station, and upon some other features that have been introduced into it. Another railway work, now nearly completed, we may, on the other hand, be grateful for. I mean the Dean Street arch. "It might have been" a girder bridge; but, greatly to its credit, the railway company has built a granite one, the curve of which, though not concentric with the older arch alongside (which was impossible), still harmonises with it, and one of the most striking "street-scapes" in Newcastle is thus preserved.

A short time ago the news came with a shock to most citizens that the lantern of the tower of our cathedral church of St. Nicholas was in a dangerous condition. Its restoration, under Sir Gilbert Scott, a quarter of a century ago was deemed to be effectual for a much longer period than has actually proved to be the case. Our smoke and acid-laden atmosphere, combined with want of attention to ironwork and pointing, has brought about a state of things which all must deplore. It is to be hoped that no time will be lost in making this world-famed structure again sound and substantial beyond the risk of accident, and that no considerations of precedence or parsimony will restrain our City Fathers from doing what is necessary. No question of Churchwardenship *versus* Municipality should be allowed to arise now. The treasure the city possesses in this steeple is unique. It has been imitated, but never copied. Even the greatest English architect of the last 200 years, who rivalled Michelangelo's dome, never poised aloft another lantern like ours. There is a tradition that Wren, when the centering was removed from his church of St. Dunstan-in-the-East, watched the operation from London Bridge, apprehensive of the safety of that weak aftertype of the lantern which here, in Newcastle, has for centuries upreared its stately crown, and which we are bound to preserve for the admiration of the

centuries that follow. I well remember when, in 1867, the dome over the south-east corner of the Central Exchange was destroyed by fire, the owner, when rebuilding, proposed to omit it altogether. The importance of the dome to the *tout ensemble* of Grey Street was felt to be such that a public subscription was instituted by the late Alderman Dodds (Chairman, at that time, of the Town Improvement Committee) to defray the cost, and so the integrity of the design was preserved. How still more important to the architectural repute of the City is the Tower of St. Nicholas!

It has been publicly announced that the Theatre Royal, one of Grainger's finest buildings, designed by Benjamin Green, the exterior after the Pantheon at Rome, is, so far as the auditorium is concerned, to be reconstructed within the next twelve months. Whether such internal reconstruction will be architecturally an improvement remains to be seen; but, so far as I know, it has not transpired to what extent, if any, the façade in Grey Street will be interfered with. I may, however, express the hope that the proprietors will regard themselves as trustees of a noble work of Art, and, as such, guard it from any injury.

Another work of Green's has undergone internal reconstruction lately. I mean the library of the Literary and Philosophical Society. The ceiling, as Green left it, was a piece of good design, unpierced, cambered, and coffered, and its removal a few years ago, when top-light became a necessity, was a distinct loss; but this year much has been retrieved in carrying out the design of our past President, Mr. Rich.

It must be a matter of congratulation to all British architects and archaeologists, and to us in Northumberland especially, that the ownership of one of our most precious relics of antiquity, in changing hands this year, has become vested in a nobleman who is not only able to appreciate, but able and willing substantially to prove his appreciation of, all that is beautiful and interesting in his latest acquisition. Lord Armstrong and his architect have before them a delightful task in enhancing the natural and artificial beauties of Bamburgh Castle, in the removal of what is base and unworthy of its age and grandeur, and the replacement of much that less erudite workers have, in their ignorance, destroyed.

The building trades in this district, during the past year, have been, and promise to remain, fairly brisk; perhaps because they have not, for some time past, been disturbed, like some other trades on Tyneside, by disastrous strikes. Long may they continue to be free from them! I was informed a few weeks ago that in connection with one important branch a Conciliation Board had lately been formed in this district, and was working, so far, harmoniously. If such Boards were generally established, they would go far to allay the jealousies and distrust which lie at the root of all trade disputes; and, if decisions arrived at by them were always loyally acquiesced in by those concerned, we should be appreciably nearer the millennium.

The relations between the local master-builders and our profession continue satisfactory, and a pleasing contrast to the condition of affairs in one other important centre, where disputes appear to have arisen difficult of settlement, unless mutual respect, confidence, and forbearance, such as obtain here, unite to smooth them over.

Closely bound up with trade organisation is the question of apprenticeship, the decadence of which system calls urgently for some remedy or substitute. Although we are not yet, in this country, so badly off in this respect as seems to be the case in the United States of America (owing to the control there of trade matters being practically in the hands of foreign immigrants), we are, nevertheless, in the unfortunate position of witnessing the gradual, but inevitable, extinction of the old style of things, where the relations between master and apprentice were pre-eminently personal. What is to take its place? Will

the modern technical school be able to cope with the problem? I doubt it.

In conclusion, I would briefly call attention to one or two matters contemplated by your Committee in the immediate future. They intend shortly to bring before you for consideration, and I trust approval, a revised set of rules. The main object of such revision is to give our members at a distance a more direct interest in, and influence upon, the working of the Association. In furtherance of this object you will observe from the syllabus that we propose during the present session to hold one meeting in Sunderland and another in Stockton. Last session we met once in Sunderland. This "going on circuit," as it was termed in a Paper that I had the honour to read before this Association eleven years ago, I then suggested and still regard as one of the best means of keeping in touch with the whole of our profession in our Province. We should make ourselves not merely a Newcastle society, or a Tyneside society, but in fact, as in name, the Northern Architectural Association. —JOSEPH OSWALD.

The Architect: a Paper by Mr. F. E. Caws F. .

On the 1st December, at a Meeting of the Northern Architectural Association held in Sunderland, a Paper entitled "The Architect," by Mr. Frank Caws F., was read by the author as follows:—

Incredible as it may seem, more than one member of our local professional brotherhood has pool-pooled the employment, by the University Extension Society, of an amateur to lecture, throughout the present winter session, in this district on English Gothic. I am thankful to say this was not the spirit in which last year, in this very room, so many of us heard, with instruction and delight, Dr. Gibbon, of Shields, discourse so enthusiastically on the ancient architecture of Athens; and if proof were needed that the architects of the North-East have felt no sympathy with such silly conceitedness, it has been amply afforded by the considerable and increasingly interested numbers of architects, including principals, assistants, and pupils, who, together with the general public, have from the first continued to throng those most refreshing and instructive lectures which Mr. Craige has given in Newcastle, Darlington, and Sunderland. . . .

I would fain express to the responsible directors of the University Extension movement the sense, which we share as architects, of the inestimable service rendered by these lectures of Mr. Craige to the highest interests of the noble profession to which we have the honour to belong. This service has been rendered not only in refreshing those whose everyday duty calls them to design and carry out buildings, but also, and even more valuably, in arousing the latent interest of the public, and kindling by the torch of knowledge such a fire of local enthusiasm as will help to make this North country a less cold place for architects to work in for some time to come; for the influence of such an enthusiasm is often felt even when the lecturer and his audience have themselves passed quite away.

Who has not heard of "Philistia"? And who amongst us, with love in our hearts for certain "canny auld toons" in which so much of our lives has been spent, and in which we have received so large a measure of the total sum of kindness that has fallen to our lot—I ask again, who of us has not felt uncomfortable and distressed when this "Philistia," on the lips or pens of certain public speakers or writers, seemed to be dangerously near emerging from the geographical mist which has so long enveloped it, and seemed on the point of finding a local habitation in which to set its despised name and detestable presence for evermore? But, brother architects, let me remind you that in olden days there were cultured men living in Athens, and there were ugly buildings there in plenty before the Propylæum, Theseum, and Parthenon reared their stately heads, or were

even dreamed of. Heaven knows what were the feelings of sons of Minerva, such as Ictinus and Phidias, in those days, or how cruelly conscious they may have felt of the pall of Philistine ugliness overspreading their beloved city. In Asia Minor and in Persia, as well as in Egypt, magnificent and lordly buildings had long sublimely assured these men that their own Athens might be made beautiful, too. But the time was not yet come. In the language of that day those great artists doubtless heard the opprobrium of ugliness applied to their beloved Athens by those old-world travellers and scholars who had seen Persepolis and Karnak in their prime. They had to endure this cross, and despite the shame of it, in the faith that the Soul which was in themselves would yet in some way take shape, and become for Athens a crown of beauty and a joy for all after time.

History tells us of the fierce opposition which Pericles, the champion of this faith of the Athenian artists, encountered from a narrow-minded utilitarian people, who believed that gold was better kept in the dark coffers of their treasury than lavished upon the temple and statues of Minerva. It is doubtful if in that struggle the sentiment of Art would have overcome the sentiment of economy, had not the Art of War, in which the people did see (or thought they saw) some use, formed an alliance with the Art of Beauty. The Propylæum, which was really a fortification, was the first fruit of this alliance or marriage, and served to pave the way for the still more glorious offspring which rose into existence soon after. Rome, too, had its early years of Philistine ugliness; and, though the great Augustus boasted he had found it a city of brick and left it a city of marble, we know that that boast was only partially supported by fact, and that Rome was not built in the brief day of one emperor's life.

Who were the instruments of raising Rome and Athens from their Philistine rudeness to become the rival thrones of old-world classic glory? The architects. "Brief life is 'here our portion,'" and with some of us time has already sped too far on for us to feel much ground for hope that in certain cities (which we love for auld lang syne, and which we forbear to name) we may live to see the Philistine stone rolled away from the tomb wherein the deathless spirit which animates all nature—the spirit of the Beautiful—imprisoned, awaits a glorious resurrection. Some of us have watched and waited for the dawn. At times we have seemed to see the clouds lift from the earth's verge, and the rosy prospect of a bright and glorious rising has been hinted to our weary eyes. The time is not yet, however.

We have witnessed in Italy what we call the re-birth—the Italian Renaissance. Some of you here may be young enough to live to see, and to help create, a far grander sight—the Resurrection of English Architecture. The great Italians of the fifteenth century studied the ruins of pagan Rome. They used those prostrated stones as spring-boards, so to speak, from which they made their great leap into that beautiful modern architecture which we recognise as Italian. Is it not possible for the great young Englishmen of our time to study likewise the ruined temples of our own dear land; and, using these ruins as their spring-board, leap forth into new developments as characteristically English as the work of Raphael, Michelangelo, Palladio, Scamozzi, and Vignola was characteristically Italian? To the youngest amongst us this question must have the deepest interest; for to them may come the opportunity which their elders have either not possessed, or, possessing, have failed to use to the best advantage.

To the architect of the future this great future belongs; and, as the future is the inheritance of the young, I shall, by the indulgence of the older and maturer amongst us, address the remainder of my remarks to-night to our youngest members especially. If you would enter into

this great future, you must become in reality, and not in name merely, architects. I will therefore now express to you, as well as I can in the short time remaining to me, the true architect as he appears to my vision.

Putting aside the question whether we, who in these days call ourselves architects, are really such or not, and sorrowfully admitting that John Ruskin had too much ground for daring in his famous Edinburgh lectures to assert that there were no architects in modern England, I will attempt to sketch in few words the outline of a great figure—the figure not of any man I see or know, but of one who stands before me ideally as properly entitled to rank as an *architect*.

We will begin with him as a boy, for if as a boy he is not already an architect uneducated, he cannot ever as a man become an architect educated. If the endowment is not in him at the first it cannot be drawn out of him at the last. But it would be a mistake to assume that, if the boy has it in him, he will necessarily show it at the first; that by no means follows. I could name in your ears to-night a celebrated architect still living—an architect whose work has been strongly influential in a modern development of taste and style. As a boy, poor and friendless, he found, fortunately, a kind master, who, moved by compassionate interest, took him as a pupil without premium. It is said the master was utterly disappointed with the boy's first performances, and felt sure he would never make an architect. Yet, by his brilliant subsequent career and world-wide reputation, the boy amply justified his master's love and falsified his fears.

In the soul of every human being God implants some love for the beautiful—together with some measure of appreciation of fact and necessity. However small the man's natural gifts in these two respects, they can be wonderfully strengthened and developed, like the muscles of one's limbs, by special cultivation and exercise. But, in order to become an architect worthy of the name, a boy must have at the start much more than the average measure of passion for the beautiful and of perception of the true, and, moreover, must cultivate these gifts with more than ordinary assiduity and more than common delight. Although it must be allowed that all that is true is beautiful, and all that is beautiful is true, yet, in the weakness of human nature and the finiteness of the human understanding, we recognise as a dual function the consciousness of the beautiful and the perception of the true. We shall therefore be better understood if we classify the natural gifts with which the born architect must be right royally endowed as the *Æsthetic* and the *Scientific*: or the capacity for *Fancy* and for *Fact*. Under the term "*scientific*," or the capacity for appreciating *fact*, I include all those qualities of the mind which involve abundant measure of what is ordinarily styled "*common-sense*." We may also characterise these common-sense gifts of the young architect as the gift "*practical*," while we continue to speak of his inborn romance as the gift "*æsthetic*."

Here we arrive at a fair subject for discussion: Which of these two gifts, if either, should take precedence in the training and development of the boy architect? I can hear one argue thus: "The practical education is the essential basis and framework, the very bone, of the architectural system, of which the æsthetic education supplies the mere investiture or clothing of flesh." Well, yes; a man is built of bone and flesh truly. But does Nature, in evolving a man, form first a completely ossified skeleton, and afterwards inclose it in flesh? Is it not true that the newly-born have no hard bones in their bodies, and that complete ossification of the skeleton is the work of years? Does not Nature herein teach us not to try to force the mind of the young boy architect to become severely practical before the proper time? Do not all boys naturally become more practical as they grow older? In this connection, however, it must be admitted that "circumstances

"alter cases." One boy architect is pent in a dull manufacturing district where his whole environment is prose. Another learns his profession in a beautiful country town, or watering-place, surrounded by and embosomed in the æsthetic element. Obviously the same order of precedence of study is not properly applicable to both cases. The student's environment will generally sway the mind unduly in one of the two directions; and though the environment is itself a providential element with which artificial interference may be carried too far, yet some special pains should be taken to counterbalance undue predominance of one kind of influence to the permanent stunting of the growth of the young mind in the other or opposite quality.

Not only environment calls for such corrective effort, but also natural proclivity stands equally in need of special regulation. That is to say, the boy who is too prosy should be urged on the æsthetic, and discouraged on the practical, side of his tastes; and the one who seems too excessively romantic should be earnestly exhorted to become more practical. Still, after making every allowance for the special circumstances of each case, I hold strongly that, generally speaking, we should give precedence in youth to the poetic faculties, because they are the more sensitive to injury from discouragement and neglect; and in the order of nature their turn comes first. In the architect's boyhood it is "Now or never" with these æsthetic tastes and feelings. Solomon, who insisted that "there is a time for everything," would urge the boy architect to rejoice now, in the days of his youth, in the pursuit of fancy, ere the days come and the years draw nigh when the more severe service of truth and fact set so strong a claim on the mental energies as to absorb not only time but inclination also.

Longfellow never wrote a truer or more beautiful line than this—"The thoughts of youth are long, long thoughts." And it is generally, if not invariably, true that, as the English ship in her home port takes in coal enough to carry her across to the farther shore of the Atlantic, so in the home days of his pupilage, the spring-time and blossoming of life, the boy architect must take such a feast of fancy and such a store for his soul as shall carry him through the long voyage. Like the camel, he must gather by good rich browsing his hump, so that in the long march across the sandy wastes—which all too closely resemble many an architect's life and practice—he may feed upon the riches of his own mental and spiritual store already once assimilated. The hump I refer to as thus so desirable is not so much the hump of mere learning as the fulness and greatness of that human-divine gift which we call "soul." To cultivate, exercise, enlarge, strengthen, and refine this soul, he must not be kept for too many weary weeks together merely making plans and tracings of hideous rows of street houses or workmen's dwellings; nor at the squaring, day after day, of endless columns of duodecimals, nor in running to and fro perpetually to corporation officials about drains and middens; though it follows that attention to duty, however disagreeable, is of all lessons the one he must most thoroughly learn if he would preserve his soul's best self alive; and, moreover, the very dryness and distastefulness of some of his duties will serve as a foil to render all the more intensely enjoyable those of his studies which are of a more artistic complexion.

He must read noble and inspiring books; he must watch sunrises and sunsets; he must not spend all his time poring indoors, nor half his time sporting out-of-doors. If he is first class at football he will not be likely to be first class at architecture. He must be meditative, wandering in the fields and on the sea-beach to fill his eyes and heart with the lovely coquetry of sunlight and shadow, and growing increasingly familiar with Nature's harmonies, discords, mysteries, and romances. He must

frequent cathedrals, and learn to sit still in quiet churches. Frequent attendance at music-halls and theatres is calculated to excite unduly and artificially the taste for the beautiful, and to induce a mental unrest which renders the boy architect less in tune for his normal studies and observations. His taste should be based on the solid and the really enduring, rather than on the ephemeral creations of art and nature. Without being nervously anxious and overwrought, the young student must be quietly in earnest. The mental organism of the boy architect is to be so specially devoted to the service of beauty and truth that even in the innocent pleasures of the theatre, concert, or football field, indulged in to excess, he may deviate rather than refresh the energies of his brain and soul, and fail of attaining the standard of excellence which is the high mark he aims at.

Utilitarians may ask, Why should young architects, who will never have the ghost of a chance to build a cathedral, spend so much time and thought on cathedrals? Not that they may be equipped for designing cathedrals—though who can tell that they may not be called upon to do so?—but that they may become so imbued with the spirit of holy beauty that it may in the after years of their manhood inspire and pervade all their efforts, even in the designs which they are employed to make for much humbler buildings.

Similarly, the boy architect should be keenly alert to study the ever-changing glories of the sky, with "its gorgeous towers and cloud-capped palaces" of mist and flume; not that he may design and build moonrises or sunsets; but in order that his soul may be refreshed and strengthened to withstand the chill and deadness, the blight and mildew, with which too often a money-grubbing and rabidly utilitarian age infects the young and unfilled spirit, robbing enthusiasm of its edge and cankering its brightness. In this workaday world the boy architect must needs, by communion with all that is nobly ideal in literature, art, and nature, so confirm his own inborn idealism that he may to the end of his career continue to be a great dreamer as well as a great realiser. No man who is not a dreamer is, or can be, an architect. What are the cathedral aisles but long-drawn dreams in stone? Yes, they are dreams, truly. But, before they could be embodied in solid stone, their mediæval architects had to do a great deal besides dreaming.

Before the boy architect can express in any way his dreams, he has to do a great deal, too. He must learn to express what he feels. Let him attempt to do so while as yet his eye is not skilled to instruct his hand, and while as yet his ear has not learnt to direct his tongue. He will turn away disgusted from the traces of his hand, or the words of his tongue, feeling that they render hideous and abortive the dream which, unexpressed, seemed so intensely beautiful. The proper medium of expression which the young architect must bring into subjection to his thought is not the tongue, but the hand; not the word, but the line. All his dream-power, let him strengthen and refresh it as he may, will be wasted if he does not at the very beginning learn to draw. What the alphabet is to the would-be reader, that drawing is to the would-be architect. The very act of expression increases the faculty of conception; and if there be no power of expression the faculty of conception itself must flicker and fail, as a candle deprived of air. Some of the greatest orators have known only their mother-tongue. Likewise, some of the greatest architects have been proficient only with the pencil and pen. But if the architect is able also to draw with brush and colour, with modelling-tool and clay, and with carving-blade and wood, so much the better: just as the linguist-orator is better furnished than he who is master only of one language.

Before the young architect can hope to draw his dream which is unseen, he must learn to correctly portray the dreams of other architects which have been petrified into solid substance and visible forms. No power of imagination, no strength of conception, can compensate the architect for weakness or non-proficiency in the art of drawing. The young architect should talk little and draw much. He should have no mercy on himself short of acquiring that absolute harmony and working understanding between eye and hand by which alone his thoughts can take shape and permanency.

And yet a man, be he never so great a dreamer and consummate a draughtsman, if he be no more than that, though an artist, is not an architect. Having by severe self-criticism (an essential habit to the successful student), and by untiring, dogged perseverance become at a comparatively early stage of his education an accomplished draughtsman, the young architect, during that same period of preliminary training, must necessarily have become proficient in the science and practice of linear perspective—for to this extent at least the bones, so to speak, must grow along with the flesh in the youth's professional development. By the way, referring to perspective, let me offer you what is, I think, an unfailing gauge of a genuine architect, as distinguishing him from one who is an architect only in name.

The genuine architect always "thinks" in "perspective." But the youth who, on becoming an able perspective draughtsman and a dreamer, rests content with such attainment, as many do, whatever else he may or may not be, is not an architect. And it may be asked, if he, like a modern Piranesi, draw beautiful and noble designs of his own on paper, does not that constitute him an architect, even though those designs be never realised? And here is more food for discussion. If the designs drawn on paper contain reasonably conclusive internal evidence of the possession by their designer of the constructive genius and knowledge of practical matters necessary to carry them into actual effect, then, I submit, the mere ill-fortune of the lack of opportunity to realise them bars not the designer from his just claim to rank as an architect. Indeed, is it not well known that the noblest of architectural designs are amongst those which have never been built? For, as Burns says, "the best laid schemes o' miced and men gang aft agley."

But the youth who, having devoted his earlier years of training almost exclusively, or mainly, to the development of his æsthetic nature and to the art of draughtsmanship, fully conversant with many beautiful forms of structure and ornament, and understanding the artistic principles of proportion, composition, and design, would now become more than ever conscious that, in order to transfer his dreams from paper to timber, brick, iron, and stone, he must further learn how to draw, so to speak, with the plane, trowel, hammer, and chisel, his pictures in the open air by the hands of the carpenter, bricklayer, smith, and mason. Only so can he plant upon the earth his dream in a substantial, enduring structure, such as shall stand representing him when he himself has passed into the dreamland and is seen on earth no more.

To do this he must acquire practical and scientific knowledge. He must become a geometrician and mathematician. He must also become a man of business. The motive is sufficient. His æsthetic tastes render these sterner attainments in themselves unattractive. But he is now almost a man. The process of ossification is, in a mental sense, advancing in his case, and in every way his condition and inducements render him increasingly anxious, and eventually keenly determined, to master all practical qualifications essential to the completion of his professional equipment. He is like a man who would naturally fight shy of religion, but who, when he feels conscious that his

present and future happiness depends on it, begins as never before to "hunger and thirst after righteousness."

Thus in the case of the young-man architect necessity is not only the mother of his inventions, but also the spur and appetiser for the study of those constructive principles and details, and of those practical facts and methods, failing his knowledge of which his ideal creations cannot be realised. Content no longer to remain a mere dreamer of dreams, a mere paper architect, he would become a stalwart entity. He understands now the true mission and vocation of the architect, and he will not rest till he is every way qualified to fulfil it. Geometry, mathematics, chemistry, statics, dynamics, geology, are sciences for the lack of which he feels he is, more or less, lame and halt and purblind. He has no notion of limping through his professional career on crazy crutches by the rule of thumb. He is an artist already. He would become an engineer also; because he has come to feel that artist + engineer = architect; that this is a true equation, and that nothing short of perfect artist + perfect engineer can constitute the perfect architect. He understands that the true architect is the priest whose high vocation it is to wed Fancy to Fact, to unite Beauty to Utility. No longer satisfied with a one-sided view of human life, he sees it to be not purely poetic nor simply utilitarian. For, as the bird has two wings, so life has two functions, both of which are actually embodied and fulfilled in the life of the genuine architect.

To the young-man architect holding these views, and thus fully equipped to sustain the high calling of his choice, flowers have become the more lovely from his knowledge of their geometry; the forms and combinations of flying-buttresses, groined vault, and pinnacle are none the less romantic from his ability to accurately estimate their mutual static effects on each other and on the building as a whole to which they belong. The beam, which possessed in itself no beauty or fascination whatever to his merely poetic ken, is now become full of profound interest, since he has learnt its secrets of stiffness, elasticity, and strength. The arch, at all times grand, becomes still more impressive in view of the complex problems involved in its stability; and the interminable network of far-stretching lattice of wide-span roof or bridge, ceasing to mystify and perplex, serves now to arouse his keenest intellectual faculties, as he dissects and disentangles their forms, weights, proportions, scantlings, and fastenings in relation to their stresses and strains under varying conditions of load, temperature, wind, and snow.

Till now the young-man architect was a dreamer. Now he has become a *doer*. Henceforth there is no fear of his lapsing into the mere dream-life of the artist or paper architect. The danger rather is that the fascination of pursuing the manlier functions of the engineering part of his profession may render him a mere materialist, the ideal being overshadowed and absorbed in the real. He is now therefore called upon, for the remainder of his career, to be on his guard against allowing either of the functions of his dual nature and office to get out of proportion and adjustment, and usurp the rights of the other.

It is a question of focus. So long as he succeeds in so governing and balancing the two influences of which his work is the outcome, he remains an architect. That is to say, so long as he continues to both dream and build he remains a creator. So long as he could only dream he was an impotent ghost. When he could both dream and draw he became what the theosophist would call "an astral body," an artist—*i.e.* a cross between a ghost and a man! But when he could dream, draw, and build; and could, moreover, continue to do so, maintaining, in spite of the materialising influences and the commercial duties of his daily life as a busy man of affairs, the proper balance and equipoise of all his natural endowments and accomplishments, he is, and remains, at least in my regard, that most com-

pletely developed man, of all sorts and conditions of men the Architect!—FRANK CAWS.

THE GLASGOW INSTITUTE.

The Council of the Glasgow Institute on the 21st November addressed to the Town Clerk of Glasgow the following memorial:—

Sir,—The Council of the Glasgow Institute of Architects desire respectfully to ask the attention of the Honourable the Lord Provost, the Magistrates, and the Town Council of Glasgow to the designing of the Public Buildings of the City.

In the case of the Municipal Offices in George Square, and that of the Art Galleries in course of erection by the Association for the Promotion of Art and Music in Glasgow, a desire was shown, and some consideration given, to secure that the designs should be worthy of the important purpose that each of those buildings was to serve. With buildings of secondary but still of great importance, no corresponding effort is made. The Council of the Institute submit that the design and arrangement of such buildings are, as much as those of the larger edifices, worthy of every attention and care that can be bestowed on them.

The Council of the Institute are of opinion that the designing of important public buildings cannot be satisfactorily done by the department of the Master of Works, or of the City Engineer, and still less when the head of that department is an engineer than when he is an architect. The duties of the office include, among others, the charge of the public streets, and the design and superintendence of numerous and important works of engineering, as well as assisting and advising the Committees of the Town Council in connection with health, gas, water, paving, sewerage, City Improvement Trust, railway and subway operations, and many other works; and it is evident that in a city of such magnitude as Glasgow, these duties must be of a very onerous nature. To relegate the designing of important works of architecture to the assistants of a gentleman who is responsible for the efficient discharge of such duties as the foregoing, and who is himself not an architect, seems to the Council of the Institute to indicate a want of appreciation of the position which architecture should occupy in an important city.

The Council of the Institute refer to the practice prevailing in most of the large English cities, and to the recent appointment of a Committee of the City Council of Sheffield "to inquire and report whether or not the City Surveyor might reasonably be expected to undertake the "responsible architectural work of the city, and also "satisfactorily discharge his other duties." This Committee have made an *interim* report with reference to certain proposed additions to one of the City Court-Houses, and after full inquiry have advised the Council that, in their opinion, "the City Surveyor could not reasonably be "expected to undertake the preparation of the necessary "plans and detailed drawings for the additions." The City Council have since adopted this recommendation, and have entrusted the work to a firm of independent architects.

In asking for the full consideration of this important subject, and the appointment of a Committee to inquire and report regarding it, the Council of the Institute solicit the attention of the Town Council to the following, as a summary of their views:—

1. The City Engineer, as he is not an architect, is not himself qualified to design works of architecture. Even if he were so qualified, the duties of his office are such that he cannot have the time at his disposal for the quiet conception and elaboration of the design of public buildings, nor for the efficient superintendence of such works in course of erection.

2. To depute such work to assistants, however qualified, cannot be so satisfactory as it would be to commission

independent architects of ability and experience. An assistant has neither the stimulus nor the sense of responsibility of an independent architect, and there is no assurance of permanence in his position. Should he develop marked ability, it is probable that he will either elect to practise in his own name, or accept an office of more importance in another city. In dealing with contractors, in securing that the terms of a contract are faithfully carried out, and in the settlement of accounts, an architect has more authority, as he has more direct responsibility, than any assistant, however competent he may be.

3. The existing arrangement is not an economical one, and on this ground alone the subject is worthy of full consideration.

4. The design and erection of the public buildings of a city are among the opportunities that architects are entitled to look for the exercise of their abilities, and their employment would offer to the authorities a much wider field for the selection of architects possessed of special qualifications for particular work than they can have among the assistants of the City Engineer. The Council of the Institute do not undervalue the knowledge and experience of the Master of Works, of the City Engineer, or of their staff, but they believe that the attainments of these gentlemen would be of more advantage to the community, so far as important public buildings are concerned, if they were used in the first place in advising the Committees of the Town Council in charge of such works, and afterwards in consultation with the architects who should be employed to design them.

5. It is among the most important duties of a municipality, acting on behalf of the community they represent, to foster and encourage the arts, and particularly the art of architecture, upon which the amenities of a city are more dependent than on any other. The Council of the Institute submit with confidence that the course they recommend to the consideration of the Town Council, in addition to its other advantages and economies, would tend, both directly and indirectly, to the improvement of the architecture of the city.

Not only within the membership of this Institute, but also outside it, among architects of the city and others, there is a large fund of architectural ability and experience. The Council of the Institute respectfully ask the Town Council to consider how far this ability should be made available on behalf of the community under their charge.

In conclusion, the Council of the Institute desire to say that they are not impelled by any merely selfish or narrow motive, but that they ask for the consideration of a question of public policy on which they believe themselves to be entitled to express an opinion.—We have the honour to be, &c., T. L. Watson, *President*; John Jas. Burnet, *Vice-President*; Alexander Petrie, *Treasurer*; C. J. Maclean, *Secretary*.

THE BIRMINGHAM ASSOCIATION.

Preparation for the Institute Examinations.

On the 30th November the following Paper, entitled "Preparation for the R.I.B.A. Examinations," was read before the Birmingham Architectural Association by Mr. F. R. Farrow [F.] :—

This day has commenced the final stage or oral part of the last of the Single Qualifying Examinations for the Associateship of the Institute, and hereafter it will be necessary, save in exceptional cases, for any candidate who desires to qualify for the A.R.I.B.A. that he should pass a series of three examinations which, from their intended effect upon the architectural education of the future, are styled the Progressive Examinations. It is therefore useless for me to-night to talk to you about Preparation for the late lamented Single Qualifying Examination, and I must invite your attention to a consideration of the three Progressive Examinations.

The first of these is the Preliminary, and, quoting from the R.I.B.A. KALENDAR, "the subjects comprised in this Examination are those in which proficiency should be attained by the applicant before entering an architect's office." It is on similar lines, though not perhaps quite so severe, as the Preliminary Examinations in medicine, law, and other professions, and the preparation is, therefore, what every entrant to the architectural profession should have passed through before leaving school. The subjects of this examination are: I. Writing from dictation; II. Short English composition; III. Arithmetic, algebra, and elements of plane geometry (the algebra is carried as far simple equations, and the plane geometry extends only to the substance of the first two books of Euclid); IV. Geography of Europe and History of the United Kingdom; V. One language, either French, German, Italian, or Latin; VI. Geometrical Drawing or Elements of Perspective; VII. Elementary Mechanics and Physics; VIII. Freehand Drawing from the Round.

The prospect of such an examination to those of you who have left your school-days some years behind is, doubtless, not altogether pleasant. Not that I mean to imply that you have never studied such things, nor even that you could not pass the examination if you tried; but it is irksome, to say the least, to go back to one's primitive and not always congenial lessons. There are, fortunately, several loopholes of escape. Exemption in all the subjects except drawing is granted to those who have passed either a matriculation examination or the local examinations, junior or senior, of any British university, and to those who hold the first-class certificate of the College of Preceptors. The majority of schoolboys, nowadays, are in this position; but there is a still further loophole. Exemption is given on the production of testimonials of proficiency granted by any well-known educational bodies. Few of you could fail in obtaining from the headmaster of your old school such testimonials. Exemption from the examination in drawing is also granted on the submission of drawings by the applicant showing his acquaintance with "Geometrical Drawing" or with the "Elements of Perspective" and with "Freehand Drawing."

Failing exemption, there is nothing for it but downright hard and careful study. The geography and history must be especially thorough, as the questions are somewhat searching. It would puzzle many of us, for example, to say what counties would be traversed and what rivers crossed in a straight-away journey from Southampton to York. The language you select must have careful attention, both in grammar and vocabulary, as the translations are what in examination *argot* are called "unseens." The Elementary Mechanics and Physics cover a wide field and embrace not only statics but also dynamics, and deal with fluids as well as solids. In many of the subjects of the R.I.B.A. examinations, the knowledge required is superficial rather than solid, wide rather than deep. The drawing should present no difficulty to anyone who has been in an architect's office for a year.

We now come to the first of the examinations in architectural knowledge, the Intermediate, which may be fittingly taken by a pupil during the third or last year of his articles. The first thing to be done is the preparation of the Testimonies of Study, which comprise eleven sheets of drawings on half double-elephant paper, viz. two sheets of the Orders drawn to half-inch scale, one sheet of Classic Ornament in outline, two sheets of English Gothic with one sheet of details relating to the same, and one sheet of Ornament, a freehand drawing from the round, in outline; these seven sheets belong to the Art Section. The remaining four belong to the Science Section, and include one sheet of a roof-truss, one sheet of floors, and two sheets of details of joiner's work. For the Orders and Classic Ornament, Mr. Phené Spiers's book is very useful, or Normand's *Parallels*, or Mauch's *Architektonische*

Ordnungen. The Gothic work it is well to do from actual measurement, or copies can be made from the *A.A. Sketch Book*, the *Spring Gardens Sketch Book*, or similar publications. The constructional work can be copied from Mr. Mitchell's *Plates of Building Construction*. In the preparation of the Testimonies of Study, neatness, clearness, and accuracy should be aimed at; and it is advisable, for a reason which I shall explain more fully presently, to give chapter and verse for all the work done.

We can now consider the preparation for the ordeal in the examination room. It is advisable as far as possible to limit your selection of books or other sources of information, so that you may be able to give your authority for any statements you may make, and it is well to quote your authority in your answers. The reason for this is that the Institute examiners are for the most part amateurs and inexperienced at examination. As time goes on, this may to some extent be rectified, but it requires far more training and experience, as well as natural gifts, to make a good examiner than are likely to fall to the lot of the gentlemen who examine twice a year for amusement, or even from a praiseworthy feeling of *esprit de corps*. It is one of the guiding principles of the powers that be that professors should not be examiners, contrary to the general practice of the Universities and other educational bodies; hence, although there is on the Board of Examiners a sprinkling of University men, who have had some experience of properly conducted examinations, it will be a long time, I fear, before the majority of the Institute examiners are anything but amateurs. Now it is characteristic of the amateur examiner that he is far more suspicious of his examinees than the man of experience. The expert knows the ways of candidates, the amateur imagines them. Then, again, the Institute examiners are mostly busy practising architects, and, although they are clever artists or good men of business, they are not omniscient in the subjects upon which they light-heartedly undertake to examine. One is reminded of the opinion expressed by the old huntsman upon the Oxford undergraduates who were for ever treading on the heels of his pack over the cold scenting Heythrop clays. "Lor! sir, they fears nothing, 'cause they knows nothing." So it has happened before now that the examinee has known more than the examiner, and has been able to confute his judge at the Oral by reference to standard authority. This sort of thing is not pleasant to the *amour propre* of the examiner; and it is far better to quote your authority in your paper, so that the examiner may have a little quiet study before he determines your marks. When, therefore, you learn a particular Order, for example, learn also the building from which it comes and the book in which it is illustrated, and incorporate this knowledge in your paper.

Now to come to the subjects in detail. For the Orders of Greek and Roman architecture you require some verbal knowledge as well as sketching power. Leeds on the *Orders* is quoted among the recommended books, but he is very old-fashioned, and in many cases utterly wrong in the light of modern discovery and knowledge. You will find Gwilt's *Encyclopædia*, the newest edition of course, far more reliable, and, supplemented by Professor Roger Smith's and Slater's book on *Classic and Early Christian Architecture*, amply sufficient for the Intermediate Examination. Neither is perfect, but, taken together, they are far better than Leeds. The Glossary in Gwilt should be carefully studied for the meaning of technical terms. For the sketching, both of the Orders and the classic ornament, the books referred to in speaking of the Testimonies of Study should be used, Mauch for preference, with Vulliamy for ornament. Be careful to notice that sketches to large size of ornament are very rightly demanded, and learn these very accurately, with chapter and verse. For the English Gothic a similar course of preparation is required. Start on Professor Roger Smith's *Gothic and Renaissance*

Architecture, and follow by either Gwilt or Bloxam's *Principles*, or Parker's *Introduction*. Use also Parker's Glossary for the terms. Do not look at Rickman or Paley; they are quite unsuitable for young students. For details, Sharpe's books and Brandon's *Analysis* are good, but should be supplemented by study of existing old work.

The nature of ordinary building materials is fully treated of in *Notes on Building Construction*, Vol. iii., and also in Gwilt; but for the standard required in this examination I should recommend a more concise work, newly published—Mr. Mitchell's *Building Construction, Advanced Course*. For the calculation of formulæ, your best course would be to get a friend to give you three or four personal lessons. The use of reciprocal diagrams of faces is a new terror recently added, and is in most books very obscurely treated. The clearest account I have seen is in Henry Adams's *Strains in Ironwork*. The elementary principles of construction may usually be learnt in the daily work of any good office. Dobson's *Rudiments of the Art of Building* treats well of many points, but the latest tendency of the examiners is to get away from the lines therein followed; and Mr. Mitchell's *Building Construction*, both the elementary and the advanced course, is now more useful.

Now we come to a dreadful paper—"Elementary Physics as applicable to Building." The subject of physics is extremely wide, and the questions are not always elementary, so that this paper is certainly the most difficult in the examination, and, indeed, is far beyond the capabilities of an average architect's pupil. The single redeeming feature is that six only out of nine questions are usually expected to be answered. A good book, which deals with the whole domain of physics, or, as it used to be called, natural philosophy, must be studied. There are an embarrassing number of such books by Wormald, Magnus, Todhunter, and many others. Care must be taken to devise for yourselves illustrations in building affairs of the various phenomena. Mensuration, land surveying, and levelling are another difficult paper, and some of the questions are more suited to the examination for the Fellowship of the Surveyors' Institution than the Intermediate of the R.I.B.A. Many of the questions, on the other hand, are very easy; but it is not sufficient to rely even upon an exceptional amount of actual experience, as matters are often included which no practical land surveyor nowadays troubles about. The candidate should not be alarmed if he finds, in answering this paper, that his plans do not work out satisfactorily from the field notes, as these are not invariably either sufficient or accurate; and although this does *sometimes* occur in actual practice, it is rather hard on an inexperienced student. The best book on the subject is, probably, Usill's *Practical Surveying*, but the candidate should by all means, if possible, supplement his book-work by some experience in the field, under the guidance of an older hand. Plane Geometry, Projection of Solids, and Development of Surfaces are the subject of the last paper. Carroll's *Geometry* is a good and well-known book, but does not treat of the development of surfaces, which, however, is given in Gwilt. Indeed, Gwilt gives very good information on the whole subject except isometrical projection. This latter is a very easy matter, and you will probably have no difficulty in finding a friend who will quickly initiate you into the mystery. Practice is imperatively necessary in the preparation for this paper, in order that you may acquire the power of readily seeing things in the solid. When this is obtained, the draughtsmanship is easy.

The Intermediate Examination, taken on the whole, and with the exception of the two subjects I have mentioned, is not a difficult one, nor beyond the capabilities of those for whom it is intended; but it necessitates, and is intended to necessitate, continuous, careful, and systematic preparation. Remember what Vitruvius says: "Architectura est scientia

“ pluribus disciplinis et variis eruditionibus ornata.” The field of architectural knowledge is so wide that it is impossible to cram up in a short time sufficient to pass an Institute examination. Two years at least of steady and regular work ought to be given to the preparation, and with that there need be no fear of the result.

After the Intermediate comes the Final. The first Final Examination has not yet been held, and one is therefore somewhat in the dark as to what the examiners may make of the programme. Testimonies of Study are again demanded, and comprise, in addition to the set of working drawings hitherto required, a large number of other drawings, studies of sciography, perspective, drawings from the round, measured drawings, two sheets of diagrams of constructive masonry, and two or more sheets of other advanced construction, with the calculations for strength of the various parts. This is a rather formidable amount of work, and once again rivets the necessity for continuous, steady, regular work. The drawings should be started immediately the Intermediate is passed, and their preparation should go on steadily and concurrently with the reading and sketching. On no account leave the Testimonies of Study till near the time of the examination; indeed, to give yourself a fair chance, they must be finished at least three months before the examination.

The chief particular in which the actual examination will probably differ from the moribund Qualifying is in the increased importance attached to design and draughtsmanship. To stand a fair chance of passing, you must learn to draw and you must be able to design. Therefore, take full advantage of the opportunities which you now have in Birmingham—advantages far beyond what were the lot of the Birmingham men who were my own contemporaries in the A. A. classes of design and construction. By all means learn all that Mr. Bidlake and Mr. Bewlay have to teach you. In the preparation for the History of Architecture paper you must take note of a defect in the Qualifying Examination which, in spite of all the scoffs and sneers of memorialists and other opponents, as well as of the milder but still ineffectual protests of the friends of the examination, is evidently to be perpetuated in the Final. You are to be examined in “Particulars of celebrated buildings and their Architects.” And the sort of question you may expect is “When did the following architects live? Name one well-known work of each. Palladio, Anthemius, &c. &c.”

You see our amateur examiners still look at history in the way they were taught history in their school days, when they learnt long lists of battles and murders, kings and dates; when history was supposed to be an affair of kings and nobles, and the commons were to play no other part in the nation than paying taxes or spending their blood; when, in short, history was looked at from an aristocratic, rather than a democratic, point of view. In general history our schools and colleges now take a juster view of the history of nations, but in the history of architecture the Institute examiners still adhere to the old bad way. Therefore you must make a list of the principal architects, with their dates—which are usually inaccurate—and, say, three of the chief buildings ascribed, more or less rightly, to each. Commit this to memory just before the examination and forget it as soon as possible afterwards, for it is of no earthly use to you as architects except when you wish to impress the public with your wonderful erudition. So, after the examination, you had better put the list away with your dress suit, and look at it when you want to talk shop at a dinner party.

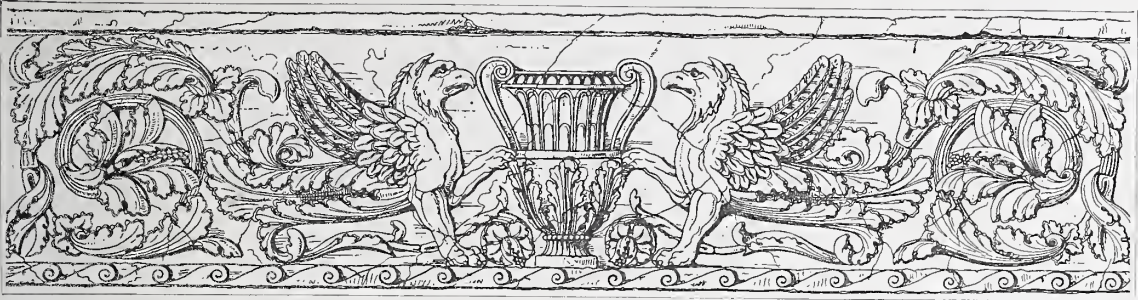
Besides cramming, you should do some real study for the History paper, and you may do this either for the purpose of passing the examination alone, or for the advantage of giving yourself a training which will be of lasting value through life. You may study the plans, sections, and elevations of ancient building as so many arrangements of lines, solids, and voids, or you may try to understand why

the plans came to take their particular disposition, how the detail came to its special form, what, in short, were the problems that the architects of old had to solve as well as the solutions at which they arrived, and the influences leading them to such solutions. This is really the history of Architecture, and to study this is the only way to derive real and lasting benefit from the works of the past. Indeed, during your whole preparation for the examination you should endeavour not to limit your work merely to what is required for passing, but to seize the opportunity for going through a course of training which will leave its good results when the examination is over and forgotten.

In the preparation for the subject of Features, Mouldings, and Ornament, be careful to make your studies in the mode you are going to use at the examination. If your examination work is to be in pencil, make your studies in pencil; if ink is to be your medium, use it in your preparation. Especially be particular to make your sketches large, clear, and accurate. Get as much artistic power into your sketches as lies in you, but do not forget that architectural drawing is always more or less diagrammatic and conventional. Hygiene in relation to architecture embraces not only drainage, but the use of appropriate materials in construction to ensure healthy buildings, water supply, ventilation, lighting, and heating. You must not only learn the practice of these various branches of hygiene, but be acquainted with the bearing of all legislation upon the subject, including the regulations of the Local Government Board. The nature and properties of building materials are well treated of in Vol. iii. of *Notes on Building Construction*, and in Gwilt; but this book-work must be supplemented by personal observation. Endeavour, by hook or by crook, to get into actual contact with materials of all kinds, observe their behaviour, and learn all you can about them. It is highly desirable to make a collection of specimens of the various materials used in building. The Paper on Strength of Materials, i.e. calculations of stresses and strains, is likely to be more advanced than in the old Qualifying Examination. Graphic statics in particular are likely to be required, and somewhat more modern methods of calculation expected than the antiquated and in some cases fallacious formulæ which have done duty in the past. Clark's *Principles of Graphic Statics* and Adams's *Strains in Ironwork* are useful. Graham's *Graphic and Analytic Statics* is a very good book, but somewhat difficult to master.

The paper on Construction extends beyond text-book limits, and every opportunity should be taken of studying the actual construction of buildings in progress, not only those under your own principals but works of other architects also. Particularly take note of all instances of dangerous structures you may meet and the methods in which they are dealt with. Specifications and estimating must be learnt in an office and from actual practice. Professional practice, too, is largely a matter of experience, but embraces legal matters which may be studied to some extent from books; Jenkins and Raymond should be mastered and also the Institute Conditions of Contract.

The Final Examination may be expected to be more severe than the late Qualifying Examination, as it is intended that at least two years of steady work and persevering study should intervene between it and the Intermediate; and indeed many students will find it necessary to take three years over their preparation. This being so, it is advisable to study the various subjects to a certain extent concurrently, not to work up one subject at a time and then another, and so on. Frequent revision will, of course, be necessary to keep fresh what has been already learnt. Thus, still pursuing what has been before advocated, regular, steady, continuous study, the student will find himself easily master of his examination; and I shall conclude with the hope that the Ashpitel Prize may repeatedly be brought to Birmingham by some of you who have now heard my Paper.—F. R. FARROW.]



OBSERVATIONS ON THE LONDON BUILDING ACT 1894.

By Professor BANISTER FLETCHER [F.].

Read at the General Meeting, Monday, 17th December 1894; and, with the illustrations, registered at Stationers' Hall as the property of the Royal Institute.

I HAD intended to set down for the JOURNAL a few observations on the changes brought about in the Building Law as it affects architects through the passing of the London Building Act 1894. The Council, however, rightly thought that the value of the communication would be enhanced if the subject were raised and discussed in General Meeting here, and I was desired to prepare a Paper with that object in view. I propose to deal only with those parts of the Act which are of general interest; but before doing so I cannot refrain from expressing the great pleasure I experienced during the passage of the Bill through Committee. The London County Council, the promoters of the measure, showed great willingness to so modify the Bill as to make it accord with the public desire. The Institute also gave abundant proof that it had the public interest only in view. The formal and informal meetings had, I think, the effect of making the Bill far more practical and useful, and I believe all those who have assisted in bringing about this result have formed a higher opinion of each other. I doubt if any Bill has ever become an Act where so much good feeling has been created.

Definitions have ever been the stumbling-block of Acts of Parliament, and it is curious that, although in this Act the definitions are much improved, we have not amongst them the definition of "what is a building?" To show how difficult it is to define a building I need only quote the case of *Stevens v. Gourley*, which came before Chief Justice Erle and Justices Williams and Byles. The arguments in the appeal case, occupying thirteen pages of my book on the Metropolitan Building Acts, serve to show this extreme difficulty. It is true that in the draft Bill an attempt was made to define "a building," but I think this definition was struck out in Committee. Why will not our legal friends face a difficulty, rather than leave the matter open, which must lead to disputes and litigations? This question, I think, may be justly asked: Is it fair of the legal profession to shirk definitions, and thus leave us laymen to fight over the "expressions" in Courts of Law? As proof that definitions can be made clear and free from the possibility of error, I take definition 26.* Here we have a definition so worded that there can be no question: it includes every building that can be erected except two, which are defined in definitions 27 and 28.†

* Section 5 (Definitions): (26) The expression "domestic building" includes a dwelling-house and any other building not being a public building or of the warehouse class.

† (27) The expression "public building" means a building used or constructed or adapted to be used as a church

chapel or other place of public worship or as a school college or place of instruction (not being merely a dwelling-house so used) or as a hospital workhouse public theatre public hall public concert-room public ball-room public lecture room public library or public exhibition-room or as a public place of assembly or used or constructed or

Definition 37* explains the expression "inhabited." Definition 38† explains the expression "habitable" as a room constructed or adapted to be inhabited. It will be noticed that the authority is relieved of the onerous duty of proving that the room is used as a living-room, and also from proving that persons pass the night therein. All they have to do is to prove that there is a probable presumption.

I was forcibly reminded the other day of the difficulty of definitions. The Chief Commissioner of Police issued a notice, just before the 5th November, reminding the public that fireworks could not be let off within fifty feet of the centre of any road or cartway. One of our leading papers—not a comic journal—remarking upon the notice, used these words: "Have the windows of the upper storeys in leading thoroughfares occurred to any as a suitable field for fireworks? They are beyond the required radius, and, both as a scene of the display and from the display's effect on the streets below, would lend more than normal distinction to the celebration."

With regard to "centre of roadways," some critics do not appear to appreciate the centre remaining, notwithstanding that the actual centre of the roadway may have become altered by reason of the roadway having been widened on one side only, or on both sides to an unequal extent. It appears to me of much value in preventing the active owner from losing his proper advantage. For example, the owner on either side of a road 20 feet wide—if the widening is required for carriage traffic—would each have to set back 10 feet, and therefore each owner, whom we will call respectively A and B, loses 10 feet in the depth of his land. Now, assume that A desires to have a 50-foot road, and he sets back from the centre of the roadway 25 feet. B, without this regulation, need only set back 5 feet instead of 10 feet, and thus, to give a road 40 feet wide, saves 5 feet in depth of his land. He gains, therefore, by delay, and prevents A from obtaining the advantage he desired. It is this difficulty which absolutely calls for a difference of position between the *legal* and *geometrical* centre of the road.

The statement in the Preamble that the Act is designed to secure the sound construction of buildings ignores the past Acts. I think it would have been more correct and more modest to have put the word "further" or the words "more completely" before "secure"; and it would then have read "to further (or more completely) secure."

The fixing of a gradient is, I think, extremely good. This is given in section 9, subsection 6.‡ I strongly deprecate the power the County Council have taken to vary the rules. Take as an example section 17. You will find that the County Council may sanction "the erection of any new building or structure at any less distance than the prescribed distance from the centre of the roadway of any way (not being a highway)." Speaking in this room last March, I said I had never seen a Bill in which more power was given to vary the conditions. My words were: "I would call attention to a most objectionable phrase in the Bill, 'The Council may permit.' The whole Bill bristles with permissions to avoid every clause 'in it.' I would most emphatically advise the County Council to get rid of this power as much as possible by registering all variations permitted, and from this information formulating fixed rules and regulations which shall apply to all.

adapted to be used for any other public purpose also a building used or constructed or adapted to be used as an hotel lodging-house home refuge or shelter where such building extends to more than two hundred and fifty thousand cubic feet or has sleeping accommodation for more than one hundred persons.

(28) The expression "building of the warehouse class" means a warehouse factory manufactory brewery or distillery and any other building exceeding in cubical extent one hundred and fifty thousand cubic feet which is neither a public building nor a domestic building.

* (37) The expression "inhabited" applied to a room means a room in which some person passes the night or which is used as a living room including a room with respect to which there is a probable presumption (until the contrary is shown) that some person passes the night therein or that it is used as a living room.

† (38) The expression "habitable" applied to a room means a room constructed or adapted to be inhabited.

‡ Section 9: (6) Where the street is proposed to be formed or laid out for carriage traffic with any gradient steeper than one in twenty.

Section 9, sub-section 4,* will, I think, prevent the formation in the future of circular or crescent roadways communicating at each end with the same street. There has been much litigation on this question, and the words now used "laying out the same" to "afford direct communication between two streets" will probably prevent any question arising in the future.

The District Surveyor has more power under the new Act with regard to bressummers,† and it is the first time that I remember any allowance being set out for expansion of metal in a Building Act. The bearing of 4 inches is somewhat unimportant, because, in dealing with long beams, if the builder insist on his right of only giving 4 inches, as the Act permits, the District Surveyor can, if he thinks it insufficient, require additional storey-posts or iron columns, &c. The builders, therefore, will be very willing to give sufficient bearing for safety.

With regard to projections, you may remember the discussion in this room. Mr. H. H. Statham produced a diagram ‡ showing the effect of the new restriction as to projections of cornices to only 2 feet 6 inches over the public way, supposing one desired to build a house with a cornice of the same projection as the Strozzi Palace; and undoubtedly his diagram was convincing that the limitation of the projection would seriously interfere with the cornices in Classic and Renaissance architecture. The restriction has now become law, and the only way that a greater projection can be obtained is by setting back the front walls, or obtaining the consent of the County Council.

There is a slight alteration in the area permitted as to the cubic contents of warehouse buildings. It is extended from 216,000 to 250,000. The new Act in section 76 § gives power to the County Council (where the Superintending Architect and the Chief Officer of the Fire Brigade advise favourably) to consent, under certain conditions, to each building "containing additional cubical extent"; but there is a proviso that "such consent shall continue in force only while the said building is actually used for the purposes of the trade or manufacture in respect of which the consent was granted."

With regard to roofs. More latitude is given in the use of combustible materials by the relaxation of the provisions in the expiring Act. Under the new Act cornices and barge-

* Section 9: (4) Where any street not being within the City is proposed to be formed or laid out in such manner that such street will not at and from the time of forming and laying out the same afford direct communication between two streets such two streets being (where it is intended to form or lay out such street for carriage traffic) streets formed and laid out for carriage traffic.

† Section 56: (1) Every bressummer whether of wood or metal shall have a bearing in the direction of its length of four inches at least at each end upon a sufficient pier of brick or stone or upon a timber or iron storey post fixed on a solid foundation in addition to its bearing upon any party-wall or external wall and the district surveyor shall have power in his discretion to require that every bressummer shall have such other storey posts iron columns stanchions or piers of brick or stone or corbels as may be sufficient to carry the superstructure and the ends of such bressummer if of wood shall not be placed nearer to the centre line of the party-walls than four inches.

(2) At each end of every metallic bressummer a space shall be left equal to one quarter of an inch for every ten feet and also for any fractional part of ten feet of the length of such bressummer to allow for expansion.

(3) A bond timber or wood plate shall not be built into any party-wall and the ends of any wooden beam or joist bearing on such walls shall be at least four inches distant from the centre line of the party-walls.

(4) Every bressummer bearing upon a party-wall shall be borne by a templet or corbel of stone or iron tailed through at least half the thickness of the wall and of the full breadth of the bressummer.

(5) The end of any timber not permitted to be placed in or to have a bearing on a party-wall may be carried on a corbel or templet of stone or iron or vitrified stoneware tailed into the wall to a distance of at least eight and a half inches or otherwise supported to the satisfaction of the district surveyor.

‡ JOURNAL, VOL. I. Third Series, p. 398.

§ Section 76: Where the Council are satisfied on the report of the superintending architect and of the chief officer of the fire brigade that additional cubical extent is necessary for any building to be used for any trade or manufacture and are satisfied that proper arrangements have been or will be made and maintained for lessening so far as reasonably practicable danger from fire the Council may consent to such building containing additional cubical extent:

Provided that such building shall not—

- (i) Extend to a number of cubic feet exceeding four hundred and fifty thousand or any less number allowed by the Council without being divided by party-walls in such manner that the cubical extent of each division do not exceed that number;
- (ii) Exceed sixty feet in height;
- (iii) Be used for the purpose of any trade or manufacture involving the use of explosive or inflammable materials.

Such consent shall continue in force only while the said building is actually used for the purposes of the trade or manufacture in respect of which the consent was granted.

boards of wood are permitted, and under section 55* frames of doors and windows may be fixed flush with the face of external walls. A new requirement is that a building over 30 feet high used as a dwelling-house or factory, and having a parapet, must be provided with a dormer window, or a door opening on to the roof, and a trap-door with proper step-ladder or other proper means of access to the roof. This requirement cannot be demanded where there is no parapet. The new Act limits the number of storeys in the roof, so that buildings like some that have been erected cannot be repeated; and there is a provision that where the storey is above 60 feet from the street level it may not have boarded floor, if constructed in the roof, but the upper surface of the floor must be of fire-resisting materials. The old rule as to the angle of inclination of roofs of the warehouse kind continues. A novel feature is the fixing of an angle of inclination of roofs of other buildings; they must not incline upwards at a greater angle than 75 degrees. This inclination does not, however, apply to towers, spires, and turrets.

The Act recognises for the first time a separation of buildings by other means than party-walls. It permits the separation by a party structure. A reference to the definition shows that party structure may be a party-wall, or a partition, floor, or other structure, separating vertically or horizontally buildings, &c. Some district surveyors have permitted this as an interpretation of a party-wall under the expiring Act, but it is very desirable to have all doubt removed by section 71 † and definition 20 in section 5. ‡ The same section 71 requires that the dwelling-house shall be divided by fire-resisting materials from the shop or trade portion in every building exceeding ten squares in area.

The provisions relating to separate sets of chambers are made more stringent by making the area commence at 2,500 square feet instead of 3,600; but the stringency of the Act is lessened with regard to their being considered separate buildings. Each set of chambers is now to be considered a separate building. Section 75 permits one-storey buildings beyond the two-mile radius of St. Paul's to have any cubical contents for certain purposes. The uses to which such buildings may be put are very limited.

The provisions as to chimneys and flues are practically the same as in the expiring Act, but there is a concession as to chimneys built on a bressummer; the same rule as to building a wall thereon applies. If chimneys are so built, the work must be done to the satisfaction of the District Surveyor. One important alteration is set forth in the section that prevents the use of ordinary flues for trade purposes. This, I think, is very necessary. I have had to induce owners to put proper flues, urging them to do so for their own sakes, but telling them

* Section 55: All woodwork fixed in any external wall except bressummers and storey posts under the same and frames of doors and windows of shops on the ground storey of any building shall be set back four inches at the least from the external face of such wall. But loophole frames and frames of doors and windows may be fixed flush with the face of any external wall:

Provided that it shall be lawful for the Council by by-law or otherwise to exempt from the provisions of this section oak teak or other wood provided the work be constructed to the satisfaction of the district surveyor.

† Section 74: (1) Every building shall be separated either by an external wall or by a party-wall or other proper party structure from the adjoining building (if any) and from each of the adjoining buildings (if more than one).

(2) In every building exceeding ten squares in area used in part for purposes of trade or manufacture and in part as a dwelling-house the part used for the purposes of trade or manufacture shall be separated from the part used as a dwelling-house by walls and floors constructed of fire-resisting materials and all passages staircases and other means of approach to the part used as a dwelling-house shall be constructed throughout of fire-resisting

materials. The part used for purposes of trade or manufacture shall (if extending to more than two hundred and fifty thousand cubic feet) be subject to the provisions of this Act relating to the cubical extent of buildings of the warehouse class:

Provided that there may be constructed in the walls of such staircases and passages such doorways as are necessary for communicating between the different parts of the building and there may be formed in any walls of such building openings fitted with fire-resisting doors.

(3) In every building exceeding twenty-five squares in area containing separate sets of chambers or offices or rooms tenanted or constructed or adapted to be tenanted by different persons the floors and principal staircases shall be of fire-resisting materials:

But this provision shall not entitle the district surveyor to charge for the inspection of each set of chambers as a separate building.

‡ Section 5: (20) The expression "party structure" means a party-wall and also a partition floor or other structure separating vertically or horizontally buildings storeys or rooms approached by distinct staircases or separate entrances from without.

I was powerless to demand it under the Act. The provision as to marking flues, where a wall is likely to be built against, is probably useful, but I have never found any difficulty in getting this done. One added security against smoke and fire is the provision set out in section 64, sub-section 6,* where all flues are to be rendered on their outside face when passing through floor or roof. This will entail much additional expense, as the quantity of rendering through the roof portion will sometimes be considerable.

The backs of chimney openings can now be $4\frac{1}{2}$ inches in walls other than party-walls (section 20, sub-section 7 of the expiring Act), the new Act being silent as to the back of chimneys of exterior walls. There is a slight reduction in the thickness of hearth from 7 inches to 6 inches. This cannot increase the risk of fire, whilst it may give an advantage from a constructional point of view. Another alteration in the Act requires the top six courses of the stack or shaft to be built in cement. This is a most useful requirement in maintaining the stability of the chimney shaft, and also the stability of those too often added deformities called tall-boys, windguards, and cowls, because they will be bedded in the courses of brickwork in cement.

The new Act relieves the County Council of the labour of fixing the thickness and tapering of the chimney shafts. These are set forth in the Act. The height of the chimney shaft is limited by the width or circumference of the base. Many existing shafts if condemned could not be rebuilt to their present height without increasing their width at the base. I mention this to show that the present requirements will give a certainty of more substantial building.

The provision with regard to "hollow walls" is likely to prevent their being built, because the wall on one side of the hollow space must be of the full thickness prescribed by the Act for ordinary walls. Therefore there will have to be put a wall of the thickness required by the Act *plus* the hollow space, *plus* the outer casing. The variation that no recess shall come within $13\frac{1}{2}$ inches, instead of 12 inches, as in the old Act, is wise, as it makes a "brick measurement" of it.

An important alteration is that under the new Act there is apparently no limitation as to the quantity of openings and recesses on the ground-floor storey. This is a most important concession, and removes a great difficulty as to shop premises. Again and again under the present Act the builder has been obliged to increase the height of a parapet on purpose to produce the required amount of solid wall. Of course by these means he obtained the right proportion, but the mass of brickwork on top of the wall was really otherwise useless. It has been contended that the section might be read to mean that there shall be no openings or recesses on the ground-floor storey; but I think the common-sense reading will be sure to be adopted by the Courts, and that the explanation I have given will be accepted.

This Act sets out the structural method of arching recesses which are deeper than 5 inches. It says the arching shall be by not less than two rings in brickwork the full depth of the recess in party-walls, and thus defines the method more clearly than the expiring Act, which only said "arched over." It seems a pity that the Superintending Architect has the power to modify recesses and openings, for the reasons I have already mentioned.

There is a novelty in the Act. It permits recesses under 5 inches deep to be corbelled in brickwork or stonework.

There is an exemption of hoardings from the Act where they are placed around vacant land, provided such hoarding shall not exceed 12 feet in height. The difficulty that some anticipate is, that these hoardings may be kept up after the land is occupied. This surely cannot arise; the wording of exemptions is, I think, so clear.

* Section 64: (6) The inside of every flue and also the outside where passing through any floor or roof or behind or against any woodwork shall be rendered pargeted or lined with fire-resisting piping of stoneware.

A relaxation of the present rule as to sheds I consider of much advantage to small traders. The new Act provides that "open sheds . . . not exceeding four squares in area " may be constructed of any substances, and in any manner approved by the District Surveyor." In my district under the expiring Act much hardship resulted from the enforcement of present restrictions, and really without public advantage.

As to dwelling-houses, the Act gives increased height to dwelling-rooms. Instead of 7 feet the height must now be 8 feet 6 inches. As to the height of rooms in roofs one foot is added, making it 8 feet instead of 7 feet.

With regard to lantern lights, the Act is silent as to the size permitted. This I think is wise, because a very small area is sufficient, and it is best to leave that area to the builder's discretion; otherwise it might interfere with his getting a good watertight roof. The requirement for ventilation is sufficient; it sets out that the part which shall open shall be equal to one twentieth part of the floor space.

Next as to underground rooms. I think it wise that the regulations as regards the lighting and ventilation of these rooms are to be continued. I have seen a complaint that the Act has omitted to state the amount of the penalty. This is not so. It is true it is not mentioned in section 70, sub-section 2, but it is given in section 200, sub-section 11 (j).* There is a section in the Act requiring ventilation under the lowest floor, unless it be a solid wood floor on concrete. This of course is an advantage from a sanitary point of view.

The novel provisions as to the sizes of windows to rooms (other than those in the basement) may be considered as unnecessary, for probably they are not wanted. It is so usual to build these rooms with sufficient window space. However, the requirements will have this advantage, that they will inform the builder what is considered the smallest windows that ought to be made. Of course it will enable the District Surveyor to prevent the building of rooms with insufficient lighting—a power he does not now possess. The regulations with regard to the windows in the roof I think decidedly necessary: for one has frequently found windows too near the floor, solely on account of the elevation. No doubt the elevation must and should give way to good sanitary planning, although I fail to see why the elevation need therefore be less well-proportioned.

The next very important alteration is the yard space, and a novel feature is the introduction of the diagonal line, limiting the height of buildings according to the depth of the back yard. Before the Bill became an Act of Parliament this diagonal line was very much discussed. It was proposed to have an angle of 45 degrees, which would have reduced the heights of the buildings to a much greater extent than the angle finally adopted, which is 63½ degrees. Where the builder desires to take full advantage of his land, and builds therefore to the extreme limit permitted by the Act, the upper rooms will be reduced in depth. I expressed my views with regard to this at the meeting held on the 19th March last to consider the provisions in the Bill.† The objection I made to the angle proposed, or to any angle, was that it must of necessity make a building worse internally. It is impossible to get square rooms while building up to a diagonal line: any angle should therefore cease when it touches the back wall. I give a diagram showing this diagonal line in new streets and the variations between new streets and old. In the latter the diagonal line is raised 16 feet.

With regard to the thickness of the walls. In my new book on the Act I have given

* Section 200: (11) (a) Any person who places erects or retains or suffers or permits to be placed erected or retained any sky sign contrary to the provisions of this Act: or

(j) Does any other thing prohibited by this Act or fails neglects or omits to do any other thing which he is required to do under or in pursuance of this Act:

shall be liable to a penalty not exceeding forty shillings and to a daily penalty not exceeding the like amount.

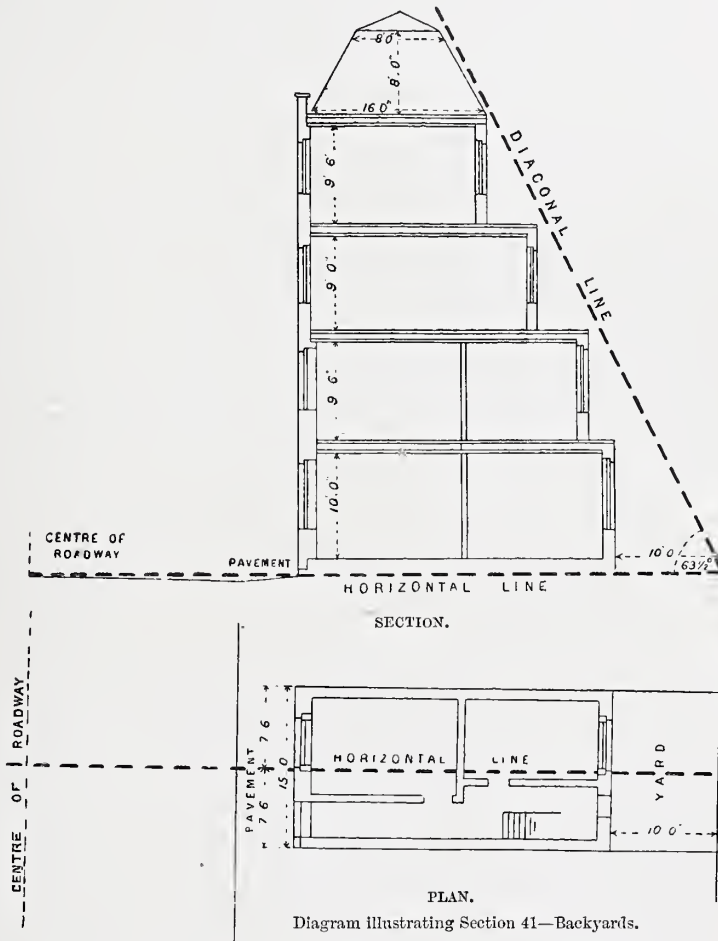
† The Professor's speech was part of the Discussion of a Paper on the London Streets and Buildings Bill by Mr. Arthur Cates, printed in the JOURNAL, Vol. I. Third Series, pp. 343-358 and 390-406.

diagrams, so that there will be no necessity for reference to the schedule. Undoubtedly the form of schedule is more troublesome even than that in the old Act, but no schedules, however good, can be equal to the coloured figured sections. I have given sections not only of warehouse walls, and walls of buildings not public, and not of the warehouse class, but you will also see sections of cross walls for warehouse walls, and cross walls for the other description of buildings. You will notice in these diagrams I have dotted on the thickness of the party-wall and external walls of the same height, thus enabling any one at a glance to see the reduction in thickness to be gained by the use of cross walls.

My own opinion is that the new regulations relating to stables are quite sufficient, and they have their advantages.

Section 45* says that where there are courts within a building, the ventilation shall be made and maintained by means of a communication between the lower end of the court and the outer air. It was, I believe, the intention to have required that a tunnel should be made, which would, I think, be very objectionable. Probably it will be desirable to consider to-night what this communication should be. The last line in this section is unfortunate. You will notice it gives a measurement limiting height by measuring from the sill of the window, and many

will be tempted to place the sill much higher than it ought to be, and thus make the room less sanitary. Section 13, by making a difference between houses inhabited by the



* Section 45: Where a court wholly or in part open at the top but enclosed on every side and constructed or used for admitting light or air to a domestic building is constructed in connexion with such domestic building and the depth of such court from the eaves or top of the parapet to the ceiling of the ground storey exceeds the length or breadth of such court adequate provision for the ventilation of such court shall be made and maintained by the owner of the building by means of a communication between the lower end of the court and the outer air.

No habitable room not having a window directly opening into the external air otherwise than into a court enclosed on every side shall be constructed in any building unless the width of such court measured from such window to the opposite wall shall be equal to half the height measured

from the sill of such window to the eaves or top of the parapet of the opposite wall.

Provided that a court of which the greater dimension does not exceed twice the less dimension shall be held to comply with this section if a court of the same area but square in shape would comply therewith.

No habitable room above the level of the ground storey not having a window directly opening into the external air otherwise than into a court open on one side the depth whereof measured from the open side exceeds twice the width shall be constructed in any building unless every window of such room be placed not nearer to the opposite wall of such court or to any other building than one half the height of the top of such wall or building above the level of the sill of such window.

“working-class” (by the bye, there is no definition explaining this term) and others, may result in much injustice. As an illustration of the unfairness of this section, assume a street 30 feet wide, with houses on either side 40 feet high. On one side the houses have shops on the ground floor, and on the other side there are private houses. The latter, in consequence of the depreciation of the locality, have been let in tenements to the working-class. Rebuilding is required. The private houses can under this section only be rebuilt to a height of 30 feet. Those with shops not let to the working-class to a height of 50 feet, the owner of the latter gaining the advantage of additional light and air at the expense of the owner of the houses let in tenements. The working-class houses are still dominated with the tall buildings opposite.

Much improvement, I think, will be found in Part VIII. of the Act in dealing with the rights of building and adjoining owners. One improvement I would call attention to is section 91. It is, that if the building owners' and adjoining owners' surveyors cannot agree upon the appointment of a third surveyor, a Secretary of State may, upon the application of either party, select some fit person to act as third surveyor.

I have often been asked the following questions on section 212.* The first: Must a building have the footings put in before the 1st of next January to exempt it from the provisions of the London Building Act 1894, or will it be sufficient if the contract to build is signed? The second question is: Having taken much land on building lease, under contract to build a fixed number of houses each year, is the lessee not entitled to continue to build the houses in accordance with the present Act under such agreement? Authoritative replies to these questions will be necessary.

This Paper is already so long, having regard to my desire to allow ample time for discussion, that I dare not deal with many sections of the new Act, nor indeed more fully with those to which I have given attention.

DISCUSSION OF PROFESSOR BANISTER FLETCHER'S PAPER.

The President, F. C. PENROSE, F.R.S., in the Chair.

PROFESSOR T. ROGER SMITH [*F.*] said that with regard to the general character of the Act there was not so much radical change, but considerable alteration in minute and in adjustment, and a great deal more detail. Many more cases were provided for, and many more possibilities foreseen. He was disposed to think that, though in some cases the alterations would prove troublesome, in a very large number of cases difficulties would be found to have been cleared away. There were points where almost every District Surveyor or persons engaged in building in London had found themselves in a difficulty. He would mention only two, which had been alluded to by Professor Banister Fletcher, as showing the manner in which a great many of those difficulties had been cleared away. One was the question of openings in the front wall of a building. Where a shop-front had been very large and the height of the building above or below it had not been great, the difficulty had often been to establish to some extent a proper balance, as the old Act required,

between the total openings and the total brickwork. Where the District Surveyor felt that his conscience required him to enforce the strict letter of the law—such expedients had been alluded to, namely, piling up a worse than useless parapet for the sake of having a sufficient amount of brickwork had been resorted to constantly; and in other cases where the District Surveyor felt that he might shut his eyes to an infringement of the letter of the law—that provision had been more or less disregarded. Now, by establishing that balance only above the ground storey, the County Council had relieved both builders and District Surveyors of considerable anxiety; and, considering how spacious shop fronts had become, and how large a space could now with perfect safety be allotted to them, as steel girders and iron construction of all kinds were now available, that seemed a most admirable change. The other point, which was in the same kind of position, was the recognition of the fact that walls might stand upon iron girders. They had stood upon iron

* Section 212: Notwithstanding anything contained in this Act a building structure or work which has been commenced before and is in progress at the commencement of this Act or which is to be carried out under any contract

entered into before the passing of this Act may be completed subject to and in accordance with the provisions of the Acts relating thereto as in force immediately previous to the passing of this Act.

girders for many years past; indeed, in the City of London especially it had been impossible to do anything else. For example, in encountering an obstruction of light and air, where a series of buildings had to be shaved off so that each storey should be set back one behind the other, there had been no help for it; the walls had had to be carried on iron girders, and it was very doubtful whether that had been legal. But it had been done, and it could not but be done. Now it was made legal, and it was one of the things that could be done with perfect safety owing to their command of iron construction. He thought that everyone engaged in building in London must be thankful that an uncertainty of that kind had been removed. It would be possible to point to a dozen similar provisions of equal importance which had rendered doubtful points more clear. Professor Banister Fletcher had not, he thought, alluded to the care—at least, not to all the points—which had been taken to relax some of the difficulties in the way of picturesque buildings. The Act contained a provision that under certain restrictions oriel windows and projecting turrets might be carried out—not springing from the wall, but springing from corbels at a considerable height. They all knew that those things had been done from time to time, but only by special permission of the Metropolitan Board of Works or the County Council; and that it should be recognised that those were very reasonable features which might be introduced at the discretion of the architect was, he thought, a boon. In the same way, some of the relaxations with regard to the use of wood were advantageous. The barge-boards were now included among the excepted things which might be of timber, in all detached and semi-detached dwellings; and the old rule that a dwelling which might have a wooden cornice must be a certain distance away from adjoining land and adjoining thoroughfares was done away with. There was another relaxation which he personally was sorry to see, but which no doubt would give pleasure to some—namely, that sash and door frames might now be flush with the outer brickwork. He did not imagine that would be done generally. It was astonishing how long it took to get people out of a habit. When the duty was taken off bricks everybody imagined that bricks of various sizes would be manufactured—that there would be variations in the dimensions of the bricks. But that had not taken place: a brick was still of identically the same dimensions as it was before. Practically, he imagined, reveals would be reveals for the next twenty or thirty years, but in those cases where architectural propriety made it pleasanter that the sash-frame should come to the outer face—and it would be more in accordance with the picturesque style now in vogue—it would strain nobody's conscience to allow it to

be so. Professor Banister Fletcher had said nothing about the Tribunal. He had said something about the appeals to the London Council, and he was very glad to hear what the Professor suggested about the treatment of those appeals being made systematic, so that by degrees they might perhaps to a certain extent answer themselves. One such subject had actually been dealt with in the Act. Formerly, as all knew who had to deal with such a thing, a factory chimney had to be sanctioned by the Metropolitan Board of Works or the London Council, and for a long time the drawings were simply submitted, and they were approved or not approved; but a series of principles had come to be established in accordance with which those drawings were judged, and now those principles had been formed into a Code of Rules which made their appearance as a regular enactment in the Act. If the same course could be taken with regard to the many points where an option was left which the London Council from time to time could exercise, it would be a great advantage; and probably the same thing might be done systematically by the Tribunal, which, although created before, was invested with much larger powers under the new Act. He had great pleasure in adding his testimony to what Professor Banister Fletcher had alluded to—namely, the great courtesy with which everyone had been treated who came in contact with the Building Act Committee, the great attention paid to any suggestions they had to make, and the extensive modifications which had taken place in consequence of practical suggestions made to the Committee by gentlemen who had been engaged in working the Acts in various ways.

Mr. H. H. COLLINS [*F.*] apprehended that the interests of the discussion would best be served if such parts of the Act as they had individually paid most attention to were only considered. It had been said that District Surveyors were best able to evade the Act. Well, if that had been the case, it was a matter of the past, and each District Surveyor and member of the profession would exercise his best efforts to loyally carry out the provisions of the new Bill. Various emendations, alterations, and additions had been made to the Act in almost the very words which the District Surveyors' Association had asked the County Council to adopt; and for that they should be thankful, not only as architects, but as District Surveyors. He agreed with the Professor that it was somewhat regrettable that an angle had been adopted at all, because, he thought, it would be productive of bad building. He considered that, where walls were receded as provided, it would result in a variety of attempts at jerry-building; that those walls would be constructed of quartering, and tiles, and slates, and so forth, instead of good honest brickwork. He should like to ask Dr. Longstaff what provision had been made with

regard to horizontal floors—how were they to unite them in building? The doors for separation might be of iron or wood, but he assumed that where there were 250,000 cubic feet, they must be of iron; and in the case of a building of 2,500 feet superficial they could be of wood; and he wanted to know how it was proposed to unite buildings, where they were separated, by means of a fire-resisting structure—namely, a horizontal one. There was nothing in the Act to explain how that was to be done, and that was a difficulty to be overcome. Then there was nothing mentioned with regard to the size of flues; they might be made of any size two inches, if that could be done—and although he had no doubt, as Professor Roger Smith had said, that custom would rule and they would not easily depart from the usual nine and fourteen inches, still there was no reason under the Act why they should not be made of any size. With regard to hollow walls, he thought that part of the Act would be entirely a dead letter. Nobody would go to the expense of building practically to the thickness which three walls would occupy in order to comply with the Act. On the score of expense, that section, at all events, would not be very largely complied with. With regard to shop fronts, which was one of the things to which the District Surveyors had particularly called the attention of the Building Act Committee, and which they at once liberally recognised, he referred, of course, to what Professor Banister Fletcher had pointed out: the absurdity of having (as sometimes in his own district) a wall of 10 or 12 feet in height sunk absolutely in the ground for no purpose except to comply with the Act, or else put up as a parapet with no purpose except to overweight the building—that would now be done away with, and a more sensible and proper system had been devised. He would like to know what was the meaning of a habitable room in a basement. Did it mean that a kitchen, or a scullery, or a pantry was a habitable room? There was no definition of what a habitable room meant, and he scarcely apprehended what the Building Act meant in that respect. He had prepared a diagram of what he thought the County Council rather prided itself on, and that was with regard to courts within a building, about which he was much puzzled. There was, he thought, a mistake in section 45, with respect to the word “depth,” where it said: “Where a court, wholly or in part open at the top, but enclosed on every side, and constructed or used for admitting light or air to a domestic building, is constructed in connection with such domestic building, and the *depth* of such court from the eaves or top of the parapet to the ground storey.” He concluded that that depth meant the height of such court from the eaves or parapet. Then the Act said: “No habitable room not having a window directly opening into the external air otherwise than into a court enclosed

“on every side shall be constructed in any building, unless the width of such court measured from such window to the opposite wall shall be equal to half the height measured from the sill of such window to the eaves or top of the parapet of the opposite wall.” That was the angle of $63\frac{1}{2}$ degrees. But he would point out that, in the first place, the *length* of the court was called the *width* of the court, and by putting the windows in certain positions, instead of making the court 5 feet wide, or half 10 feet, it might be made 2 or 3 feet wide, or a mere slip, as illustrated by his diagram. That was the very objection which he understood Dr. Longstaff to say they were anxious to avoid. They need only put a window at the end of the court, and then they might make it any width they pleased. Another thing, where courts were open at the ends, windows which were not to be used in habitable rooms could be placed in the side-walls of such courts, and need only be some 3 feet from opposite walls on either side [explained by diagram]; insanitary conditions could thus be created. With regard to stables, the Act did not seem to have taken any note at all of what very often happened, namely, that the level of a mews was sometimes considerably below the level of the pavement and sometimes considerably higher than the pavement. How in those cases were they to take the horizontal line? With regard to basements, if a basement were lighted from an area in front, say, 10 feet wide, was it necessary for the basement to be lighted in the rear? The Act said: “Every habitable basement.” He did not know what was meant by a habitable basement; but suppose it were lighted by an area in the front, which was a very usual thing, was it then requisite to have an area at the back? Supposing the area at the back were devoted to wine-cellars, as was very commonly the case, would it be essential to leave the area there, whether it were utilised or not?

Mr. JOHN SLATER [F.], B.A. Lond., said that, as in his Paper on Building Legislation read a few years ago he had strongly advocated the codification of the existing Building Acts and the preparation of a new one, he should like to say a few words on the subject. On the whole, he thought that the County Council were to be very heartily congratulated upon the manner in which they had met the objections, raised by the Institute and other Bodies, to the Bill as first drawn. The Act now was a very different thing indeed from what it would have been if the first crude suggestions had been carried out. There was one point in the Paper read that evening in which he entirely differed from the author. The Professor said that the Bill bristled with permissions to avoid every clause of it, and he would emphatically advise the County Council to get rid of that power as much as possible. It appeared to him, however, that in dealing with an Act affecting a city which had been covered with buildings for very many

years, the permissive clauses were the salvation of the Act. It was utterly impossible to draw any hard and fast lines for dealing with the buildings in existing streets. If they were dealing with new areas, roads, and things of that sort, they might lay down what conditions they liked; but if they attempted to do away with the permissive clauses in an Act of that kind, they would either have to be so exceedingly lenient that they would not get what they wanted, or considerable hardship would be inflicted in individual cases. He rejoiced to find that in a very large number of cases the County Council had allowed a reference to itself with regard to matters which, in strictness, would not be permitted; whereby, in individual cases, if they were properly represented to the County Council, as no doubt they would be, the Council might give permission to avoid or evade certain clauses of the Act. That was an immense improvement, and he would not have the County Council depart from their right to exercise their own judgment as to individual cases on any account whatever. With regard to what the Professor had said as to laying out streets, he could hardly believe—he had not, however, looked carefully at the section—that there was anything in the Act to prevent what appeared to him a very desirable state of things. In planning an estate with one straight road, if permission were asked to build a crescent with an open space in front, it could not be imagined that the Council would object to that. It was one of the most desirable things that they could have, and he could not understand what the Professor meant when he said that no street could be made unless it afforded direct communication between two other streets. With regard to the angle of inclination of roofs of buildings, he thought it would afford the District Surveyors many happy moments. The evasions of the existing Acts, so far as his experience went, had been far more numerous with regard to the question of the inclination of roofs than in any other particular. A man made a plan upon which he showed rooms going over only part of a flat, and had upright partitions covered with slates. The District Surveyor said, "I cannot allow that," and then in a sort of undertone, "If you slope it the least little bit, I shall consider it a roof." It was a good thing that the inclination of roofs was to a certain extent limited. Mr. Collins had objected that nothing was said as to communication in the case of horizontal fireproof floors. In his opinion, it was exceedingly undesirable to have more points of communication than were absolutely necessary. He did not think that the County Council contemplated that there would be a number of openings made in horizontal floors; so that that question was very unlikely to arise. With regard to the Tribunal to decide cases, that, he thought, was a great advance made. Perhaps the constitution of the Tribunal was not quite the best that might be arranged.

He would rather have had a Tribunal consisting of one barrister and one architect, than three surveyors or architects; there might, however, be reasons against it. That was one of the provisions of the Act preceding the 1855 Building Act, and he could not help thinking that some such regulation as that would have been a desirable one. He hoped that the new Act would result in a more sanitary, more artistic, and more beautiful London than it was possible to have under the old one.

DR. LONGSTAFF (Chairman of the Building Act Committee of the London County Council), referring to the objection that the County Council had so many powers to vary the rules, said it was one of those matters of very great difficulty where the arguments were almost equally strong on each side. He knew it might be alleged that they should settle what the law was to be, and write it down so that everybody should know what the law was. He knew, too, that it was said that if they had the power of granting concessions, that power might be used improperly—that a possible door was opened to corruption and undue influence of various kinds. He hoped that that difficulty might not arise; he was quite sure it had not arisen within the last six years. He quite agreed with what Mr. Slater had said, that in London more particularly—*pace* Professor Banister Fletcher and Professor Roger Smith—it was absolutely necessary to have the power of granting concessions. Not only, as Mr. Slater had said, did buildings differ in their position in relation to one another; not only were there all sorts of vested interests and all sorts of associations to be considered, but they had to consider the immensely different purposes for which buildings were used in London. There were buildings which were dwelling-houses pure and simple. But dwelling-houses pure and simple differed in size from the very smallest to the very largest, and they could not be dealt with always on one principle. When they came to public buildings the diversity was still greater. Then there were immense numbers of the intermediate class of buildings, shops, offices, &c., and every one had to be considered upon its merits. At the same time, he so far agreed with the objectors that he did hope that, as a rule, the law as it was written would be the law which would be carried out and enforced. If the power of granting concessions were used too liberally and frequently, many difficulties would arise, and there would be more or less injustice, however fairly the Building Act Committee endeavoured to carry it out. Secondly, there would be inevitable delay in getting the permissions. Still, he felt very strongly indeed that it was a necessary power. It might not be known to all present that the Home Office had written a strong memorandum, which was finally laid especially before Lord Cross in the Committee of the House of Lords, in which they

took great objection to one of the headings in the chapter of the Act on By-laws which gave power to the County Council to relax any by-law. The Home Secretary said that it was the essence of a by-law that it should be so drawn as to be universal and equal in its operation upon all. He (the speaker) had had to give evidence upon that, and he told Lord Cross that, speaking with some little experience in the matter, he personally would not undertake to frame any by-laws at all for London if he were not allowed the power of relaxation; that he did not consider it would be practicable or worth the trouble of writing down any by-law if they had not the power of relaxation. He was told by friends in the provinces, where they had by-laws framed upon the model system, and had not the power of relaxation, that the greatest difficulties and injustice arose; that there were cases where the municipality did not in the least wish to enforce such and such a by-law, but they were compelled to do it. One of the most difficult points of drafting that ever came to his lot was when he had to draft a resolution to be embodied in a letter to be sent to Professor Roger Smith to tell him how he was to deal with a retort house in his district in Wandsworth, which exceeded the cubical capacity allowed by the Act. What the form was he had forgotten, but it was something to this effect: that the Building Act Committee thought that this was, perhaps, one of those cases in which it would not be necessary to take proceedings to enforce the law—some very circuitous phrase of that kind. They could not deliberately say to Professor Roger Smith that he was not to do his duty, and was not to see that the building was not beyond the law. And yet he (Dr. Longstaff) had had a deputation of gas-makers come to his house who explained the facts to him; and the Superintending Architect, and the Engineer, and the Chief Fireman, all went into the question, and they all reported that the larger a retort house was, the safer it was as respects fire. Therefore they were in this position—that although all the experts, gas-workers, Superintending Architect, Engineer, Fireman, were in favour of the biggest retort house possible, the law said that it must be of a certain size. What Professor Roger Smith did he did not know. So much for “the Council may permit.” Professor Banister Fletcher, he thought, was not quite fair. In reference to the Cornice section, Mr. Statham had shown that the clause, as originally drawn, prohibited a cornice projecting more than 2 feet 6 inches from the face of the wall; and in consequence entirely of a very clever drawing, which was put into *The Builder*, he believed, by Mr. Statham, those words were altered so as to read “shall not extend more than 2 feet 6 inches,” and then striking out “beyond the face of the wall,” and adding “over the public way.” That made the enormous difference that a public

building that wanted a big cornice could, by setting back a little bit, get as big a cornice as was desired. If they walked round London, they would see that the buildings with large cornices were all set back within their own areas. Then there was the question of danger. Cornices were not the safest things, and they considerably detracted from the light of the houses opposite; therefore it was a fair thing to restrict them. The angle of 75 degrees for roofs had its origin as Mr. Slater said; it was from a particular case. There was a case in which strong pressure was put upon the Committee to allow a news only 20 feet in width, while they generally insisted—and he thought rightly—on a greater width than that; but in that case it was agreed that they might have it, provided the building did not exceed 20 feet in height. The Committee thought they had got them; but on the other hand they had got the Committee. They set back their wall, constructed of quartering and slates, something like six inches, and went up two storeys higher. They had a 20-foot news and a four-storeyed house; that, he thought, was a very culpable thing. The question of the diagonal line was too big a thing to go into; they must to some extent agree to differ about it. His strong opinion, however, after having carefully watched the operation of the 45° angle in the city of Liverpool, was that they would find very few buildings constructed up to the very extreme. They would find that the angle of 63½ degrees was such a liberal angle that the mere conditions of convenience and ordinary access of light would make it operate comparatively seldom; the angle that buildings would be contained in would generally be something between 45° and 60°; probably 50° or 55° would be the common one. As to how a court was to be ventilated, he must refer Professor Banister Fletcher, as he did the other night at the Sanitary Institute, to the Chairman of the Committee of the House of Commons who put the words in. He (Dr. Longstaff) did not know what he meant by them. He knew what the clause meant as drafted by his own directions, but what it meant now he did not think it fair to be called upon to explain. It had been complained that there was no definition of the “working-class.” There were a great many Acts of Parliament that dealt with the working-classes, and only one had ever defined them. It had not, as a matter of fact, been found that any difficulty had arisen in the Courts on the subject in the application of Cross’s Act and Torrens’s Act as to whether a building was designed for the working-classes or not. It was defined in one Act and not in others; and when those Acts were consolidated it was not defined. But if they asked him what the definition was, there was one that was very clear, which, if it was not absolutely true now, would soon be true, and which he thought would make it clear that Mr. Collins would not be included—namely, that the

working-class were people who never worked more than eight hours a day. People had also been divided into the working-class and the class that worked. That was another definition—good or bad he could not say. With regard to the question of contracts, he thought the way it was put, at least as he understood it, was a little bit confused. There were in that section 212 two distinct points: there was the commencement of a building, and there was the signing of a contract for a building. The commencement of the building of course meant commencing to construct the building; and the interpretation that the County Council had put upon that was the carrying out of any work that it was the duty of the District Surveyor to supervise. If there was anything for the District Surveyor to survey, then the building had been begun; and if there was nothing for the District Surveyor to survey, then the building had not been begun. That seemed a pretty safe way of defining it. Therefore the mere digging of a hole could clearly not be the commencement of a building, because the digging of a hole committed a man to nothing; he might be going to do anything with the hole, or nothing. As regarded the contract, the County Council were advised—and that, if not already generally known, would be known in a circular to the District Surveyors which had been in print some days; he did not know whether Mr. Collins had received it—that there was a difference between a building contract and a building agreement, and it was not intended, so far as the County Council were at present advised, that what was known as a building agreement was a contract within the meaning of the new London Building Act. The two things were totally different. What Professor Roger Smith had said about the history of how the factory chimney clause came into the Act was quite true. He had no doubt that when another sufficient space of time had elapsed—say thirty or forty years—they would gradually have got the principles of consents into several clauses. It had been complained that the Act was not a small Act. It must be remembered, however, that this was not only the Act of 1855, it was a considerable portion of the Act of 1862, the Act of 1878, and the Act of 1882 all rolled into one, besides very many things which were not the subject of enactment before; so that it was not quite fair to compare the new Act with the original Building Act. It was a consolidation Act, consolidating an immense number of other Acts, and he was sure that everyone would find it a matter of great convenience to have them all in one Act. He was afraid he was not a sufficiently technical expert to quite understand Mr. Collins's difficulty as to what a party structure was. He should say that if a building were separated horizontally by a party structure, amongst other things by iron and concrete floors, if Mr. Collins made openings in

those floors, he should say that they then ceased to be separated by party structures; therefore they would not be party structures. With regard to the size of flues, it had not been thought necessary to define that; they thought that architects ought to have views of their own on the matter. The circular that he referred to would also help Mr. Collins in his difficulty as to whether a scullery or a pantry was a habitable room; he would find there that in the opinion of the County Council they were not. One of the questions raised by Mr. Collins was about a habitable room in the basement being ventilated in front. He did not think there was so much in his difficulty as at first appeared, because it was quite exceptional for a house that had a basement at all to be so shallow as not to have rooms both front and back. If those rooms were inhabited—and for the definition of "inhabited" he would refer Mr. Collins to section 5 of the Act—he would see that, whatever ventilation they might give to a habitable room in the front of a building, that would not provide for the proper ventilation of the habitable basement at the rear of the building. With regard to Mr. Collins's difficulty about the area, it was true that they might make that area very narrow indeed, though he did not think they would do so. Mr. Collins seemed to think that it was an objection that they might make the area 300 feet long; but if the area was constructed for the purpose of light and air, surely if it were 300 feet long, it would let in more light and air than if it were 10 feet! Mr. Collins had set up a diagram to show the difference between a street in front and a mews in the rear. He (Dr. Longstaff) thought that very unfair, because Mr. Collins knew that that clause had been drafted by two Fellows of the Royal Institute of British Architects; they had drafted that clause, and he believed they understood it. Mr. Collins had better ask them what it meant. As regarded the question of crescents, that had been alluded to by two speakers—and there, again, there was a slight confusion. The Act did not read that every street *should* communicate at both ends; but the Act said that no street should be made until it had been sanctioned by the County Council, and the County Council *might* object to that street upon certain grounds, one of those grounds being that it did not communicate at each end. Therefore, they had perfect power left to themselves without relaxing any rule at all; it was only a question whether they would insist upon that condition or not; it was not imperative upon them; it was merely permissive. The question would be whether the proposal was a reasonable and proper one or not; and upon those principles, and those only, it would be decided.

Mr. C. STANLEY PEACH [*F.*] thought that the discussion had shown at least one thing—namely, that there were certain points of difference which might arise in connection with the Act.

He hoped that a suggestion might be made that a record of some kind should be kept, from the commencement of the Act, of the various cases that arose—something in the form of easy reference by members of the Institute. They had now not only Courts of Justice, but the Tribunal of Appeal, and arbitration, and other ways in which building cases would be heard. Taking them all round, they were a hard-worked profession, and had not much time to study legal points. If some arrangement of the kind could be made in the Institute, he thought it would be a very great thing for the profession at large. With regard to the centre of roads, that was a point which had caused him some trouble in studying the Bill, particularly as he had a case which might come on under the new Act, in which that question of the centre of roads would be involved. It was a street which was formed after the 22nd July 1878, which he thought was the date, and before the 22nd August 1890. Its centre, so far as he knew, had never been defined, and he must say that when he read the definition as to the centre of a roadway it seemed to him that there would be some difficulty in defining it. Perhaps Dr. Longstaff would kindly enlighten them on the matter.

Dr. LONGSTAFF was afraid he could not answer the question, because those words about July 1878 were introduced by some of the opponents, and were assented to, he thought very unwisely, by the County Council, and the whole clause had become very ambiguous in consequence. He could see no reason, from the point of view of the opponents themselves, why those words should have been inserted; but they seemed to think them necessary because they were in the previous Act.

Mr. CHARLES FOWLER [F.] proposed a vote of thanks to Professor Banister Fletcher for bringing the subject before them, and said that, having had an opportunity of watching the progress of the Bill through Committee from day to day, he had seen how many of its provisions were there elaborated, and how much they differed from what they originally were. In his opinion, the original draft Bill was utterly and entirely impracticable, and the Act as passed would still tax very considerably the efforts and abilities of those who had to carry it out; but it certainly was a great improvement on the original. If he had been asked to define the difference between the new Act and the expiring Act, he should have said in a few words that the old Act was drafted by a practical man or practical men; and that the new Act was drafted by very able men, doubtless, who had many very good ideas, but not structural ideas, and that they were not perhaps, therefore, quite the men to draft a Building Act, which essentially must be a practical Act and appeal to practical men. If they looked at the diagram in the Paper, which was a section of a supposed house, he thought that would bear out what he had said. Anything more impracticable than

that construction he had never seen in his life, and he thought it would be found very difficult to carry it out. To carry out a building with such a section as that would result in there being practically no back wall to the house at all. With regard to the increased cost which would result in adopting a great many of the rules of the Act, that did not weigh so much upon the classes who were fairly well off, the middle classes; but it did weigh considerably upon those who were not so well off, down to the working-classes. Every shilling a week added to the rent of the working-classes, small shopkeepers, or whoever it might be, was a very serious objection; and the increased cost of the additional height which was given to rooms by the Act appeared to him on that ground objectionable. Most practical men would say that 8 feet was an abundant height for any ordinary rooms of that class.

Mr. THOMAS BLASHILL [F.] seconded the vote of thanks, and said it was not his business to defend the Act or to explain it. It was his business to assist in the administration of it, and there he might almost draw the line. There were two or three things which, perhaps, he might usefully mention. A definition of a building was tried in previous Acts, but nobody ever succeeded in obtaining one. They tried for a definition in this Act, and he thought it was when he was giving evidence that one learned counsel said it would be met by three walking-sticks stuck in the ground and a hat stuck on the top. The only answer that he could give was that he thought the common sense of the magistrate would save them from a building of that class, and the Committee, taking the hint rather more literally than he intended, struck out the definition altogether, and left the whole thing to the magistrate's common sense. It might be useful to mention a matter which had not been touched upon—namely, the power of the Council in certain cases to increase the cubical contents of a warehouse building upon the recommendation of the Superintending Architect and the Chief Officer of the Fire Brigade. It was no use bringing to the County Council cases where they wanted to stuff a building with inflammable materials, and it was found convenient to have the building as large as possible. That was not the intention of the Act at all. It was only in an exceedingly rare class of cases that a business could not be carried on in a smaller building, and where anything was inflammable there was not the least intention on the part of the Superintending Architect, or the Chief of the Fire Brigade, to yield to that kind of thing. No speaker at that Meeting, however much he might have abused the idea of a diagonal line, had suggested anything else. It was a matter of curiosity now for some years, and could not be anything more; but he should like to know what better idea anyone could bring forward. What Professor Banister Fletcher had

shown in his diagram was not a new notion. He supposed they had all built houses with backs like that, and when they found it convenient they would do it again; but they would not do it more now than they did before. With regard to sash frames it might be useful to a good many friends, who he had no doubt on the 1st of January would begin to put sash frames close to the surface of the wall, to tell them that the reason given to him, and which he believed was the right reason, for the provision now in force for setting back $4\frac{1}{2}$ inches was, that when they were set in front of the wall it was found that if a building took fire the sash frames took fire too and fell out on the heads of persons passing near at the time. Now that sash frames were not put with a $4\frac{1}{2}$ -inch reveal, it would require some special fixing to prevent that kind of thing. He had been in a good deal of anxiety about the Tribunal that was to sit upon him and other people, but now that the three gentlemen were appointed he was free to say that he was very much satisfied (if he was entitled to an opinion) that three practical gentlemen—not barristers, but three gentlemen thoroughly acquainted with surveying and sufficiently acquainted with architecture—had been appointed. And he said “thoroughly acquainted” with surveying, because criticism had been levelled at that quality in the members of the Tribunal. It happened that he (Mr. Blashill) was really the person who suggested the nomination to be made by the Institute and by the Institution of Surveyors, Lord Herschell at the Royal Commission having asked him to do so. He was not quite sure that if he had not been a Member of the Council of the Institute he should have mentioned the Institute. What was wanted was not an accomplished architect, but a man with a thorough knowledge of surveying, able to deal with those things with which the Tribunal would have to deal. Everything that the Tribunal did would be registered: that he thought would answer a question that had been put. With regard to a crescent, there was no real difficulty; the idea of its prohibition was founded on this, that there was a bad habit on the part of the owners of small fields to make what he called a little hamlet of their own. That was, he thought, to a large extent done away with by the Act. As regarded party floors, when a building was put on the top of another it was decidedly intended that they should not be united, and therefore there was no provision for uniting them. As to the centre of a street, he was afraid he should have to take the trouble off the minds of certain gentlemen present by defining it himself. He did a good many difficult things, and he supposed he should have to tackle that.

PROFESSOR BANISTER FLETCHER [F.], in responding to the vote of thanks, said that the suggestion of Professor Roger Smith read very much in the lines that he had suggested. By the way in which they got rid of the factory

chimney, so might they get rid of those other points by formulating them, and he trusted it would not take so long as Dr. Longstaff imagined. With regard to the size of flues to which Mr. Collins had alluded, he thought it was very wise not to have put that in the Act; and he did not think they should long continue to have the $9'' \times 14''$. They were now using $6'' \times 6''$ circular pottery flues, and therefore the County Council were probably wise in omitting all mention of size of flues. Mr. Slater had misunderstood him about the crescent roads. At present, circular roads could be carried through into an estate and brought back into the same street. There was no donation of land to the public; no crescent such as he was thinking of, with a double garden in front; but a method of laying out the estate with a square block in front and narrow frontage upon the roadways. Those were the roads undoubtedly that the new Act did not permit, so far as he read it. With regard to the “communication,” that was a difficulty which would have to be met. One point he would like to mention with regard to section 212. He would suggest to the County Council for their consideration that the words of the Act were as distinct as possible. There were, as Dr. Longstaff had said, two portions of the section. The first undoubtedly dealt with the commencement of the building, and it might be that a “hole,” although the foundation of a building, would not be quite sufficient, and that probably a person would be wise in getting three bricks put in, in order to make it tolerably perfect. But the second part was a very important part of the Act, and it did not say a contract for building. He was afraid it would require some very careful thought. The words were “any contract entered into before the passing of the Act”; and he thought it had a wider interpretation than a single contract with the builder. It might possibly do great injustice if it were interpreted in a smaller sense. He only suggested, for the consideration of the County Council, that they would give it a large view, as he was sure they would; otherwise, probably some great injustice might be done to those who had taken building contracts on large estates which could not be covered. He knew that in one particular instance the houses could not be pulled down for two years, and all the streets were laid out in that contract though the buildings could not be commenced; and if that contract with the freeholder required variation then the lessee would be very much injured. They had been dealing very much with the diagonal line; but he could assure the London County Council that they would not only act on the square, but would do their very best to make the Act a workable Act. They had felt so much interest in the County Council from the way the Institute had been met in the matter, that he was confident that every effort would be made to make the Act work well and thoroughly.



9, CONDUIT STREET, LONDON, W., 20th Dec. 1894.

CHRONICLE.

THE EXAMINATION FOR CANDIDATURE AS ASSOCIATE R.I.B.A.

The President announced at the General Meeting of last Monday that 180 persons, of whom 57 were relegated from previous occasions, had applied for admission to the Examination qualifying for candidature as Associate, held from the 26th ult. to the 5th inst.; and that 158 of these had been admitted and were examined. The Examination was conducted simultaneously in London, Glasgow, Manchester, and Bristol, with the following results:—

	London	Glasgow	Manchester	Bristol	Total
Passed	52	2	8	2	64
Relegated in part	73	1	7	5	86
Relegated in all	3	0	1	0	4
Not passed	3	0	1	0	4
	131	3	17	7	158

The names and addresses of the sixty-four passed candidates are as follow:—

ADAMS: Percy Henry; 65, Leadenhall Street, E.C.
 ARMSTRONG: Geoffrey Prater; Parrock, Mount Nod Road, Streatham Hill, S.W.
 BAILEY: Harold; East Stoke Vicarage, Newark [*Probationer* 1890; *Student* 1892].
 BARLOW: Luke; Hanover Chambers, King Street, Manchester.
 BATEMAN: Charles Edward; 81a, Edmund Street, Birmingham.
 BEALE: Sydney Benjamin; 3, Princes Street, Westminster, S.W.
 BOND: Frederick Bligh; Liverpool Chambers, Corn Street, Bristol.
 BORROWMAN: John, jun.; Hambledon, near Godalming.
 BUDDEN: Harry Ebenezer (Sydney, N.S.W.); c/o E. O. Sachs, Esq., 11, Waterloo Place, S.W.
 CARNELL: John Laurie; 22, Hill House Road, Thorpe Hamlet, Norwich.
 CHAPMAN: Henry Ascough; 42, Florence Road, Stroud Green, N. [*Probationer* 1890; *Student* 1894].
 CHURCH: Harold Edmund; 15, Upper Bedford Place, Russell Square, W.C. [*Probationer* 1892; *Student* 1892].
 CLARK: John Pain; 40, Baron's Court Road, West Kensington, W. [*Probationer* 1889; *Student* 1892].
 COOPER: Frank Berridge; 88, New Walk, Leicester [*Probationer* 1889; *Student* 1890].
 COSTER: George; Vale Cottage, Surrey Road, Bournemouth.
 COTTON: Percy Paovich; 33, Agate Road, The Grove, Hammersmith, W. [*Probationer* 1889; *Student* 1892].

CROMPTON: William Edward Vernon; Moot Hall Chambers, Wallgate, Wigan [*Probationer* 1891; *Student* 1892]. THE ASPHTEL PRIZEMAN.
 CUMMINS: Ernest Outram; 1, Nevern Mansions, Nevern Square, S.W. [*Probationer* 1891].
 DEWHURST: John Cadwallader; 11, University Street, Belfast.
 DICKIE: Archibald Campbell; 32, Gibson Square, Islington, N. [*Probationer* 1893].
 DOTTRIDGE: Samuel Stevens; Tregarthen, Burnt Ash Hill, Lee, S.E. [*Probationer* 1892; *Student* 1893].
 DUNKERLEY: Frank Brookhouse; Hurst Dale, Bowden, Cheshire [*Probationer* 1889; *Student* 1892].
 EDWARDS: Frederick Ernest Pearce; 93, Mulgrave Street, Prince's Park, Liverpool.
 ELKINS: Hyla Edward; 35, Cantlowes Road, Camden Square, N.W.
 ERRINGTON: Charles Septimus; 15, Crown Street, Elswick Road, Newcastle-on-Tyne.
 FIELD: Alfred Whiteleok; Wilton House, Chepstow Rise, Croydon.
 FLETCHER: Herbert Phillips; 29, New Bridge Street, Blackfriars, E.C.
 FORSYTH: William Adam; 51, Goldhurst Terrace West, South Hampstead, N.W.
 GAULD: William Edgar; 33, Hamilton Place, Aberdeen.
 GUNN: George; 51, Sandgate, Ayr, N.B.
 HAWKE: William; Woodbury Cottage, Thornton Heath, Surrey.
 HAZELL: Wilberforce Ernest; 15, Russell Square, W.C. [*Probationer* 1889].
 HENNELL: Alexander Robert; Oakwood, Mayow Road, Forest Hill, S.E. [*Probationer* 1890; *Student* 1892].
 HOBBS: Frederick Bric; Tower Lea, Waterloo, near Liverpool.
 HORN: Robert William; 201, Kent Road, Glasgow.
 HUBBARD: George; 23, Finsbury Circus, E.C.
 IRVINE: George Gilbert; 27, Emperor's Gate, S.W.
 JAGGARD: Walter Robert; 51, Westbourne Park Road, W.
 JOASS: John James; 118, Mallinson Road, Wandsworth Common, S.W.
 KING: Vivian Herbert; 13, Eton Road, N.W.
 KIRBY: Henry Ernest; St. James's Palace, S.W. [*Probationer* 1889; *Student* 1891].
 LEGG: Herbert Alfred; Christ's Hospital, E.C.
 LIVESAY: George Augustus Bligh; Salisbury Chambers, Boscombe, Bournemouth.
 MACALISTER: Alexander Paul; 1, Silver Street, Cambridge [*Probationer* 1889; *Student* 1891].
 MCKEWAN: Arthur Ernest; Grosvenor Avenue, Hall Road, Handsworth, Birmingham [*Probationer* 1890; *Student* 1891].
 MILLS: Alfred Henry; Springfield, Clarendon Road, Sale, near Manchester.
 PALMER: Herbert Jeffrey; Huntingdon Lodge, New Malden, Surrey.
 PINN: Allan John; Rockfort, Polsloe Road, Exeter.
 POLE: Thomas Aloysius (Brisbane, Queensland); 2, Great Coram Street, Russell Square, W.C.
 POTTER: Francis John; Gardner House, Hampstead [*Probationer* 1890; *Student* 1891].
 POTTER: Henry Ingle; Beechcroft, Guildford.
 PRICE: John Henry; 29, Balmoral Road, Fairfield, Liverpool.
 PYE: Harry Wilson; 5, Corona Road, Lee, S.E. [*Probationer* 1889; *Student* 1891].
 REIND: Thomas Duncan; 9, Manor Terrace, Highbury, N.
 SCORER: George Oakley; Abercorn Lodge, Upper Hamilton Terrace, N.W. [*Probationer* 1892; *Student* 1893].
 SHERIDAN: George Patrick (Dublin); 39, Guilford Street, Russell Square, W.C.
 SMITH: Charles Henry; 5, Elliscombe Villas, Elliscombe Road, Old Charlton, Kent.

- SPAIN : Joseph ; 159, Roker Avenue, Sunderland [*Probationer* 1889 ; *Student* 1891].
 SPENCER : Harry Tom Boden ; The Laurels, Bloomfield Road, Highgate, N. [*Probationer* 1889].
 STEPHENSON : James Greenwood ; 21, Hamilton Gardens, St. John's Wood, N.W.
 TAYLER : Arnold Seaward ; 151, Brixton Road, S.W.
 WALKER : Hubert William ; 44, Derwent Grove, East Dulwich, S.E.
 WESTON : Thomas Harry ; Hampton Park, Bristol [*Probationer* 1889].
 WISE : Henry James ; 79, Mansfield Road, Gospel Oak, N.W. [*Probationer* 1892].

Of the remaining ninety-four applicants who were examined, four have been relegated to their studies in all subjects, eighty-six in one or more subjects, and four have not passed. The number respectively of applicants relegated in the several subjects is here given:—

	London	Glasgow	Manchester	Bristol	Totals
I. History	23	—	3	2	28
II. Mouldings, &c.	59	—	5	2	66
III. Sanitary Science	30	—	3	1	34
IV. Strength of Materials, &c.	17	—	2	2	21
V. Plans, Elevation, &c.	59	1	7	4	71
VI. Materials	8	—	3	1	12
VII. Construction, &c.	19	—	2	—	21
VIII. Specifications, &c.	38	—	8	4	50
IX. Prof. Practice	9	—	4	—	13

Cordial votes of thanks have been recorded to the Glasgow Institute, the Manchester Society, and the Bristol Society for conducting the recent Examinations in their respective localities.

A vote of thanks has been also passed by the Council to the Chairman of the Board of Examiners, Mr. Arthur Cates, and to his colleagues for their unprecedented labours in connection with this the last of the Qualifying Examinations conducted under the Regulations of 1882.

The Examination of the Metropolitan applicants was held in the rooms of the Examination Hall, Victoria Embankment.

The Ashpitol Prize, 1894.

The President also announced on Monday that the Board of Examiners had reported to the Council that Mr. W. E. V. Crompton, of Wigan [*Probationer* 1891, *Student* 1892], had most highly distinguished himself in the Qualifying Examinations held in the course of the current year, and that he deserved the Ashpitol Prize. The Council had consequently awarded the Prize to Mr. Crompton. He is thereby placed at the head of ninety-six gentlemen who in the spring and autumn of 1894 passed, out of a total of 251 examined in London, Glasgow, Manchester, and Bristol respectively.

THE PRELIMINARY EXAMINATION.

The President further announced to the General Meeting of Monday that out of 119 applicants for admission to the Preliminary Examination held

on the 13th and 14th ult., 103 passed, and had been registered as Probationers of the Institute, sixty having been exempted from submitting themselves for examination. The total number examined in London was thirty-eight, of whom twenty-nine passed; in Manchester eleven, of whom nine passed; and in Bristol six, of whom five passed—making forty-three in all. Eight of the forty-three had been relegated from previous examinations. The names and addresses, with other particulars, of the 103 newly registered Probationers, given in alphabetical order, here follow:—

- ADSHEAD : Charles Thomas ; 5, Poplar Grove, Stepping Hill, Stockport [*Masters*: Messrs. Woodhouse* & Willoughby*].
 ALDWINKLE : Thomas Wilson ; "Saratoga," Dacres Road, Forest Hill, S.E. [*Master*: Mr. T. W. Aldwinckle*].
 ANDERSON : Henry Lennox ; 6, Stratton Street, Piccadilly, W. [*Master*: Mr. J. Macvicar Anderson*].
 ATKINS : Percy John ; Clifton Villa, Ford Street, Coventry [*Master*: Mr. J. A. Chatwin*].
 AYRTON : Ormrod Maxwell ; Abbots Rock, Chester [*Master*: Mr. H. Beswick].
 BAINES : John Cecil ; 31, Upper Tichborne Street, Leicester [*Masters*: Messrs. Draper & Walter].
 BAIRD : James ; Clyde Villa, Prestwick, Ayrshire [*Master*: Mr. J. Murdoch].
 BEE : Thomas James ; East Finchley, N. [*Masters*: Messrs. Gordon,* Lowther* & Gunton].
 BOND : Alexander Godolphin, B.A.Oxon.; Liverpool Chambers, Corn Street, Bristol [*Master*: Mr. F. Bligh Bond].
 BRYDEN : Andrew Francis Stewart ; 15, Dalhousie Street, Garnethill, Glasgow [*Masters*: Messrs. Clarke & Bell].
 CLIFT : John George Neilson ; "Lansdowne," Thurleigh Road, Balham, S.W. [King's College School, London].
 CONROY : Denis ; 8, Mountpelier Hill, Dublin.
 COULSON : John Thomas ; 37, Gladstone Road, Scarborough [*Master*: Mr. Edeson].
 COUNCELL : Cecil Wesley ; 21, Parliament Street, Westminster, S.W. [*Master*: Mr. W. Church Howgate*].
 COWIE : Alexander ; 109, Leslie Terrace, Aberdeen [*Masters*: Messrs. Matthews & Mackenzie].
 COX : Arthur Stanley ; Sonning, near Reading, Berks [*Master*: Mr. W. G. Millar].
 COX : John Ramsay ; 8, Royal Crescent, Cheltenham [*Master*: Mr. S. J. Wilde].
 DAWSON : Charles Ford ; Queen's Road, Barking [*Master*: Mr. C. J. Dawson*].
 DEACON : Basil Charlton ; 53, Dacre Hill, Rock Ferry, Cheshire [Wirral College, Rock Ferry].
 DEACON ; Wilfrid Thor ; 53, Dacre Hill, Rock Ferry, Cheshire [*Master*: Mr. C. E. Deacon*].
 DOBSON : Walter Ernest ; Gothic House, Chislett Road, West Hampstead N.W. [*Masters*: Messrs. Ernest George* & Peto].
 DYKES : George ; Birchwood, Holmhead Road, Cathcart, Glasgow [*Master*: Mr. T. L. Watson*].
 EDDISON : Robert Edwin ; 70, Kirkdale, Sydenham, S.E. [*Master*: Mr. A. E. Habershon*].
 ELLIS : Henry Alexander Radclyffe ; Dilston, Selly Oak, Birmingham [*Master*: Mr. E. Radclyffe].
 EMBLING : Jacques Levy ; "Glen Brae," College Road, Reading [*Master*: Mr. W. G. Millar].
 FALKNER : Harold ; 24, West Street, Farnham, Surrey [Farnham Grammar School].
 FARQUHARSON : Horace Cowley Nicham ; 28, Leyland Road, Lee, S.E. [*Masters*: Messrs. Gibson* & Russell*].
 FLEMING : Frank Leonard Hodgson ; 2, Mecklenburgh Street, W.C. [*Masters*: Messrs. Beazley* & Burrows*].

- FORD: Harry Wharton; 49, Fellows Road, South Hampstead, N.W. [*Master*: F. W. Hunt*].
- FRANCE: James Harold; "Ingleside," Talbot Road, Old Trafford, Manchester [*Master*: Mr. Henry R. Price].
- GARDNER: Alexander McInnes; 7, Stonebyres Terrace, Partick, Glasgow [*Master*: Mr. A. L. Miller].
- GARDNER: John; "Holmwood," Ashton-on-Ribble, Preston, Lancashire [*Masters*: Messrs. Longworth & Gardner].
- GOODACRE: John Frank Johnson; 10, Newtown Street, Southfields, Leicester [*Masters*: Messrs. R. J. Goodacre* & J. Goodacre*].
- GORDON: Henry Percy; "Inglewood," 21, Highbury Quadrant, N. [*Masters*: Messrs. Gordon,* Lowther* & Gunton].
- GOSLING: George Bruce, B.A. Oxon.; 34, Lennox Gardens, S.W. [*Masters*: Messrs. Ernest George* & Peto].
- GUEST: Harry Beauchamp; 265, Soho Road, Handsworth, Birmingham [*Master*: Mr. W. H. Bidlake,* M.A.].
- HALL: Edwin Lawrence; Oakfield Villa, Goldsworth, Woking, Surrey [Gunnery College & Clifton House, Eastbourne].
- HARRIS: Kenneth John Sidney; Municipal Buildings, Great Yarmouth [*Master*: Mr. J. W. Cockrill*].
- HARRISON: Frederick; Chater's Haugh, Stockton Road, West Hartlepool [*Master*: Mr. J. Garry].
- HAWKINS: Percival William; "Fernbank," Bromley Common, Bromley, Kent [*Master*: Mr. Percy B. Strudwick].
- HEMSOLL: Leonard Dewsnap; 65, Marlbro' Road, Broomhill, Sheffield [*Masters*: Messrs. Hemsoll & Paterson*].
- HIERN: William Stanley; 36, Corn Street, Bristol [*Master*: Mr. F. Bligh Stan].
- HIGENBOTTAM: William; 117, Elizabeth Street, Chorlton, Manchester [*Master*: Mr. J. Gibbons Sankey, M.A.].
- HOLMES: George William; 5, Aylsham Road, Norwich [*Master*: Mr. A. J. Laezy].
- HOLMES: John Bradley; 79, Warrington Crescent, Maida Vale, W. [*Master*: Mr. F. Wheeler*].
- HOPWOOD: Philip Thomas; 25, Wighton Road, South Penge Park, Anerly, S.E. [*Master*: Mr. J. W. Rhodes].
- HUSBANDS: Alexander Mitchell; 209, Oxford Street, W. [*Master*: Mr. T. Durrah*].
- HUTTON: George; Od Blundells, Tiverton, Devon [Blundell's School, Tiverton].
- JONES: Alan Trevorton; Tredeath, Newport, Mon. [University College, Bristol].
- KENDALL: George Ernest; Humberstone, near Leicester [*Masters*: Messrs. R. J. Goodacre* & J. Goodacre*].
- KIDNER: Percy Crosbie; Blundell's School, North Cose, Tiverton, Devon [Blundell's School, Tiverton].
- KIRBY: Frank Moore; Farm House, Galley Hill, Greenhithe, Kent [*Master*: Mr. J. T. Walford].
- LAWRENCE: Edwin Cecil; Fern Bank, St. Saviour's Road, Leicester [*Master*: Mr. W. Morton-Cowdell].
- LEA: Henry Charles; 6, Swinton Street, Gray's Inn Road, W.C. [*Master*: Mr. E. W. Jemings*].
- LEWIS: Lewis; 2, Bryn Derwen Road, Maindee, Newport, Mon. [*Master*: Mr. W. L. Griffiths].
- LINTON: Edward Maples; 3, Abbey Street, Chester [*Masters*: Messrs. T. M. Lockwood* & Sons].
- LOCOCK: Arthur Herbert; 26, Courtfield Gardens, S.W. [Clifton College].
- MACKENZIE: Alexander George Robertson; 267, Union Street, Aberdeen [*Masters*: Messrs. Matthews & Mackenzie].
- MARRIOTT: Charles Digby; Hope House, Knaphill, Woking [*Master*: Mr. J. C. Hukins].
- MATHER: James; 26, Hopetoun Place, Glasgow [*Masters*: Messrs. Macwhannell & Rogerson*].
- MOGER: Horace; Wansdyke, Claverton Down, Bath [*Master*: Mr. W. J. Willcox].
- MOTTRAM: Harold Henry; 10, Gorton Road, Reddish, nr. Manchester [*Masters*: Messrs. Woodhouse* & Willoughby*].
- MOULD: Stuart Mill; 36, Salter's Road, Gosforth, Newcastle-upon-Tyne [*Masters*: Messrs. Badenoch & Bruce].
- MURRAY: Thomas Henry; The Villa, Consett, co. Durham [*Master*: Mr. J. T. Caekett*].
- NOTLEY: Robert Valentine; Anlaby Lodge, Upper Clapton, N.E. [*Master*: Mr. R. P. Notley*].
- OLIVERI: Felix (Gibraltar); 54, Gloucester Crescent, Regent's Park, N.W. [*Master*: Mr. J. T. Hanson*].
- OWEN: Reginald Wynn; Rock House, Menai Bridge, Anglesey [*Master*: Mr. P. S. Gregory].
- PHILLIPS: John Henry Arthur; Hatherley House, Kew Gardens [*Masters*: Messrs. Hesketh* & Stokes*].
- PINCHARD: Charles Henry Biddulph; Colquill Villa, Mannamead, Plymouth [*Masters*: Messrs. King & Lister].
- PRATT: John Henry Lowe; Grove Lane, Cheadle Hulme, Stockport, near Manchester [*Master*: Mr. J. Gibbons Sankey, M.A.].
- PRICE: Francis Eyan; 7, Richmond Park Road, Clifton, Bristol [*Master*: Mr. W. L. Bernard*].
- PRYKE: Louis Edward; 18, Grenville Place, Brighton [*Masters*: Messrs. Nunn & Hunt].
- PULLAR: Edgar John; 96, Tulse Hill, S.W. [*Master*: Mr. C. J. C. Pawley].
- RICHARDS: Norman Phelps; Northbourne, Putney Lower Common, Putney, S.W. [*Master*: Mr. W. A. Large].
- RICKLITS: Albert Bryan; 14, All Saints Road, Clifton, Bristol [*Master*: Mr. W. L. Bernard*].
- RIDDE: Charles; 170, Midland Road, Wellingborough [*Masters*: Messrs. Talbot Brown* & Fisher].
- RIDSDALE: Cyril Alfred; Hatherley House, Kew Gardens [*Master*: Mr. E. R. Hewitt*].
- ROBERTS: Arthur Leonard; Oakfield House, Syston, Leicestershire [*Masters*: Messrs. Roberts & Simpson].
- ROUSE: Edward Henry; 43, Hawksley Road, Stoke Newington, N. [*Master*: Mr. Rychner, Neuchâtel].
- ROWLANDSON: Edward; 174, Haverstock Hill, Hampstead, N.W. [South-Eastern College, Ramsgate].
- RUPPLE: Alan Wilfrid; Boroughbury, Peterborough [*Master*: Mr. J. Ruddle].
- SCATCHARD: Robert Edward; Longfield, Boston Spa, Yorks. [*Master*: Mr. G. W. Atkinson].
- SMALE: Horace Albert; 21, Runsey Road, Brixton, S.W. [*Master*: Mr. W. T. Farthing].
- SPALPING: Reginald Henry; 8 Ellerdale Road, Hampstead, N.W. [University College School, London].
- STEPHENS: Samuel Cooper; Richmond Villa, Nursery Road, Aston, Birmingham [*Master*: Mr. J. G. Dunn*].
- STURDEE: Edwin Stanley; 19, Highbury Place, Highbury, N. [*Masters*: Messrs. Cole & Mansergh].
- SWEENEY: Albert; 48, Carlisle Place, Manningham, Bradford [*Masters*: Messrs. H. & E. Marten].
- TASKER: Andrew Kerr; Dunblane House, Preston, North Shields [*Master*: Mr. W. Hope].
- TACHELL: Sydney Joseph; 15, Abbey Gardens, St. John's Wood, N.W. [*Master*: Mr. T. H. Watson*].
- TENCH: Edwin James; 62, Prince of Wales' Road, Norwich [*Masters*: Messrs. E. Boardman & Sons].
- TERRILL: William Hubert Archibald; 42, St. George's Terrace, Swansea [*Master*: Mr. T. P. Martin].
- THEAKSTON: Ernest George; Winton Villa, 4, Hilldrop Road, Camden Road, N. [Grove House School, Highgate].
- THOMAS: Christopher Boswood; 57, Brunswick Street, Swansea, S. Wales [*Master*: Mr. E. Bath].
- THOMPSON: Charles Clayton; Horsley Vicarage, near Derby [*Masters*: Messrs. Middleton, Prothero & Phillott].
- TURNER: Philip John; 4, Palmerston Road, Ipswich [*Master*: Mr. J. S. Corder].

- VERSTAGE: Arthur Halcerow; Park Villa, Meadow, Godalming [Master: Mr. C. Forster Hayward*].
 WALKER: James Frederick; 14, Calthorpe Road, Banbury [Master: Mr. W. E. Mills*].
 WARD: Frank; 2, Claremont Terrace, Bradford [Masters Messrs. Isitt & Adkin].
 WARMAN: Percy John; 1, Alwyne Road, N. [Masters: Merchant Taylors' School].
 WILLOUGHBY: Horace Paul; 21, Parliament Street, Westminster, S.W. [Master: Mr. W. Church Howgate*].
 WINDER: Lionel Braithwaite; The Villas, Bramhall, near Stockport, Cheshire [Masters: Messrs. Henry Littler & Son].
 WOOD: Edward Charles; Howard House, Maidstone [Masters: Messrs. Ruck & Smith*].
 YOUNG: Frederick Charles; Castle Hill House, Maidenhead [Masters: Messrs. Geo. Elkington* & Son*].

The asterisk * denotes members of the Institute.

Of the remaining sixteen, four were not admitted or did not attend, ten have been relegated to their studies in one or more subjects, and two have not passed, as the following summary shows:—

	London	Manchester	Bristol	Total
Passed	29	9	5	43
Relegated in part	8	2	—	10
Not passed	1	—	1	2
	38	11	6	55

The Examination of the Metropolitan applicants was held in the rooms of the Polytechnic Institution, Langham Place.

The Tribunal of Appeal.

The London Building Act 1834, Sections 175, 186.

The Secretary of State for the Home Department has appointed Mr. D. Cubitt Nichols one of the three members of the Tribunal of Appeal constituted under Section 175 of the London Building Act, which comes into force on the 1st prox. The Council of the Royal Institute of British Architects have appointed Mr. Arthur Cates [F.], and the Council of the Surveyors' Institution Mr. T. Chatfield Clarke [F.]. The Home Secretary, pursuant to the provisions of section 179, has fixed the remuneration of each member by way of fees, and according to a scale to be in force for one year only. The sections of the new Act relating to the "Tribunal of Appeal" are printed, for the convenience of readers, at page 135.

Technical Education in London.

Under the title of *The London Technical Education Gazette* has been started the official organ of the Technical Education Board of the London County Council. The *Gazette*, though mainly addressed to the teachers and managers of London educational institutions and to those seeking technical instruction for themselves or their children, will be welcome to all interested in the great work undertaken by the County Council; and the first two numbers will be read with

something of astonishment by those who have not followed attentively the proceedings of the Technical Education Board. The first number contains the General Regulations and Conditions applicable to grants by the Board to evening classes in Science and Technology, and to Schools of Art or Evening Art classes held in connection with educational institutions not conducted for private profit. A School of Art, in order to be recognised by the Board as such, must either comply with the conditions of the Science and Art Department, or satisfy the Board that it provides at least equal facilities for the systematic study of Art. Design must be taught as part of the regular school course, together with Modelling, and the application of Design to at least one manufacturing process, as wood-carving, repoussé metal-work, wrought ironwork, and the like.

To give an example of the liberality of the grants, the Board may vote, in addition to a special attendance grant and a grant for evening classes, a sum of £100 per annum towards the general funds of any approved technical Art School carrying on day classes. In evening Art classes approved by the Board, to earn a grant of 6d. per hour for each student, the teaching of Advanced Design (including Architectural Design), Architectural Drawing from measurement, and the Principles and History of Ornament must be conducted by means of lectures of one hour's duration (at least one per week), followed by practising classes. For the instruction necessary to enable students to work out their designs in wood-carving, metal-work, enamel or glass work, fresco, sgraffito, &c., the Board, under certain conditions, may make a grant of 9d. per hour for each student attending, together with a grant amounting to fifty per cent. of the net cost of the materials supplied free to the student, provided that the finished work remain the property of the school.

From a list of the principal evening classes now being assisted by grants from the Board, it appears that instruction is given in Building Construction, Architectural Drawing, and Quantity Surveying in no fewer than forty-four institutions in various parts of the metropolis.

If indication were further needed of the progressive tendencies of the Board, it is shown in the series of scholarships awarded, the aim of which, to quote the *Gazette*, "is to secure to the "most promising pupils of the poorer class an "education which will fit them for the practical "business of life." Five hundred Junior Scholarships a year are open to children under thirteen years of age who have passed Standard V. in elementary schools. The scholarships are tenable for two years, and include free education during that time, and a money payment of £8 the first year and £12 the second. The children of parents whose gross income exceeds £150 per

annum, or £3 per week, are debarred from competing. The prizes, however, are not all to the offspring of the artisan and labouring class. The struggling professional man, the lean-living parson, passing rich on £150 a year, who, with lingering caste prejudices, holds aloof from the Board School, and denies himself the ordinary necessities of life to provide the means for a middle-class education for his children—of such the Technical Education Board have taken count. Intermediate Scholarships, to the number of fifty per annum, are thrown open to children under sixteen, boys and girls alike, whose parents' income is less than £400 a year; the Board reserving the right to award one half of the scholarships to candidates the gross income of whose parents does not exceed £250 a year. The Intermediate Scholarships are tenable for four years, and include free education at schools approved by the Board, with a money payment of £20 the first year, £25 the second, £30 the third, and £35 the fourth. The educational ladder thus provided is completed by means of a limited number of Senior Scholarships of varying values.

The *London Technical Education Gazette* does not appear to have any fixed date of publication; the first number was issued on the 22nd October last, and the second on the 1st inst.

The Académie des Beaux-Arts (Institut de France).

L'Architecture, the Journal of the Central Society of French Architects, has a report from the *Secrétaire perpétuel* of the Academy of Fine Arts in Paris on the drawings of French students received from Rome, and known as the "Envois "de Rome," this current year. The Comte Delaborde says of these *pensionnaires* that many of their drawings possess, in the eyes of the Academy, the grave error of betraying a certain negligence of execution; of wanting, for instance, firmness and certainty in the indication of shadows, of rigorous precision in the drawing of forms; in a word, of presenting an aspect analogous to that of travelling sketches rather than of studies pursued to the end with a patient energy of will and an undeviating application. The "Envois "de Rome" referred to are drawings of the "état "actuel" of the Canopus at Hadrian's Villa, near Tivoli, by M. Sortais, who is in the fourth year of his sojourn abroad; drawings of the Arch of Trajan at Ancona and of other monuments in Italy, by M. Pontremoli, who is in his third year; drawings of details of the Forum of Trajan, the Temple of Mars, the Pantheon, and the Tomb of Cecilia Metella, and also of some Renaissance works, by M. Eustache, who is in his second year; and drawings of the Temple of Vesta at Rome, details of the Temple of Vesta at Tivoli, the Doric Order of the Theatre of Marcellus, &c., by M. Bertone, who is in his first year. This last student, however, has had the good taste to con-

form "aux saines traditions architectoniques," and much therefore may be expected of him.

The late Herbert A. K. Gribble [A.].

The following obituary notice of Mr. Gribble has been kindly supplied by Mr. Hugh Roumieu Gough [F.]:—

The death of Mr. Herbert Gribble, which took place on the evening of Saturday, the 8th inst., at his residence, 64, Redcliffe Road, South Kensington, after an illness extending over nearly three years, leaves a gap in our ranks which it will be hard to fill, for he was a man of very exceptional talent, a true artist who loved his work, and who put his heart and soul into it. The whole profession may well mourn the loss of such a man; but for those who, like the writer, enjoyed his personal acquaintance the sorrow is deeper, for he was very true and sincere in his friendships, ever sympathetic and warm-hearted, and a genial and delightful companion.

Mr. Gribble was born at Plymouth in 1847. At the age of sixteen he was articled to the late Mr. Alfred Norman, of Devonport, and whilst with him he took several medals at the Plymouth School of Art, besides winning two national medallions for Architecture and Decoration, the National Gold Medal for Gothic Architecture, and other medals from the Royal Cornwall Polytechnic and the Albert Hall Exhibitions. Another prize which he always highly valued was awarded to him for a very beautiful drawing of the north transept of Westminster Abbey, which appeared in *The Building News Sketch Book*. In his twentieth year he entered the office of the late Mr. Joseph Hansom, with whom he remained some ten years, after which he commenced practice for himself, and designed the laying out of the West Hoe Estate at Plymouth and reconstructed the Pier after its destruction by a gale. He competed for the Grant Memorial at New York, and for this took the second prize. In his native town he was the successful competitor for the Armada Memorial, besides being architect for several other works, notably a very picturesque group of artisans' dwellings and shops, extensive warehouses, showrooms and offices for Messrs. Goad, of the Millbay Marble Works, the Roman Catholic Church at Devonport, and additions to the convent at Plymouth.

His design for St. Philip's Church, Spanish Place, although not carried out, was a most masterly production. Amongst other of his works are the Roman Catholic Church at Sevenoaks, and of the Perpetual Adoration, London, N.W., an altar in St. George's Cathedral, Southwark, and the Church of the Holy Name at Poona, India.

His greatest work, however, is the Church of St. Philip Neri, better known as the Brompton Oratory; and this will always stand out pre-eminently

as his monument, and a more fitting one for a sincere and faithful son of the Church it would be hard to find. Every detail of this grand and costly building was drawn with loving care by his own hand, and it is much to be hoped that the completion of this noble church will be made in accordance with the designs he spent the last years of his life in preparing.

Mr. Gribble was elected Associate of the Institute in 1878, and took an active part in procuring voting powers for the Associates. He was also a member of the Architects' Registration Bill Committee, and a warm advocate of the measure.

As a fitting mark of esteem and respect for his great genius his body was, by special permission, taken to Brompton Oratory on Wednesday, the 12th inst., and on the following day, at 10.30 a.m., a Requiem Mass was sung with all the solemnity and dignity pertaining to the ritual of the Roman Communion. The burial took place afterwards at the beautiful little cemetery attached to the Church of St. Thomas à Becket at Fulham. The Requiem and burial were attended by many friends, and representatives of the Institute and of other societies.

"Requiem æternam dona ei, Domine; et lux perpetua luceat ei."

Mr. Benj. Priestley Shires [A.], in the course of his seventh and concluding Lecture on "Architectural History," delivered at the Plymouth School of Art on Thursday 13th inst., referred to the death of Mr. Gribble, whose work on the Plymouth Hoe—the Armada Memorial—would serve, he thought, to remind future generations of that architect's talents. His masterpiece, the Oratory at Brompton, would stand, Mr. Shires said, as a memorial to Mr. Gribble's genius and fame.

Additions to the Library.

Mr. Stanley Lane-Poole's *Cairo*, sketches of its history, monuments, and social life, has now to be added to the list of books on Egypt recently acknowledged in the JOURNAL. The author's extensive acquaintance with his subject and his vivid and natural method of dealing with it make his work of interest alike to the Egyptologist and to the general reader [London: J. S. Virtue & Co.].

The publisher of *The Builder* has forwarded *The "Builder Album" of Royal Academy Architecture for 1894*, being a collection of the reproductions of the architectural drawings, exhibited last season at Burlington House, which have been published in *The Builder*. The artistic quality of the reproductions enhances the value of this collection as a record of the year's exhibition at the Royal Academy. The same publisher has sent *The Cathedrals of England and Wales*, being a collection of views and plans which have appeared from time to time in *The Builder*, and which are known as "The Builder" Series. This large and handsome folio is an invaluable contribution

to architectural literature and draughtsmanship: it contains the first collection of plans to a large scale ever published of English cathedrals, many of which have, for the sake of accuracy, been specially measured for the work. Besides the illustrations, a special article is devoted to each cathedral.

Messrs. E. & F. N. Spon have forwarded Mr. W. H. Wood's *Practical Stair Building and Handrailing*, by the square section and falling-line system, designed for the help of those who wish to acquire a knowledge of the most practical and systematic methods adopted in the execution of stair building and handrailing. The book contains thirty-two plates. *Spon's Engineer's Diary and Year-Book for 1895* has also been received.

Professor Banister Fletcher's *The London Building Act 1894*, sufficiently defined on its title-page as a text-book for the use of architects, surveyors, builders, &c., has been presented. [London: B. T. Batsford.]

Mr. R. Langton Cole [A.] has presented *The British Almanac and Companion 1895* [London: The Stationers' Company], which contains a mass of useful information, with contributions by Mr. Cole on *Architecture* and also on *Engineering in 1893-94*.

Professor Baldwin Brown [H.A.] has presented his address on *The "Old Things" of Greece and Italy*, delivered at the commencement of the present winter session, in connection with a course of lectures on classical archæology, then for the first time recognised in the curriculum of arts in Edinburgh University. [Edinburgh: James Thin.]

The *Proceedings of the Philosophical Society of Glasgow 1893-94* (vol. xxv.) contains numerous Papers, among which the titles of the following may be found useful for reference: *On Architecture as an Art*, by Campbell Douglas [F.] (p. 15); *On the "Paristagan" System of Building with Concrete*, by John Dougan (p. 90); *The Glasgow Building Regulations Act (1892)*, by George W. Barras (p. 155); *On the Abbeys and Cathedrals of Scotland*, by P. MacGregor Chalmers (p. 192); and *Some Important Sanitary Problems*, by James Chalmers (p. 208).

Messrs. Chapman and Hall have presented a copy of the English translation, just published in two handsome volumes, of the *History of Art in Primitive Greece: Mycænic Art*, by MM. Perrot and Chipiez, an important work which, with other presentations, will be reviewed in a future issue of the JOURNAL.

Mr. J. W. Comyns Carr's account of *The Abbey Church of St. Alban's*, containing Mr. Ernest George's fine etchings, and etchings and vignettes by Mr. R. Kent Thomas [London: 1877] has also been added to the Library.

Mr. Robert Owen Allsop's contributions to *The Building News* on Public Baths and Washhouses have been collected, revised, and with additional

illustrations published in book-form. Mr. Allsop has treated his subject with three broad divisions in view: (1) the bath-house; (2) the wash-house; and (3) the engineering and water-fitting department. Palladio's *L'Antichità di Roma* [Oxford, 1719], Vasi's *Nuova Raccolta di cento principali vedute antiche e moderne dell' alma città di Roma e delle sue vicinanze* [Rome, 1796], a translation of the first book of Durandus' *Rationale Divinarum Officiorum*, under the title of *The Symbolism of Churches and Church Ornaments* [Leeds, 1843], have also been added to the Library, the last to the Lean Collection. A second-hand copy of Mr. Burdett's recent work on *Hospitals and Asylums of the World*, consisting of four volumes and a portfolio of plans, has been purchased at a reduced cost for the Reference Library.

REVIEWS XVIII.

(52.)

ANCIENT ROMAN MARBLES.

Handbook of Ancient Roman Marbles; or, A History and Description of all Ancient Columns and Surface Marbles still existing in Rome, with a List of the Buildings in which they are found. By the Rev. H. W. Pullen, M.A. F.R.S. Lond. 1894. Pp. c. 2s. [Mr. John Murray, Albemarle Street, London.]

Visitors to Rome will gladly welcome this small guide-book, owing to its cheapness and its convenient size for the pocket; the type is good, and what is a great gain as regards Mr. Murray's handbooks in general, the book is not padded and weighted with advertisements.

The churches, with a mention of the marbles they contain, are arranged alphabetically, which is very convenient. There is also a general index of the modern names of the marbles, which is, however, wanting in one of the ancient names. The author's introductory remarks as far as page 4 are very good; but when he says of the Romans that "after a conquest in time of war the columns brought home from foreign temples and theatres were esteemed among the choicest of their spoil," he makes a serious imputation, seeing that the Romans themselves were the first to work and use coloured marbles for monolith columns, as the Greeks only used white, and built their columns in "drums." The destruction of temples was of later Christian date. The student is reminded of the important museum cabinet collections of Oxford, Brussels, and Rome; but when the author states on page 5 that no previous writer has "ever devoted more than a scanty page to some half-dozen out of the 150 well-defined species of marble which adorn Rome," and further says that "not one single book on the subject exists in English," he shows his ignorance of the bibliography of the subject.

As regards useful information on the ancient marbles of Rome, this guide is little more than an abridged translation of *Faustino Corsi* [Rome,

1845.] This has already been done, and published as an appendix to *Rome, a Tour of Many Days* [1849], by Sir George Head, who gives a full description of all the buildings in Rome, with their marble contents. Westropp's *Early and Imperial Rome* also gives a short translation of Corsi; while S. M. Burnham gives in *Limestone and Marbles* (published 1883) two long chapters on antique marbles, with coloured lithograph illustrations, which descriptions are mostly translations of Corsi. In addition to these works there have been published two Papers in the TRANSACTIONS of the Royal Institute of British Architects.* These latter give particulars of re-discovered ancient quarries, which if the writer of this *Handbook* had read he would have known better than to write regarding Giallo Antico that "it probably came from a mountain range between Algiers and Oran, where quarries of the same species exist." In another place he writes: "supposed to have been brought from Numidia, where no quarries have been found," while, in reality, the quarries have been re-found and re-worked for at least ten years.

Under Cipollino he remarks that the ancient quarries at Carvstus "have been long since exhausted." This is not so, as there still remains almost a small mountain to cut at, and in the principal quarry there are eight worked monolith columns, 40 feet in height, one of which is still engaged to the parent rock, showing the method of working. As nearly all the ancient quarries have been re-found, except Africano, it would have been better if the author had not hazarded opinions or taken Corsi as to their localities, which are mostly wrong.

The descriptions given of the marbles are well condensed and generally correctly defined, but some are very misleading. Verde Antico is described as "a true serpentine," whereas it is a "Breccia" of serpentine and white marble.

Pavonazzetto is described as "large pebbles of semi-transparent creamy white, tinged with orange pink or green"; in reality, it is a warm statuary marble, tinged, veined, and brecciated with reds, purples, and occasionally grey greens.

On page 38 the author mentions the important fact that "a block of alabaster or breccia, once easily recognised by one descriptive name, has been mutilated into twelve or fifteen fragments, every one of which requires a new name of its own." This is really so, for although there appears in Rome an immense variety of coloured marbles, yet they nearly all came from about ten colonial quarries, some 90 per cent. being obtained from the following:—(1) Cipollino, (2)

* "Marble: Its Uses as suggested by the Past," TRANSACTIONS (1887), Vol. III. N.S. p. 45; "The Ancient Quarries of Egypt, with an Account of a Recent Journey across the Eastern Desert," TRANSACTIONS (1888), Vol. IV. N.S. p. 5. Both Papers read before the Institute by Mr. Brindley.

Giallo Antico, (3) Pavonazzetto, (4) Africano, (5) Porta Santa, (6) Bigio, (7) Verde Antico, (8) Rosso Antico, (9) Alabastro, (10) Breccia, with Egyptian Porphyry and Serpentino.

Under the headings of the different marbles the author has mentioned some of the edifices where those specified may be seen, but he has failed to notice the most important examples, such as the ten monoliths of Cipollino, 46 feet high, to the temple of Antoninus and Faustina; the large columns of Giallo Antico and Pavonazzetto in the Pantheon; the immense columns 31 feet long and 4 feet 8½ inches diameter (the largest known), of Africano in the Garden of the Vatican, and the rich coloured masses of the same material at the east end of the sanctuary of St. Peter's; the twenty-four columns of Verde Antico in the nave of St. John Lateran, and the large canopy supported by porphyry columns in S. Maria Maggiore. Nor is there mention, under Porphyry, of the sarcophagi of the Empress Helena and of Constantia in the Vatican.

The book would have been enhanced in value and usefulness had mention been made of the numerous sumptuous marble pavements which exist in Rome.

W. BRINDLEY, F.G.S.

(53.)

THE LONDON BUILDING ACT 1894.

The London Building Act 1894: A Text-book for the Use of Architects, Surveyors, Builders, &c., containing the Act printed in extenso, together with a full Abstract, giving all the Sections of the Act which relate to buildings, set out in tabular form for easy reference, and an Introduction showing the leading Alterations made by the Act; also the Unrepealed sections, relating to Building, of all other Acts, and the By-laws and Regulations of the London County Council, &c., &c. Illustrated with 19 Plates. By Banister Fletcher, Professor of Architecture and Building Construction, King's College, London. 8o. Lond. 1895. Price 6s. 6d. [Mr. B. T. Batsford, High Holborn, London.]

The new Building Bill which for a year past has exercised so many lay and professional minds has, in a somewhat modified form, become an Act of Parliament, to take effect on the 1st of January 1895. Members of the architectural and of the legal professions have published books on the new Act, having for their object the elucidation of what I may expect to prove doubtful interpretation, and the bringing into convenient form a long and complicated municipal effort. The work before me is from the pen of Professor Banister Fletcher, who has thus added another to his list of professional text-books so well known to all in professional practice. It is, of course, true that those who may have to work under the new Act will do well to go to the Act itself rather than to any description of it, and to this end the Professor has printed the Act *in extenso*; but nevertheless the features which have gained for the Professor, in his other books, such well-earned credit appear even more convenient and acceptable in his last

book. The great value of a careful and comprehensive Index to any text-book has not escaped the notice of Professor Fletcher, and consequently that again forms one of the useful characteristics of his book, and, in addition to this, he has compiled a full Abstract of the new Act, set out in tabular form for easy reference. This Abstract will prove extremely valuable, because it enables the reader, almost at a glance, to take in the whole scope and purview of the Act itself; and as it is accompanied by side references to the particular sections of the Act to which the Abstract refers, it can be readily understood that the labour in producing the Abstract has been well expended. In order to make his work still more presentable as a book of reference, the Professor has furnished it with nineteen plates showing the thicknesses of walls, and other matters which legal phraseology could not so well make clear.

Any criticism of the Act must now, to a large extent, be purely academical; but still, the Introduction to his work—containing, as it does, the leading differences between the expiring Acts and the new Act—has enabled the Professor to furnish us with material for a more intelligent view of the new legislation and its immediate object. The sections of other Acts, still unrepealed, which relate to building and drainage, and the By-laws of the London County Council, complete a book which reflects considerable credit upon its author, and which I heartily commend to all whose business or pleasure it is to know what the legislative wisdom of the latter part of the nineteenth century has provided for the health, beauty, and well-being of London.

WM. WOODWARD.

(54.)

MR. STATHAM ON THE BUILDING ACT.

The Changes in London Building Law: A Critical Analysis of the London Building Act 1894. By H. Heathcote Statham, F.R.I.B.A., Editor of "The Builder." Small 8o. Lond. 1895. Price 4s. [Messrs. E. & F. N. Spon, 125 Strand, London.]

The knowledge of affairs and the breadth of view which the conduct of any great journal demands combine to impart a peculiar force to the opinions of its editor; and when, besides this, the journal is the organ of an extensive trade like that of building, and its editor a practical architect, his contributions to the literature of building law must naturally be worthy of careful attention.

This book is mainly a reprint from *The Builder*, and has received since its serial issue various additions, which add materially to its usefulness. The attachment, in an appendix, of tabulated schedules of heights, lengths, and thicknesses of walls, like those of the existing Act, and which are not so arranged in the new one, furnishes a means of ready reference and comparison which the surveyor must otherwise prepare for himself. The diagrams illustrating the application of the prescribed lines and angles to proposed buildings

show at a glance the way in which the clauses of the new Act will affect them.

The author's criticism, from an architect's point of view, will commend itself to those who appreciate at its proper importance the architectural dignity which should pervade the metropolis of a great empire, and they will deplore, with a lasting regret, the success of the various interests which have combined to restrict the widths of the streets. Mr. Statham says:—

Forty feet is to be the average and accepted width of the London street of the future, and sixty feet is the widest avenue we are to be allowed in the case of more important streets. Such a provision for the width of streets in a great capital is absolutely miserable, and is calculated, in conjunction with the regulations for the height of buildings, to stereotype one of the most fatal mistakes that can be made in a city, both for appearance and for sanitary conditions, viz., that of having streets narrower in measurement than the height of the houses which line them.

In this connection a striking anomaly is suggested in section 49 as to the width of streets with reference to the height of houses. Equally just and sensible is the comment on cornices:—

This is the provision (no cornice shall exceed 2 feet 6 inches projection over the public way) which appears to have been drawn up in entire ignorance or indifference as to the possible requirements of monumental architecture on a large scale and in a wide street. . . . The cornice of the Pitti Palace projects 2 feet 6 inches (the London Building Act width), which Fergusson characterises as "the most insignificant termination that ever was suggested for such a building," and so it is.

The argument, page 140, for the payment of District Surveyors by salary instead of fees is forcible, and merits consideration.

Perhaps in some points this book may appear to be hypercritical; the imperfect wording, for instance, of a clause of which the meaning is obvious may sometimes, in consideration of human fallibility, be excused. A careful final examination of the Act by a literary expert, with a view to the discovery of ambiguities and inconsistencies of description—such as the use of two different words to express the same meaning, or of arrangement, such as the dealing with subjects in two clauses widely removed which might better be treated in one—is a precaution frequently adopted by the professions in the case of important documents, and would have removed many of the small defects complained of. Mr. Statham refers to the subject thus, after enumerating instances:—

Such an Act as this, after all battles had been fought out in regard to its true intent and bearing, and after each side had agreed what must be given up and what must be accepted as a compromise, should have been handed over to a small critical committee, or even to a critical individual, to go carefully through all the details of wording, and to bring the phraseology and sequence of clauses into thorough order and consistency.

In the schedules of thicknesses of walls, attention is called to the uncertainty of the description of the thickness of particular walls, in some parts

of the Act stated as 9 inches, in others 8½ inches. If this exactness is essential, one may remark that a London stock is 8¾ inches in length, and that in London a one-brick wall, unless it is "fair both sides," generally measures 9 inches, and that a brick-and-a-half wall will nearly always measure 13½ inches.

This book is evidently the result of a very careful study of the new Act, combined with a complete knowledge of the old, and will be especially valuable to the experienced practitioner, who, knowing the old Act, will readily see where the changes have been made. To the surveyor not so familiar with the existing Acts it will probably be of less use, although even to him the emphasising of the points of difference may be a valuable lesson, and the possession of this book on these grounds may be equally desirable for both.

Although speculations upon the effect of this Act may be considered premature, perhaps a few of the more obvious may be referred to. That it will increase the first cost of building materially in many cases is certain; but against this may be set the improved quality of the building, and the consequent annual saving on repair. It will also be generally admitted that its operation will reduce the danger of fire, and tend to improve the public health.

Its greater clearness of definition will prevent many of the disputes and uncertainties which have hitherto beset those persons concerned with building. Nevertheless, it cannot be denied that some of the more elaborate attempts at definition (as Mr. Statham remarks) are not successful, and their obscurity will no doubt foster an unholy joy in the minds of those surveyors who derive their chief income from the encouragement of litigation.

That building operations will be entered upon as readily as before is doubtful. The objections offered in 1854 to the existing Act (1855), that "the direct tendency of expensiveness of construction is to discourage building, and to cause "ruinous houses to be put in repair which would "otherwise be pulled down," have lost some of their force, but will still operate to an extent.

The table of exemptions under the Act enumerates a number of buildings for the exclusion of which no good reason can be adduced.

Some of the well-known evasions of the clauses of the existing Act (probably as a consequence of the experience of the District Surveyors) are prevented by the provisions of the new one. The clause which provides for the ultimate removal of skysigns, although dealt with by the Skysigns Act 1891, now incorporated with the new Act, is a welcome reminder. Some of the buildings of London are already sufficiently hideous, and no extraneous element can make them much worse. But our sympathies are with the sufferings of an architect who sees a façade upon which he has spent much time and pains decorated with a continuous screen of letters 6 feet high, or the roof surmounted by a

hideous windmill, or, perchance, a monstrous aerial bottle.

It will be observed that the agitation as to the question of compensation for land taken by the authorities for the widening of streets has produced an improvement in the clauses which related to it in the Bill as issued to the professional societies. The alteration of the angle of the diagonal line is also a matter for congratulation.

The institution of a Tribunal of Appeal, its constitution and nomination, are all satisfactory. It is notably superior to the last similar tribunal in connection with a London Building Act—the official referees and registrar of the Act of 1844. But the position of each nominee should be equal to that of a judge in a court of law, *i.e.* he should not be subject to removal, and should be paid by salary. To those who are able to remember the Act of 1844 and its working, the contrast with the new Act, both in its clauses and its probable administration, is a very striking one.

It should not be forgotten (and there is danger that it will be) that the Act will owe much of its clearness, efficiency, and justice to the strenuous efforts of the Royal Institute of British Architects and the Surveyors' Institution. Of their acute criticism, tact, and technical skill the new Act will be a lasting monument.

JOHN LEANING.

NOTES, QUERIES, AND REPLIES.

The Porta Nuova, Verona [p. 75].

Mr. A. E. Street, in his observations on the notebooks left by the late J. L. Wolfe [pp. 73–76], and presented to the Institute by Mr. Wolfe Barry [*H.A.*], C.B., wrote:—"As for his gift of "accurate observation, I have compared his "detailed description of the Porta Nuova at "Verona [not Rome, as printed] with the reproduction of Mr. Prentice's sketch of the same "edifice in the last number of the *A.A. Sketch-book*, with the fortunate result of establishing the "exemplary accuracy of both parties." Wolfe's notes on this remarkable work are so interesting and characteristic that they are given here in full, the portions in italics having been underlined by himself.

Porta Nuova. S. Michele. Order Doric is common in this architect's gates, but this example, I think, is preferable to them all. This gate has the appearance of what it was intended for, which cannot be said of the Porta ——. That has rather the character of a guard-house, for which it now serves, than of the gate of a town.

In the Porta Nuova there is but one entrance arch. The shafts of columns and pilasters, as well as wall, are rusticated; unfaced stones and plain arris channels. No base but a large stone serving as general plinth to column and pilaster.

About the height of one course between rustic and astragal is left plain.

Caps are pretty, but astragal, as usual, too large; echinus from its form appears too low from a distance, but good when seen from a nearer point of view.

Architrave in one plain face; broad fillets between that and frieze.

Architrave has considerable projection beyond upper diameter of shaft, both in front and flank—a peculiarity in Greek Doric but very seldom observed in the works of the Middle Ages. The architect may have done it for the sake of preventing too much diminution in the upper part of the frontispiece, which the projection of rustics on shafts might tend to produce.

The rustics on pilasters, as well as on columns, follow the diminution of shaft.

In the crowning moulding is a double fascia, as at the Campanile S. Giorgio—a thing peculiar to S. Michele. I think it not amiss in Roman Doric, whose proportions are not very "svelte," as a broad mass of light is procured in the crown mouldings, often wanted to bear out the deep shadows shown by the larmier; at the same time the heaviness of this fascia is prevented by its being divided in two.

In the crown mould a beautiful fillet, and fine large cymatium. No modillions mutules nor dentils, but the whole plain and neat.

Pediment, I should think, rises between one-fifth and one-sixth: it looks well. The cymatium is returned horizontal at bottom, to obviate the otherwise difference between that on the level and that on raking cornice. This expedient is common in S. Michele's pediments.

The coupling of columns and pilaster at angle, especially under pediments, owing to the irregularity of proximate figures, is disagreeable.

Drops faintly indicated in larmier. In this frontispiece the whole entablature and pediment is faultless.

The great arch is very low; its width seems equal to height up to springing. Height above crown more than twice width of pier.

Impost simple and solid. Keystone is made to project somewhat, but its angles are rounded off.

Impost continued through the wings, which are flanked by a coupled pilaster, rusticated, but not of sufficient projection.

In the entablature of wings the tryglyphs are not wrought except over pilasters; ornaments of metopes properly kept down. On either side frontispiece is a small rustic side arch, and a corresponding one at end of wing.

Above is an attic and a battery of cannon.

On the side towards the country the arch is sunk out about half the width of voussoir. Head of Jupiter Ammon carved out of rustic keystone; very excellent. Greatest projection equal to that of architrave; a fine architectural piece of sculpture.

"The British Architects of this Century" [pp. 10–12].

Mr. Penrose, in the excellent Presidential Address he delivered to the Institute at the opening meeting of this Session, has been taken to task by a correspondent of *The Builder* for not including Playfair—the architect of Edinburgh—in the same category with Cockerell of London and Schinkel of Berlin. Mr. Rovedino [*F.*] now cites Hopper as a conspicuous omission from the comments of the President on the British Architects of this century, as may be seen in the communication printed below. The professional career of each of these architects is fully given in the *Dictionary of Architecture*, from which, and from other sources of information, particulars have been obtained of both Thomas Hopper and William Henry Playfair.

Thomas Hopper, who was born at Rochester about the year 1775, is credited with having introduced the "cottage orné." Craven Cottage, Ful-

ham, was converted by him into an example of this so-called style; and so won the admiration of the Prince Regent that he commissioned Hopper to make alterations at Carlton House, comprising chiefly the Gothic conservatory, designed after the manner of Henry VII.'s chapel, and admitting light through the tracery of the vaulting. Among others of his works, in addition to those mentioned by Mr. Rovedino, were Slane Castle, co. Meath, for the Marquis of Conyngham; alterations at Kinnel Park, near St. Asaph, for Lord Dinorbin, and at Amesbury Park, Wiltshire, for the Duke of Queensberry. He designed Danbury Place, Essex; South Stoneham Park, near Southampton; Llanover Court, Monmouthshire; and superintended the alterations at Stansted Park, near Havant; at Alton Towers, Staffordshire, for the Earl of Shrewsbury; and at Rood Ashton House, near Trowbridge. Essex County Gaol was his, and many other gaols. He made a design for Dunkeld Palace, Scotland, for the Duke of Atholl, on a princely scale; but the work stopped at the foundations. Hopper acted as honorary architect to St. Mary's Hospital, Paddington, erected in 1845-6, with extension in 1851, at a cost of £34,000, and competed for the General Post Office, St. Martin's-le-Grand, in 1820. A pamphlet in the Library, *Letter to Lord Melbourne on the Rebuilding of the Royal Exchange*, contains a plan and elevation in support of his assertion that Sir R. Smirke, the architect of the new building, who had not competed, had used his design. He published in 1837 an *Explanation of the Proceedings of the Architects who petitioned for an Examination into the Propriety of the selection made by the Commissioners for procuring Designs for the New Houses of Parliament*, and a Letter to Lord Duncannon on the same subject, both of which may be seen in the Library.

Hopper declined knighthood from George IV., as well as offers from Alexander I. and the Duchess of Oldenburg to settle in St. Petersburg. He died in 1856. It is said that his form and features were given by Termouth to the sailor who is supporting the wounded boy in the bas relief on the east side of the Nelson column, Trafalgar Square. Among his more recent pupils were F. J. Francis and G. A. Burn, who latterly had charge of his practice.

William Henry Playfair (1789-1857), who contributed so much to the beauty and peculiar character of the city of Edinburgh, is entitled to rank among the most eminent and distinguished architects of the century. Born in London and educated at Edinburgh, where he resided from very early youth, he studied for his profession under W. Stark, of Glasgow. Lord Cockburn, in his *Memorials*, declared that Edinburgh owed more to the taste of William Playfair than to all other modern architects it had produced or employed, and is grateful to him for his attempt to retrieve the fatal error that had so nearly ruined Edin-

burgh College. The purity of his Grecian taste was attested wherever it had an opportunity or displaying itself, and was conspicuously in evidence in nearly every quarter of the city. His principal works include laying out part of the Lower New Town and the Royal and Regent terraces; the Gateway and Lodge to Heriot's Hospital; the Observatory and Royal Institution (Greek Doric); the Advocate's Library; Professor Playfair's Monument; the National Monument on the Calton Hill from a design by Cockerell; St. Stephen's Church (Doric, hexagon), holding nearly 3,000 persons, and a great acoustical success; the College of Surgeons and Museum (Greek Ionic); the Dugald Stewart Monument; Donaldson's Hospital (Tudor), his greatest triumph; Free Church College and Minto Chapel (Tudor); and the National Gallery (Greek).

It was said of Playfair that had he been born twenty years later, so as to have been naturally thrown into the movement for the Gothic Revival, it would have accomplished far higher things than it did. His correct, fastidious taste would have rejected servile imitation, and taught him to carry out the spirit of the style from the points where the old architects at their different epochs left it. For modern imitations of architecture in any of its imperfect and undeveloped stages he had a dislike approaching to physical loathing. Playfair completed his studies at a time when Greek and Roman were considered the only styles worthy of imitation, and it is surprising that he should have succeeded at all in Gothic. His *forte* was distinctly the Greek style. There was a freshness and vigour in his compositions, combined with so much elegance and delicacy of finish in every detail, that the work of a master who had treated his subject with love and enthusiasm was at once recognised.

From AUGUSTUS ROVEDINO [F.] -

In the very notable opening address by the President, referring to the British Architects of this century, mention was made of the exhibition of designs for the new Houses of Parliament, and the late Sir Charles Barry's work is stated to have been approached by no rival, the best of the unsuccessful designs being by Basevi.

The design submitted by the late Thos. Hopper at that time was, I believe, generally admitted to closely approach in order of merit, if not to equal, that of the late Sir Charles Barry. As the architect of such important buildings as Penrhyn Castle, Gosford Castle, Margam Abbey, Leigh Court, Easton Lodge, the mansion Wivenhoe Park, and many other large mansions, besides the Conservatory at Carlton House for the Prince Regent, Arthur's Club, St. James Street; the Atlas Insurance Office, Cheapside, recently altered internally and added to by Mr. Waterhouse; and St. Mary's Hospital, Paddington: these works, I think,

may justly entitle him to be classed among the leading architects of the century, his death occurring as late as 1855 or 1856, as far as my memory now serves me.

Fund for Experimental Research [Vol. I. pp. 55, 463, 598, 626].

From the SCIENCE STANDING COMMITTEE—

It is proposed to apply the subscriptions to this fund in the first instance to some experimental tests, with a view to establishing a correct knowledge of the ratio between bricks and brickwork built of the same bricks and with various kinds of mortar. The amount subscribed would be wholly inadequate to the proper carrying out of the work proposed; but, at the suggestion of Professor Unwin [*H.A.*], F.R.S., who is one of the Sub-Committee appointed to consider the form of tests and necessary apparatus, Sir W. Arrol has been asked for the loan of the necessary hydraulic press or presses, and he has most kindly offered the Institute every assistance. At the last meeting of the Science Committee an interim report from the Sub-Committee was received, and the Committee hope presently to report further progress. Members of the Institute who take an interest in these proceedings should send in their names and the sum they are willing to subscribe to the Secretary of the Institute. The amount already promised is £55. 13s.

The London Building Act 1894.

From S. FLINT CLARKSON [*F.*]—

It may be useful to submit notes and queries on one or two points which escaped mention in Monday's discussion [p. 116].

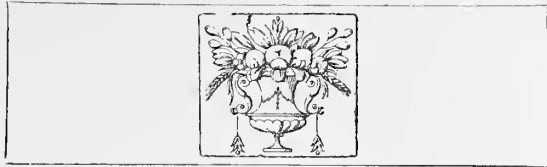
1. As to storeys in roofs over 60 feet from the pavement (sec. 62 [2]). The statement in the Act is that there shall be fire-resisting construction to the floor and other enclosures of the storey—not that the floor shall not be boarded.

2. As to party structures. This is not the first Act which recognised them. Section 75 makes it clear that they are not to be permitted in the future for buildings of the warehouse class. Their minimum thickness is set by sec. 71 (2) at 8½ inches, not 4½ inches as in sec. 24 of the 1855 Act.

3. As to rendering in roofs. The rendering in sec. 64 (6) is through "the roof," not through the space between ceiling and roof.

4. As to the backs of openings in external walls. Will they not be recesses, and, consequently, 8½ inches thick, as in sec. 54 (a)?

5. Underground rooms occupied separately as dwellings are dealt with in secs. 96 to 98 of the Public Health (London) Act 1891; that is, when completed, any new dwellings will, no doubt, be looked at under that Act when occupied. The method of securing compliance with the requirements of the 1891 Act, while the building is in course of erection, is, however, not laid down very fully in sec. 74 (1 f) of the new Act.



MINUTES. IV.

At the Fourth General Meeting (Ordinary) of the Session, held on Monday, 17th December 1894, at 8 p.m., Mr. F. C. Penrose, F.R.S., *President*, in the Chair, with 40 Fellows (including 7 members of the Council), 58 Associates (including 1 member of the Council), 1 Hon. Associate and 72 visitors, the Minutes of the Meeting held 3rd December 1894 [page 98] were taken as read and signed as correct.

The Secretary announced the decease of William Gratus Coward (Sydney, N.S.W.), *Fellow*, and of Herbert A. K. Gribble and Morton Glover, *Associates*.

Mr. Wm. Woodward [*A.*], who referred in feeling terms to the death of Mr. Gribble, asked that a letter might be sent to Mrs. Gribble, expressing the sympathy and condolence of the Institute with her in the sad loss she had sustained by her husband's death.

The President announced the results of the Qualifying Examination held in London, Glasgow, Manchester, and Bristol from the 26th November to the 5th December 1894, and read the names of the sixty-four gentlemen who had qualified for candidature as Associate [p. 124].

The President further announced that the Ashpitel Prize had been awarded to Mr. William Edward Vernon Crompton, of Wigan [*Probationer* 1891, *Student* 1892].

The President announced the results of the Preliminary Examination held in London, Manchester, and Bristol on the 13th and 14th November 1894, and read the names of 103 gentlemen who had passed and been registered as Probationers [pp. 125-127].

A Paper by Professor Banister Fletcher [*F.*], entitled OBSERVATIONS ON THE LONDON BUILDING ACT 1894, was read by the author, and having been discussed, a vote of thanks was passed to him; and the Meeting terminated at 10 p.m.

The York Society.

The following are the newly elected office-bearers for the year 1894-95:—President, Mr. H. Perkin [*F.*]; Vice-Presidents, Messrs. J. Lane and A. W. Turner; Council, Messrs. G. Benson, A. H. Claypoole, A. Hirst, J. T. Pegge, and A. P. Skeat; *ex-officio* members of the Council, Messrs. W. G. Penty [*F.*], William Hepper, and Arthur Pollard; Treasurer, Mr. Norman R. Yeomans; Librarian, Mr. W. E. Walker; Hon. Secretary, Mr. A. B. Burleigh.

PARLIAMENTARY.

The Tribunal of Appeal.

The following sections of the London Building Act 1894 (57 & 58 Vict., c. ccxiii.), which comes into operation on the first day of the New Year, relate to the newly constituted Tribunal of Appeal [p. 127]:—

175. For the purposes of this Act a tribunal of appeal shall be constituted as follows:—

One member shall be appointed by a Secretary of State;
One member shall be appointed by the council of the Royal Institute of British Architects;

One member shall be appointed by the council of the Surveyors' Institution:

No member or officer of the Council shall be a member of the tribunal of appeal.

176. Members of the tribunal of appeal shall be ap-

pointed for a term of five years and any such member shall be eligible for re-appointment.

177. It shall be lawful for the Lord Chancellor if he think fit to remove for inability or misbehaviour or other good and sufficient cause any member of the tribunal of appeal.

178. Upon the occurrence of any vacancy in the tribunal of appeal or during the temporary absence through illness or other unavoidable cause of any member thereof a Secretary of State the council of the Royal Institute of British Architects or the council of the Surveyors' Institution (as the case may be) whichever of them shall have appointed the member of the tribunal whose place shall be vacated shall appoint forthwith a fit person to be a member (either temporary or permanent) of the tribunal in lieu of the member whose place is vacated or who is temporarily absent as aforesaid.

179. Each member of the tribunal of appeal shall be entitled to such remuneration either by way of annual salary or by way of fees or partly in one way and partly in the other as a Secretary of State may from time to time fix.

180. It shall be lawful for the tribunal of appeal to appoint such clerks officers and servants as they may find necessary who shall be paid such salaries as shall be determined by the Council and to provide offices and to obtain such professional advice and assistance as they may find necessary.

181. It shall be lawful for the Council to defray the expenses of supporting any decision of the Council or of the superintending architect or of their engineer or of a district surveyor by counsel and witnesses before the tribunal.

182. It shall be lawful for the tribunal at any time to state and the tribunal shall if ordered by the High Court or a judge thereof on an application in a summary manner made by any party to the appeal state a case for the opinion of the High Court on any question of law involved in any appeal submitted to them. The High Court shall hear and determine the question or questions of law arising on any case stated by the tribunal of appeal and shall thereupon reverse affirm or amend the determination (if any) in respect of which the case has been stated or remit the matter to the tribunal of appeal with the opinion of the court on the case stated or may make such other order in relation to the matter as the circumstances of the case require and may make such order as to the costs of the case and in the High Court as to the court may seem fit.

183. The tribunal of appeal shall subject to the provisions of this Act have jurisdiction and power to hear and determine appeals referred to them under this Act.

For all the purposes of and incidental to the hearing and determination of any appeal the tribunal shall subject to any rules of procedure duly made have power to hear the Council and the parties interested either in person or by counsel solicitor or agent as they may think fit and to administer oaths and to hear and receive evidence and to require the production of any documents or books and to confirm or reverse or vary any decision and make any such order as they may think fit and the costs of any of the parties to the appeal including the Council shall be in the discretion of the tribunal.

184. The tribunal of appeal may from time to time subject to the approval of the Lord Chancellor make regulations consistent with the provisions of this Act as to the procedure to be followed in cases of appeal to the tribunal including the time and notice of appeal and as to fees to be paid by appellants and other parties.

185. Any order of the tribunal of appeal may be enforced by the High Court as if it had been an order of that court.

186. All fees and sums of money paid to the tribunal of appeal shall be paid over to the Council and carried to the county fund and the salaries or fees payable to members of the tribunal and the office and establishment expenses of the tribunal and expenses incurred by the tribunal and

the Council in reference thereto shall be defrayed out of the county fund.

The Tribunal thus constituted with considerably extended jurisdiction supersedes the Tribunal created under the London Council General Powers Act of 1890 to hear appeals against certificates of the Superintending Architect respecting lines of frontage; and also the Tribunal established under the General Powers Act of 1893 to consider appeals by persons refused permission to build dwelling-houses on low-lying lands. Mr. Arthur Cates, the nominee of the Council for these Tribunals, has acted as Chairman of each from their creation.

LEGAL.

Sewer - Drain - Premises within same Curtilage.

VILBROW v. VESTRY OF ST. LEONARD, SHOREDITCH.

This was a Special Case stated by a Metropolitan Police magistrate, which came before the Queen's Bench Division in November.

The question was whether the main drain running east and west, as stated below, was a "drain" or a "sewer" within the meaning of the interpretation clause 250 of the Metropolis Local Management Act 1855. The appellant was in receipt of the rents and profits of certain dwellings called Norfolk Buildings, within the parish of St. Leonard, Shoreditch. The buildings consisted of forty-six sets of apartments, divided into two blocks, which were separated by a causeway 20 feet wide. One of the blocks opened only on to Norfolk Place, and there was no direct access from this block to the causeway, the occupiers having to go round by a public street, and thence to the causeway. The other block opened only on to the causeway. The common dustbin of the two blocks was in the causeway. The blocks were erected and the drains put in by the owner in 1882, without any plans having been submitted to the local authority or any inspection or sanction of the drains by them. The drainage was by means of twelve branch drains running north and south from each set of apartments into a main drain running east and west under the causeway into a sewer within 100 feet of the blocks. The main drain was a single 9-inch pipe. The branch drains were inserted into the main drain through holes cut in that pipe. No order of the vestry was produced, or had been made, for draining either of the blocks aforesaid by a combined operation. On the 18th November 1892 the inspector of nuisances to the vestry gave a written notice to the owner of each of the blocks to forthwith amend and reconstruct the main drain.

The requisitions in the notices not having been complied with, the vestry, after doing the works specified, caused a summons to be issued against the appellant, under the Metropolis Local Management Acts, to recover from him 209*l.* 7*s.* 6*d.*, the expenses incurred by the vestry in carrying out the said works. The magistrate held that the main drain was a "drain," and not a sewer within the meaning of the Acts, and that the appellant was liable to pay the said expenses, and made an order against him for the payment of the said sum of 209*l.* 7*s.* 6*d.*

Mr. Poland, Q.C., and Mr. R. Woodfin, for the appellant, contended that the two blocks were not "premises within the same curtilage," and, therefore, that the main drain was a "sewer," and not a "drain," within the meaning of the Metropolis Management Act 1855, s. 250.

Mr. Finlay, Q.C., and Mr. E. Lewis Thomas, for the respondents, contended that the blocks were premises within the same curtilage.

The Court (Mr. Justice Mathew and Mr. Justice Charles) held that the blocks were premises within the same curtilage, and that, therefore, the main drain was a drain and not a sewer. The appeal was accordingly dismissed with costs.



THE EXAMINATIONS FOR ADMISSION TO CANDIDATURE:
AN HISTORICAL NOTE.

WITH the new Year of Grace the system of Progressive Examination for admission to candidature as Associate has come into full force. Every aspirant for such position must henceforth qualify for registration (1) as Probationer, (2) as Student, and (3) as Candidate for Associateship; and this can only be done by passing three distinct examinations or tests of competency. There are still more than one hundred men, relegated to their studies from previous examinations, who have the right of admission after passing the single Qualifying (now the "Final") Examination. It is still possible, in the case of architects in practice and chief assistants, to apply for exemption from qualifying as Probationer and Student; and the privilege will endure for a time. But, for the youth of the profession, admission to candidature as Associate is now only obtainable after satisfying the Council of the Institute in the Preliminary, Intermediate, and Final stages, respectively, of the Examination in Architecture.

As more than a generation has come and gone while the events leading to this result have matured, it may be useful, and perhaps not uninteresting, especially at the present time, to recall the more prominent of them.

Some forty years ago a French architect printed an Essay, a copy of which he presented, entitled *Du Diplôme d'Architecte*. He discussed the state of the question at that time, the compatibility of a diploma with the profession of architect, what should be the character of the diploma, and how it should be established. A Paper on this subject, which was to a great extent an abstract of Lance's Essay, was prepared by the late J. Woody Papworth and read before the Institute on the 19th November 1855. The discussion which followed, and the lively interest taken in it by *The Builder*, then conducted by the late George Godwin, at that time a member of the Institute Council, caused a slight flutter among the chiefs of the profession; and the discussion was resumed at a General Meeting held 3rd December 1855, when a Vice-President, the late Sir William Tite, who occupied the Chair, opened the proceedings by stating that the Council had received a Memorial from the Architectural Association (London) in favour of a professional examination and diploma.

The text of this memorial, which was signed by the President of the Association, the late Alfred Bailey, and the two Hon. Secretaries, is as follows:—

Your memorialists, representing the younger members of the architectural profession, beg to lay before the Royal Institute of British Architects their desire for the establishment of an Examination, which may eventually serve as the basis for the issue of such a diploma as shall certify that the holder thereof is fully qualified to practise as an architect.

They have been induced to take this step from the consideration of the difficulties which, in the present day, beset the early stages of architectural education.

In preparation for entrance upon their articles, in studies during the period of their sojourn in an office, and in the critical interval from the completion of their articles to the moment of commencing practice, the students of architecture are without sufficient guidance. In no case have they that important and valuable direction given to their several studies which is found to be so successful an inducement to the complete mastery of other professions; and this evil produces its more important effects when students of architecture, having completed their articles, commence practice on their own responsibility.

The want of proper knowledge on the part of the architect, combined as it is with a want of information on the part of the public, leads to many of the anomalies which are now so frequently observable in the practice of the profession, and to the presence in its ranks of many who have not the power, and in some cases of those who have not the will, to uphold its credit.

So much attention has been lately turned towards the necessity of testing by examination the competency of all candidates for public employment, that your memorialists are led to submit that the present is a highly opportune period for bringing the subject under your consideration. They feel that they are addressing those who represent the architectural profession, and by whom only an authoritative step towards the establishment of an Examination, or the granting of a Diploma, could be taken. They are also assured that the senior members of the profession could hardly take the initiative till the necessity for that course had been brought before them by those who have more recently entered the profession.

Your memorialists do not feel themselves called upon to enter into further details, because they are convinced that the members of the Institute must, from their position, be fully cognisant of the evil results of the present system; and, therefore, do not doubt that the Council will take an early opportunity of organising an Examination such as shall be found best calculated to aid and direct the student, and to bring the real qualifications of the architect before the public.

On the 14th January 1861, at a Special General Meeting of the Institute, when a Vice-President, Mr. (afterwards Sir) M. Digby Wyatt, occupied the Chair, it was announced that the Council, having communicated with several non-Metropolitan Societies, and with the Architectural Association (London) on the subject of an Examination, had received replies generally to the effect that it was desirable to afford an opportunity for a voluntary professional examination. In the discussion which ensued a motion, proposed by the late J. W. Papworth and seconded by Professor Kerr [F.], was put and carried, as follows:—
 “That this Institute, by the publication of the Resolution* of the 25th June 1860, and by
 “the circulation of the propositions submitted by the Council at that time, having, to the
 “utmost of its power, ascertained the views of the profession thereon, and having taken into
 “consideration the replies forwarded by the various Societies, does, in conformity with the
 “wishes expressed in these communications, take upon itself the labour of constituting an
 “Examination tending to promote a systematic professional education.” After further discussion, in which the late George Edmund Street took part, Professor Kerr moved, and the late William Burges seconded, “That the Council be instructed to proceed with the preparation of a Curriculum and By-laws, and be recommended to appoint a Committee to this end, and to report to a General Meeting.”

In May 1862 was published a Paper of *Regulations and Course of Examination, with Forms of Declaration and Recommendation, for the Voluntary Architectural Examination*, which was divided into two classes—a “Class of Proficiency” and a “Class of Distinction”; and applicants for admission to either class were required to submit “Preliminary work.” In January 1863 nineteen persons applied to be examined in the class of Proficiency and two in that of Distinction. Fourteen were admitted, the preliminary work of four being deemed

* The words of the Resolution unanimously passed at the General Meeting of 25th June 1860 were “That it is
 “desirable to afford an opportunity for a voluntary professional examination.”

insufficient, to the Proficiency Class. The late Arthur Ashpitel, the late Sir G. G. Scott, and the late Sir Digby Wyatt were appointed Examiners; the late J. W. Papworth and Professor T. Roger Smith [*F.*], then an Associate, were appointed Moderators. Out of the fourteen applicants, eight passed. The Examiners' Report concluded with congratulations to the Council "upon the healthy stimulant to study which, we cannot but feel, must attend upon exertions made in the spirit displayed by the candidates for examination on this highly auspicious first trial of a system likely to produce hereafter, we fully believe, considerable benefits to the profession."

In 1864 eighteen persons applied. Thirteen were admitted to the class of Proficiency, and seven passed; two were admitted to the class of Distinction and passed. The Examiners were Ashpitel, Scott, and Professor T. Hayter Lewis [*F.*]; the Moderators, J. W. Papworth and Mr. Charles Fowler [*F.*].

In 1865 there were only four applications, and no examination was held. In 1866 there were six applicants, and four were admitted to the class of Proficiency, all of whom passed. In 1867 no examination was held, only four persons having applied. In 1868 there was one application, and no examination was held. In 1870 there were nine applicants for admission to the class of Proficiency, of whom seven were admitted and four passed. In this year was held the first of the Preliminary Examinations established by Resolution on the 21st June 1869, with the proviso that the passing of them was not compulsory on those who came up for the classes of Proficiency and Distinction in the Voluntary Architectural Examination. In 1872 there was one application to be admitted to the class of Proficiency. In 1873, after the programme of the Examination had been divided into artistic and scientific sections, there were five applicants, three of whom passed in both sections, and one in Art only, another in Science only. In 1875 there were six applicants, two of whom passed; and in 1877 ten applicants, one of whom passed.

In 1880 twenty persons, some of whom had passed in one or other section of the Examination, presented themselves in the class of Proficiency, and six passed. In June 1881 was held the last Voluntary Architectural Examination, when four persons were examined and passed.

In the course of nineteen years there had been held ten examinations in the class of Proficiency, and 43 persons had passed, three of them having also passed the class of Distinction. The passed candidates in the Preliminary class (1870-79) numbered 47; and two of these received the Ashpitel Prize: Mr. J. F. Hennessy in 1875, and Mr. John Bilson [*F.*] in 1877.

That in the course of nineteen years, from 1863 to 1881, both inclusive, not more than a hundred persons thought it worth while to apply for admission to the class of Proficiency in the Voluntary Architectural Examination, that only five students per annum could be induced to enter for this examination, less than half of whom were proved competent to pass it, was discouraging. Apart, however, from examinations, the seventies were not years of prosperity to the Institute, and it is not extraordinary that more than one special committee should have met to consider its affairs and its general improvement as a working professional body. In 1877 the Past Presidents and Past Vice-Presidents were invited by the general body to assist the Council, to use the late John Whichcord's words, "not so much in improving the method of our work, as in arousing a spirit of earnest energy within our ranks." It was then that the By-laws made under the Original Charter were revised with considerable care and acumen; and there was passed a new By-law,* to the effect that, after May 1882, no person

* This was By-law XIV., which was thus worded:—All gentlemen engaged in the study or practice of civil architecture, before presenting themselves for election as Asso-

ciates, shall, after May 1882, be required to pass an examination before their election, according to a standard to be fixed from time to time by the Council.

should be admitted to candidature as Associate without first passing an examination. Mr. Charles Barry [*F.*] was then President, and to him succeeded the late John Whichcord, whose two years of office must always be regarded as having been of vital importance to the interests of the Institute regarded as the representative body of the profession, and to those of the Examination which was to come into effect in 1882. Whichcord, who became President in 1879, took the Chair at all the meetings—the first of which was held 4th July 1879—of the Special Committee for Examinations, whose Report, prepared by Mr. J. Douglass Mathews [*F.*] and Mr. H. L. Florence [*F.*], was passed in February 1880. To them succeeded the “Architectural Examinations Committee,” whose first meeting took place 3rd June 1880, when Mr. Arthur Cates [*F.*] was appointed Chairman and Mr. R. Phené Spiers [*F.*] Hon. Secretary. Their report was brought up at the seventh meeting; and at the eighth the scheme of Examination under By-law XIV. was passed. Their report contained the Regulations, Programme, Forms of Application, &c., in the new Examination, which were approved by the Institute on the 6th January 1881, after the Meeting had made a remarkable alteration in the Examination Programme. The Committee appointed the year before to work out the scheme, the heads of which were incorporated in the Council Report of 1880 and approved by the Institute, had not ventured to include in their programme a complete test of architectonic aptitude. They had omitted all attempt to fully examine in “Design.” The Committee had recommended, and the Council had approved, that two hours and a half of one of the three days given to the Written and Graphic Examination should be devoted by the examinees to making “the plan of a building with the details of arrangement for a selected purpose, adapted to a particular site”—the outline of the said site and a statement of requirements to be prepared for the guidance of the examinees. The Institute approved this with the proviso that the words “section and elevation” should be inserted after the word “plan.”

The first Examination under By-law XIV. was held in March 1882, and two others were held the same year, in July and November, under the charge of a Board appointed by the Council, the regulation being that the number on such Board should be not less than five Fellows nor more than twelve. As a matter of fact, the first Board of Examiners in Architecture which ever met at the Institute were appointed in November 1880, and consisted of the President (the late John Whichcord), the three Vice-Presidents (Professor Hayter Lewis, the late Sir Horace Jones, and Mr. Ewan Christian), the Hon. Secretary (Mr. Macvicar Anderson), with Messrs. James Brooks, Arthur Cates, E. A. Gruning, E. H. Martineau, E. R. Robson, Alfred Waterhouse, and T. H. Watson. The newly-appointed Board conducted the last of the Voluntary Architectural Examinations; and, at the Meeting of the 20th May 1881, Street, who was then President, occupied the Chair. His immediate successor in the presidential office—the late Sir Horace Jones—presided over the Board at the first Examination under By-law XIV. held in March 1882, vacating it at the Oral Examination in favour of Mr. Arthur Cates, who has been periodically re-appointed Chairman of the Board, and has conducted almost every Oral Examination since the beginning of that year.

Five years after the introduction of Examinations under By-law XIV.—a By-law made under the provisions of the Charter granted to the Institute by William IV.—a second Charter repealing some of the provisions of the earlier one was obtained from Her Majesty the Queen in Council. The grant was made by a Deed executed 28th March 1887, and the third section of this Charter contains the words “From the date of this our Charter every person desiring “to be admitted an Associate shall be required to pass or have passed such Examination or “Examinations as may be directed by the Royal Institute.” Power was given at the same time, under Section 21, to grant Diplomas and Certificates in connection with Examinations,

and to make By-laws which should define, regulate, and prescribe the relations of the Institute to other Societies having kindred aims and purposes.

A few months after the grant of the new Charter an important Conference of architects was held in London. At one of the meetings, held 4th May 1887, it was recommended: (1) That the Institute should undertake the guidance and direction of professional education; (2) that a scheme of a complete system of examination should be prepared; (3) that such system should comprise a Preliminary, an Intermediate, and a Final or Qualifying Examination; and (4) that this system of Progressive Examination should be arranged with the co-operation of local Societies in the United Kingdom. At another meeting, held the next day, it was further recommended that the Institute should be the centre of any federation of the members of the profession within the British Empire, and that such object might be best attained by connecting the various local Societies which existed, or which might thereafter be formed, with the Institute. Other cognate matters were discussed by the Conference, but the two above signalised were the most important. A great deal of minute and careful attention was given to both subjects in the course of the two subsequent sessions, and the scheme of Progressive Examination was approved by a Special General Meeting of the Institute, held 8th April 1889. At the same meeting the architectural Societies of Bristol, Leicester, Liverpool, Manchester, Nottingham, and Sheffield, with the Royal Institute of the Architects of Ireland, the Glasgow Institute, and the Northern Architectural Association—nine in all—were admitted to alliance with the Institute under the provisions of By-laws then recently approved by the Privy Council. Since that time six other bodies in England, Scotland, and Wales, with another in Australia, have been similarly admitted to alliance; with what results may be seen in the *KALENDAR* last issued to members. The same issue of this work gives the fullest description yet published of the three Progressive Examinations. At the present hour the Probationers number 631, the Students 130; and the number of those eligible for candidature as Associate exceeds 100, with a reserve of 113 applicants relegated from previous occasions, and having the right of admission to the "Final" to be held next March and subsequent Qualifying Examinations.

The above applies only to the class of Associate. All the machinery in force, all the efforts to aid the education of architects and of architectural students, all that is sketched in the foregoing review, concerns admission to candidature as Associate. But the new Charter of 1887, under Section 3, lays down that from the 28th March 1892 the Institute shall have power to declare that every person desiring to be admitted a Fellow shall also be required to have passed an Examination. Although nearly three years have elapsed, the only "Examination" for admission to candidature as Fellow is contained in a "Regulation" for carrying into effect By-law 3: that after the 1st November 1893 every such person shall submit to the Council, as evidence of his abilities as a practising architect, drawings, or photographs, of his executed works, accompanied with a signed declaration that the said works have been designed by himself. Since that Regulation was passed thirteen persons, of whom ten were already members in the class of Associate, have been elected Fellows; while, during the same period, 76 Associates have been added to the Register. The number of Associates is now 873, and there are more than 100 candidates, 64 of whom passed the recent Examination, eligible for election to that class; while the Fellows, who in October 1892 numbered 617, and in January 1893, 621, now number 611. Before the next Annual General Meeting it may be confidently anticipated that the number of Associates will far exceed 900, while that of the Fellows will show little increase. One of the main results of the Charter of 1887 is an apparent shifting of the preponderance of power, in the ordinary affairs of the corporate body, from the Fellows to the Associates of the Institute.



9, CONDUIT STREET, LONDON, W., 3 January 1895.

CHRONICLE.

THE EXAMINATIONS FOR CANDIDATURE AS ASSOCIATE.

The Examinations hitherto qualifying for candidature as Associate having, as stated in the preceding article, come to an end with the year 1894, it has been thought useful to publish the names of those who have passed the Voluntary and Obligatory Examinations from the year 1863 onward.

THE VOLUNTARY EXAMINATION 1863-1881.

FORTY-THREE CANDIDATES.

1863.

D. Gostling [F.]; R. O. Harris [A.]; G. T. Redmayne [F.], Manchester; L. W. Ridge [F.]; R. P. Spiers † [F.], Oxford; H. Stone*; T. H. Watson † [F.]; E. Wimbridge.

1864.

H. J. Austin,* Gateshead; R. R. Bayne † [A.]; W. V. Gough,* Bristol; C. Hadfield [F.], Sheffield; R. C. James; A. Jowers [A.]; M. H. Linklater,* Belfast.

1866.

J. S. Edmeston*; F. W. H. Hunt [F.]; R. S. Wilkinson [A.]; T. Wonnacott [F.].

1870.

T. E. Mundy [A.]; J. S. Quilter [F.]; W. Scott,* Northampton; W. L. Spiers [A.].

1873.

F. P. Johnson; J. W. Rounthwaite [A.]; H. STANNUS [F.].

1875.

J. Jerman [F.], Exeter; C. R. Pink,* Winchester.

1877.

F. T. BAGGALLAY [F.].

1879.

B. J. CAPEL [A.]; W. L. Herford, Manchester; W. Jacques [A.]; H. McLachlan [A.].

1880.

J. B. Gass [F.], Bolton; F. T. W. Goldsmith [A.], Newport, Mon.; F. Johnson,* Nottingham; H. H. Kemp, Manchester; P. J. Marvin; L. G. Summers [A.], Nottingham.

1881.

A. Marshall [A.], Nottingham; W. H. Thorp [F.],

Leeds; A. Pope [A.], Barrow-in-Furness; J. D. Harker [A.], Manchester.

* Those marked thus † passed in the class of Distinction; names of deceased are printed in italics; names of Asphitel Prizemen in capitals; the asterisk (*) denotes sometime members of the Institute.

THE OBLIGATORY EXAMINATION 1882-1894.

SIX HUNDRED AND FORTY-ONE CANDIDATES.

1882.

R. W. Bousfield*; G. A. T. Middleton [A.]; T. P. MARWICK [A.], Edinburgh; A. C. Wissenden [A.], Dover; E. W. Poley [A.]; S. C. Rogers*; A. S. Gover [F.]; W. Scott [A.]; C. H. Brodie [A.]; T. B. Whinney [A.]; C. S. Smith [F.], Reading; J. W. Simpson [A.]; N. J. Stanger [A.]; F. Hooper [A.]; P. Cowper; J. P. Wood [A.], Bristol; C. J. Tait [A.]; W. E. Riley [A.], Chatham; C. H. Stock*; E. P. Warren*; P. Hunter [A.].

1883.

O. Essex [F.], Birmingham; H. F. Tomalin [F.], Northampton; C. F. M. Cleverly*; C. Turner*; A. W. S. Cross [F.], Hastings; F. T. Mew*; J. H. Ball [A.]; A. B. Cottam [A.]; E. F. Dawson.*

1884.

A. Crow [F.]; A. McGibbon [A.], Glasgow; J. A. Williamson [A.], Edinburgh; A. B. Wilson [A.], Glasgow; J. Ledingham [F.], Bradford; C. Mason [A.], Nottingham; F. T. Pennington [A.]; W. H. Radford [A.], Nottingham; R. M. Hamilton [A.]; L. T. Waller*; H. A. Paley [A.], Lancaster; S. H. Seager [A.], Christchurch, N.Z.; A. W. Anderson [A.]; R. J. Beale [A.]; F. J. Banister [A.]; J. B. Phillips [A.]; J. M. Kennard [A.]; W. J. N. Millard [A.]; H. J. Price [A.], Nottingham; J. A. Saunders [A.], Folkestone; C. H. H. Cazalet [A.].

1885.

G. P. K. Young [A.], Perth; J. Eaglesham [A.], Ayr; A. A. Cox [A.], Oxford; H. Berney [A.]; N. Spencer*; G. Benson, York; E. Wood [A.], Middleton; W. E. Willink [A.], Liverpool; P. Ogden [F.], Manchester; J. Watt*; S. P. Pick [A.], Leicester; R. W. England [A.], Leamington; T. C. Yates [A.]; N. C. H. Nisbett [A.]; F. R. Farrow [F.]; A. T. Ellison*; J. A. Minty.

1886.

H. C. M. Hirst [A.], Bristol; F. A. Tugwell [A.]; T. R. Milburn [A.], Sunderland; W. A. Gelder [F.], Hull; W. G. Smithson [A.], Derby; J. M. Fairley [A.], Edinburgh; L. Coates [A.], Halifax; P. Hesketh [A.], Manchester; F. W. Ridgway [F.], Dewsbury; G. W. Hamilton-Gordon [A.]; V. Scruton [A.], Birmingham; F. S. Granger [A.], Nottingham; E. A. Coxhead,* Eastbourne; J. J. Muller [A.]; A. B. Mitchell [F.]; W. Dunn*; J. H. La Trobe [F.], Bristol; I. R. E. Birkett [A.], Manchester; W. R. Low [A.]; W. B. Gwyther [A.], Calcutta; A. Heyes [A.]; B. H. Pethick [A.], Plymouth; H. O. Cresswell [A.]; S. Box [A.], Eastbourne; W. Hooker,* Andover; H. H. Collins, Reading; F. P. Oakley [A.], Manchester; T. W. Parkes*; M. J. Gummow [A.]; S. Perks [A.]; H. Grieves [A.], South Shields; A. E. Barnsley*; A. D. Watson [A.], Stamford; A. C. Wood [A.]; H. T. HARE [A.]; F. W. Kite*; J. C. Nicol [A.], Birmingham; N. M. Brown [A.], Leicester; G. E. T. Laurence [A.].

1887.

P. Hoult, Dublin; J. Lavender [F.], Wolverhampton; R. M. D. Fell [A.]; H. T. Graçon [A.], Durham; C. Gourlay [A.], Glasgow; T. L. Worthington [A.]; R. Watson [A.], Edinburgh; F. E. L. Harris [A.]; W. Henry White [A.]; T. Moore [A.]; J. W. Brooker [F.]; W. H. Bidlake [A.], Birmingham; F. W. Marks [A.]; H. A. Gregg [A.]; A. H. Worsley [A.]; J. W. Stonhold [A.]; H. W. Wills [A.]; E. J. Bennett [A.]; H. R. Lloyd [A.], Birmingham; R. Williams

[A.]; H. L. Paterson [A.]; C. J. Marshall [A.]; E. H. Selby [A.]; G. C. Smith [A.], Newcastle-on-Tyne; H. H. Fox [A.]; G. W. Sadler [A.], Cheltenham; A. B. Pite [A.]; S. G. Goss [A.], Paignton; G. N. Durrell [A.], Sydney; T. Henry [A.]; T. DAVISON [A.]; G. Hornblower [A.]; J. W. Donald [A.], South Shields; L. V. Hunt [A.]; A. Sykes [A.]; A. T. Bolton [A.]; R. M. Gruggen [A.]; H. A. Satchell [A.]; W. C. Jones [A.]; E. H. Dawson [A.]; W. H. Woodroffe [A.]; E. J. Bridges [A.], Cosham; J. Peter [A.], Hastings; G. A. H. Dickson [A.].

1888.

H. R. Brakspear [A.]; T. H. Winny [A.]; C. W. Jackson [A.]; H. Hodgson [A.], Bradford; H. E. STELFOX [A.], Manchester; J. A. Berrington [A.], Liverpool; C. T. Taylor [A.], Oldham; W. E. Potts [A.], Manchester; E. P. Hinde [A.], Liverpool; P. E. Barker [A.], Manchester; H. C. Charlewood [A.], Alderley Edge; J. D. Mould [A.], Manchester; J. W. Cockrill [A.], Great Yarmouth; A. Broad [A.]; G. C. Awdry [F.]; H. Ogden [A.], Manchester; F. B. Lewis [A.], Nottingham; H. C. Elworthy* [A.]; M. F. Cavanagh [A.], Adelaide; A. C. Walker [A.], Tasmania; W. H. Town [A.]; A. M. Butler [A.]; A. W. Cooksey [A.]; F. Fox [A.]; D. Jenkins [F.], Llandebie; P. W. Barrett [A.], Barnstaple; C. W. Piper [A.]; F. C. Ryde [A.]; E. A. Jollye [A.]; P. H. Watson [A.]; J. S. D. Ahmadi [A.], Bombay; J. C. S. Mummery [A.]; W. Pott [A.]; L. Ambler [A.]; H. Sirr [A.]; B. J. Dicksee [A.]; S. P. Silcock [A.], Warrington; A. C. Smart [A.], Melbourne; H. H. Huntly-Gordon [A.]; Cecil Orr [A.], Dublin; A. Migotti [A.]; F. Brown [A.]; E. A. Hellicar [A.]; C. R. G. Hall [A.]; F. Taylor [A.]; J. A. Jones* [A.], Birmingham; A. W. Hennings [A.]; O. Oertel [A.], Allahabad; H. Ling [A.]; W. R. Wells [A.]; T. P. Roberts [A.], Bristol; R. Willock [A.]; H. Tooley [A.]; F. L. Jones [A.], Queensland; J. Gethin [A.], Penarth; M. A. Green [A.]; R. S. Lorimer [A.], Edinburgh; H. H. Thomson [A.], Leicester; W. S. Taylor [A.]; S. I. Ladds [A.]; H. Griffiths* [A.]; H. V. Lanchester [A.]; P. Waterhouse [A.]; W. Pywell [A.]; S. A. Ell [A.]; H. W. Burrows [A.]; A. S. Parker [A.], Exeter; J. A. Macara* [A.]; E. W. Jennings [A.], Swansea; C. O. King [A.]; F. W. Troup [A.]; W. A. Moull [A.]; G. J. Oakeshott [A.]; J. Hudson [A.]; J. E. Newberry [A.]; T. P. Figgis [A.]; J. W. Gunnis [A.]; A. E. Taylor [A.]; R. L. Cole [A.]; W. A. Williams [A.].

1889.

E. W. Hudson [A.]; A. S. Jones [A.]; F. F. Persse [A.], Loughrea; H. F. Kerr [A.], Edinburgh; C. H. Cooper* [A.]; E. A. Crooke [A.], Crewe; P. C. Gibbs [A.]; H. Ross [A.], Accrington; G. Orrell [A.], Chorley; S. M. Fairlie [A.], Manchester; J. B. Broadbent [A.], Manchester; D. Bird [A.], Sale, Cheshire; G. Wood [A.], Portsmouth; J. R. Best [A.]; R. H. Weymouth [A.]; R. E. Crossland [A.]; W. J. Tapper [A.]; F. H. Tulloch [A.]; F. M. Simpson* [A.]; R. Henry [A.], Leeds; H. Read [A.]; B. M. Southall [A.]; R. F. Macdonald [A.]; F. T. Verity [A.]; J. C. Stransom [A.]; H. J. P. Kimpton [A.]; L. Dennis [A.]; L. Youngs [A.]; B. F. Fletcher [A.]; H. L. Goddard [A.], Leicester; S. E. Wall [A.]; R. E. Smith [A.]; F. B. Andrews [A.], Birmingham; R. A. Crowley [A.], Alton; E. A. Hawkins [A.]; G. Kenyon [A.]; T. B. Ellison* [A.]; N. Wilson [A.]; H. G. Ibberson [A.]; E. G. Dawber [A.], Moreton-in-Marsh; E. W. Wimperis [A.]; F. M. Elgood [A.]; A. O. Collard [A.]; H. L. Whitley* [A.]; E. T. A. Wigram [A.]; W. H. Stucké [A.]; B. Woollard [A.]; T. R. Hooper [A.]; A. Body [A.], Plymouth; T. D. Atkinson [A.], Cambridge; F. W. Dorman [A.], Northampton; A. H. Hind [A.], Leicester; H. Lambert [A.]; B. Wadmore [A.]; H. R. Luck [A.]; F. D. Bedford [A.]; J. Rogerson [A.], Glasgow; B. V. Johnson [A.]; R. A. Reeve [A.], Stone, Staffs; C. A. Callon [A.]; G. T. Bassett [A.], Birmingham; J. W. Frazer [A.], South Shields; E. A. Mayo [A.], Deal; H. P. B. Downing [A.];

H. G. Lidstone; W. B. Savidge [A.], Nottingham; A. W. Hoskings [A.], Sydney; E. A. Runtz; A. B. Yeates [A.]; C. E. Bruton* [A.]; W. A. P. Clarkson [A.], New Zealand; H. W. Doe [A.]; A. N. Paterson [A.], Glasgow; H. BAKER [A.]; L. C. Cornford* [A.]; H. Gilbert [A.], Maidstone; W. D. Gravell [A.]; G. C. Horsley* [A.]; D. B. Niven [A.], Dundee.

1890.

T. E. Eccles [A.], Liverpool; A. E. Habershon [A.], St. Leonards; E. C. Frere [A.]; P. S. Worthington [A.], Manchester; J. S. Gibson [A.]; A. H. Heron [A.]; E. P. Howard [A.], New Zealand; W. J. Mettam* [A.]; S. B. Russell [A.]; B. W. Nunn [A.], Brighton; A. E. Spackman [A.], Bath; A. H. Hart [A.]; W. A. Webb [A.]; R. T. Beckett* [A.]; E. Carter [A.]; W. Eaton [A.], Leicester; W. B. Goodwin [A.]; H. H. Hughes [A.]; A. E. Ancombe [A.]; F. W. BEDFORD [A.], Leeds; G. Harvey [A.]; H. L. Hill [A.]; J. D. Scott [A.]; H. S. Wood [A.]; H. A. Woodington [A.]; E. A. Young [A.]; W. H. Smith [A.], Maidstone; A. S. Flower [A.]; A. B. Jackson [A.]; J. B. Mitchell-Withers [A.], Sheffield; F. E. Williams [A.]; C. H. Strange [A.]; W. T. Conner [A.], Glasgow; W. R. Howell [A.], Reading; F. Musto [A.], Leeds; H. G. Gamble [A.]; H. C. Pegg, Nottingham; V. E. Young [A.]; J. E. Jefferson [A.]; G. S. Jones [A.], Sydney; H. H. Wigglesworth [A.], Aberdeen; A. E. Bartlett [A.]; R. Glazier [A.], Manchester; F. H. Greenaway [A.]; C. B. Hutchinson [A.]; W. A. Pite [F.]; H. Porter [A.]; H. C. Rogers [A.]; E. W. M. Wonnacott [A.]; R. B. Pratt [A.]; G. L. Sutcliffe [A.], Manchester.

1891.

T. R. Kitsell [A.], Weston-super-Mare; J. Rawlinson [A.]; W. T. Cressall [A.]; J. A. G. Knight [A.]; O. Fleming [A.]; H. S. Fairhurst [A.], Blackburn; E. C. Hanson [A.]; W. C. Howgate [A.]; H. J. Griggs [A.]; W. Fraser [A.]; J. Hutchings [A.]; J. W. Twist [A.], South Shields; J. W. Little [A.], Clare, Suffolk; A. J. Meacher [A.]; J. BEGG [A.], Edinburgh; A. H. Clark [A.]; R. S. Dods [A.], Brisbane; A. N. Prentice [A.]; S. H. Capper [A.], Edinburgh; W. L. Eves [A.]; H. E. Mallet* [A.]; A. R. Mayston [A.], Norwich; A. H. Moore [A.]; E. H. Sim [A.]; G. F. Collinson [A.]; A. E. Tiller [A.], Southampton; J. H. Beckett [A.], Longton, Staffs; M. Garbutt [A.]; H. Helsdon [A.]; A. Mackintosh [A.]; F. A. Coles [A.]; H. S. East [A.], Tasmania; H. Budgen [A.], Cardiff; T. I. Goldie [A.], Bridgwater; G. P. G. Hills [A.]; F. E. Littler [A.], Hastings; A. H. Thomas [A.], Haverfordwest; C. A. Hindle [A.], Liverpool; H. A. Saul [A.]; W. E. Barry [A.]; T. G. Charlton [A.], Carlisle; A. E. Kirk [A.], Leeds; J. R. Wigfull [A.], Sheffield; T. C. Agutter [A.], Southsea; F. S. Baker [A.], Canada; C. Burton [A.]; W. C. Hall [A.], Leeds; W. E. Hewitt [A.]; E. Osborn [A.]; J. E. Evans [A.], Cardiff.

1892.

J. C. Watt [A.], Aberdeen; W. G. Dobie [A.], Birkenhead; A. Warburton [A.], Bolton; N. G. Bridgman [A.], Paignton; B. Walker [A.], Birmingham; F. R. G. Wills [A.]; H. Goodman [A.]; E. H. Child [A.]; T. G. Mansell [A.]; J. Paxton [A.], Kilmarnock; E. Thornton [A.]; W. Vaughan [A.]; F. E. Ward [A.], Belfast; T. Maclaren [A.]; J. Murray [A.]; C. W. Baker [A.]; A. C. Breden [A.]; S. W. Cranfield [A.]; A. H. Ough [A.]; W. H. Greene [A.], Liverpool; A. W. Jarvis [A.]; L. Kitchen [A.], Manchester; H. C. Corlette [A.], Sydney; S. K. Greenslade [A.], Exeter; K. Sakurai [A.], Japan; R. S. Ayling [A.]; J. L. Hodgson [A.], Stockport; C. B. Howdill [A.], Leeds; J. Saunders, Oldham; R. J. Angel [A.], Liverpool; J. W. Blakey [A.], Liverpool; E. S. Cummings [A.], Edinburgh; G. M. Ford [A.]; M. S. Hack [A.], Leicester; A. Hale [A.], Birmingham; F. M. Harvey [A.]; A. C. HOUSTON [A.]; E. H. Jones [A.], Liverpool; D. W. Kennedy [A.]; H. Passmore [A.]; T. T. Rees [A.], Birkenhead; R. A. Reid [A.]; J. Bain [A.]; W. H. Burt [A.]; A. W. Cleaver [A.];

T. Cooper [A.]; W. Grace [A.]; R. A. Rix [A.]; E. C. Shearman [A.], Buenos Ayres; T. A. Allen [A.]; W. E. Johnson [A.]; W. H. Ward [A.]; A. R. Hill [A.], Bradford; H. Brakspear [A.], Corsham; P. L. Waterhouse [A.], Tasmania; J. J. Cresswell [A.], Grimsby; J. H. Jones [A.]; L. E. A. Sargant [A.]; J. M. Keith [A.]; A. H. Ryan-Tenison [A.]; W. N. Cumming [A.], Edinburgh.

1893.

P. F. Hockings [A.], Brisbane; A. G. Morrice [A.]; W. B. Hopkins; B. P. Shires [A.], Plymouth; E. A. Hill [A.]; C. J. Clark [A.]; H. Blackburn [A.]; T. A. Lofthouse [A.], Middlesbrough; J. L. Houston [A.]; H. Jefferis [A.], Sydney; G. M. Simpson [A.], Brighton; W. J. Anderson [A.], Glasgow; W. C. Ashworth [A.], Exeter; R. S. Balfour [A.], Edinburgh; W. H. Beevers [A.], Leeds; E. Blayney-Clarke [A.], Birmingham; F. E. Caws [F.], Sunderland; W. Cowie [A.], Forres, N.B.; H. C. Creighton [A.], Newport, Mon.; H. A. Crouch [A.], Brisbane; A. E. Dixon [A.], Leeds; F. Earle [A.], Hull; A. Gladding [A.]; W. R. Gleave [A.], Manchester; S. F. Harris [A.], Hardingstone; C. H. Hebblethwaite [A.], Ipswich; W. Hodgen, Queensland; J. A. R. Inglis [A.], Edinburgh; F. H. Lines [A.]; W. M. Paton; E. D. Pickford [A.]; J. Ransome [A.]; A. Robertson [A.], Glasgow; M. Robinson [A.], Bolton; C. S. Roche [A.]; E. Skinner [A.]; R. J. Thomson [A.]; A. Thorneley [A.], Southport; W. G. Watkins [A.], Lincoln; C. A. F. Whitcombe [A.]; P. T. White [A.]; J. White [A.], Glasgow; H. Dearden [A.], Batley; C. Kempson [A.], Leicester; D. G. Salier [A.], Tasmania; G. E. Nield [A.]; W. A. Lewis [A.]; H. E. Jones [A.]; F. Lisham [A.], Durham; J. Newnham [A.], Exeter; D. P. Smith [A.], Kirkcaldy; J. R. Little [A.], Bolton; A. W. Toynton [A.]; J. E. Mowlem [A.], Swanage; G. H. M. Trew [A.]; W. J. Childs [A.], New Zealand; H. Barnes [A.], Sunderland; A. W. Sheppard [A.]; W. H. Ashford [A.], Rhayader; R. F. Bacon [A.], Reading; W. T. Barlow [A.]; E. R. BARROW [A.]; A. K. Brown [A.], Hull; J. R. Earnshaw [A.], Manchester; E. E. Fetch; A. J. Forge [A.]; F. P. Halsall [A.], Southport; C. S. Haywood [A.], Accrington; F. K. Kendall [A.]; H. C. Lander [A.]; J. A. Lucas, Exeter; A. H. Morgan [A.], Chester; E. B. Wettenhall [A.].

1894.

W. H. Barker [A.], Wrexham; A. T. Griffith; G. P. Pratt [A.]; G. Sutherland [A.], Elgin; C. C. Absalom [A.]; A. G. Bewes [A.], Plymouth; E. G. Bird [A.], Canada; F. E. Coates [A.], Sunderland; L. H. Dutch [A.], Manchester; A. H. W. Glasson [A.]; J. C. Maxwell [A.], N. Shields; A. Stedman [A.], Towcester; T. E. Thickpenny [A.], Bournemouth; S. Ford [A.]; L. Jacob [A.]; T. Kershaw, Halifax; J. Anderson [A.], Aberdeen; R. W. Bedingfield [A.], Leicester; T. H. Bishop [A.]; L. E. G. Collins [A.]; H. W. Coussens [A.], Hastings; R. A. Easdale [A.], Castleford; J. Fairweather [A.], Glasgow; J. F. Fogarty [A.], Bournemouth; H. Harrington [A.]; G. S. Hill [A.], Glasgow; V. D. Horsburgh, Edinburgh; J. Lochhead [A.], Glasgow; A. H. L. Mackinnon [A.], Aberdeen; J. St. J. Phillips [A.], Belfast; A. J. Pictor [A.], Barnstaple; E. Tylee [A.]; V. H. King; G. A. B. Livesay, Bournemouth; H. T. B. Spencer; J. C. Dewhurst, Belfast; H. A. Legg; H. J. Palmer; G. P. Sheridan, Dublin; P. H. Adams; J. L. Carnell, Norwich; G. Coster, Bournemouth; H. W. Pye; J. G. Stephenson; H. E. Church; F. B. Cooper, Leicester; S. S. Dottridge, Bournemouth; H. P. Fletcher; R. W. Horn, Glasgow; A. P. MacAlister, Cambridge; A. J. Pinn, Exeter; H. I. Potter, Guildford; C. H. Smith, Old Charlton; J. Spain, Sunderland; A. S. Tayler; G. P. Armstrong; H. Bailey, Newark; L. Barlow, Manchester; C. E. Bateman, Birmingham; S. B. Beale; F. B. Bond, Bristol; J. Borrowman, Godalming; H. E. Budden, Sydney, N.S.W.; H. A. Chapman; J. P. Clark; P. P. Cotton; W. E. V. CROMPTON, Wigan; E. O. Cummins; A. C. Dickie; F. B. Dunkerley, Bowden,

Cheshire; F. E. P. Edwards, Liverpool; H. E. Elkins; C. S. Errington, Newcastle-on-Tyne; A. W. Field; W. A. Forsyth; W. E. Gauld, Aberdeen; G. Gunn, Ayr; W. Hawke; W. E. Hazell; A. R. Hennell; F. B. Hobbs, Liverpool; G. Hubbard; G. G. Irvine; W. R. Jaggard; J. J. Joass; H. E. Kirby; A. E. McKewan, Birmingham; A. H. Mills, Manchester; T. A. Pole, Brisbane, Queensland; F. J. Potter; J. H. Price, Liverpool; T. D. Rhind; G. O. Scorer; H. W. Walker; T. H. Weston, Bristol; H. J. Wise.

* Names of deceased are printed in italics; names of Ashpitel Prizemen in capitals; the asterisk (*) denotes sometime members of the Institute.

THE PRIZES AND STUDENTSHIPS.

The Annual Exhibition.

The Collection of Designs and Drawings to be exhibited in the rooms of the Institute and in the Conduit Street Galleries, both of which have been hired for the occasion, is, this year, one of exceptional interest and value. Some of the measured drawings submitted for the Royal Institute Silver Medal are beautiful specimens of refined draughtsmanship. Eighteen designs have been received for the Soane Medallion, which is more than in any year since 1879, when the same number of designs were submitted for this Studentship. The Pugin Studentship has attracted seven candidates, the Godwin Bursary only one, and the Owen-Jones but two. There are eleven competitors for the Tite Certificate and the chance of foreign travel attached to it. Eight sets of drawings have been received for the Grissell Medal. These drawings alone suffice to fill the larger of the Conduit Street Galleries. The Essays submitted are eight in number, the subject being "The Influence of "Literature on Architectural Development."

A Special Exhibition of Drawings.

Moreover, by the courtesy of the French Government, a singularly fine set of drawings of the Pantheon at Rome have been entrusted to the Institute for the period of the annual exhibition. They are mounted on strainers, some of large dimensions, and show the kind of work done by a Frenchman who has been sufficiently expert and assiduous to gain the "Grand Prix de Rome," and fulfil to the satisfaction of the Académie des Beaux-Arts (Institut de France) the four years' task expected of him. Monsieur Chedanne, the author of the work, who has kindly offered to come to London for the purpose of arranging his drawings and explaining the nature of the researches he made at the Pantheon with a view to their execution, will, it is hoped, be able to be present at the Meeting of the 7th inst.

That the Minister of L'Instruction Publique et des Beaux-Arts has been moved to allow any of the "Envois de Rome" to leave France for exhibition in a foreign country is due, in great measure, to the kind intervention of the Académie des Beaux-Arts, the President of which at the time of the application was Monsieur Daumet [*Hon.*

Corr. M.—also President of the Société Centrale des Architectes Français, to whom Mr. Penrose addressed his letter, as may be seen in the following correspondence:—

The President of the Institute to M. Daumet, Président de la Société Centrale des Architectes Français, Membre de l'Institut de France.

27th November 1894.

DEAR MR. PRESIDENT,—I have been discussing with the Council of the Royal Institute of British Architects the possibility of obtaining, by the favour of our professional brethren in Paris, the loan of some of the drawings made by Students (*pensionnaires*) of the Academy of France at Rome during their tours in Italy or Greece, and exhibited from time to time at the Salon in Paris. But before making any application to the Institut de France or the Ecole des Beaux-Arts, I am anxious to learn unofficially from you, if you will permit me, as to the proper course to adopt in order to obtain the favour for which we propose to ask.

At the Salon this year some remarkable drawings of the Pantheon at Rome, by Monsieur Chedanne, were exhibited; and we think that if we were allowed to borrow these drawings, say for three weeks or a month in January, they might be exhibited concurrently with the drawings submitted by young men competing for our own studentships; and serve to show not only differences between the two systems of draughtsmanship, but also the superiority, which we do not fail to recognise, in point of completeness and delicacy, of French students' work.

Our exhibition opens on the 4th January and closes on the 14th January 1895, so that we should ask for the loan of Monsieur Chedanne's drawings during the three weeks beginning Tuesday, 1st January, and terminating Monday, 21st January, during which period we should be prepared to insure them against accident for such value as shall be put upon them, and pay the necessary expenses of carriage to and from London.

May I beg you to advise me in this matter, and to believe me to be always,

Dear Mr. President,

Sincerely and confraternally yours,
F. C. PENROSE, *Président.*

Monsieur Daumet, in acknowledging the receipt of the above, assured the Council of his desire to obtain for the Institute the favour asked for, adding that he regarded the President's communication "comme un hommage à nos procédés d'études des chefs-d'œuvre de notre art." That the Académie, as well as the Ministry of Fine Arts, entertained it favourably is shown in the letters from the Comte Henri Delaborde and from M. Chedanne which follow:—

Paris, le 17 décembre 1894.

Le Secrétaire perpétuel de l'Académie des Beaux-Arts (Institut de France) à Monsieur Penrose, Président de l'Institut Royal des Architectes Britanniques.

MONSIEUR LE PRÉSIDENT,—J'ai l'honneur de vous informer que M. Daumet a communiqué à l'Académie des Beaux-Arts, dont il est le président actuel, la lettre que vous lui avez adressée, en vue d'obtenir le prêt des dessins que M. Chedanne, ancien pensionnaire de la Villa Médicis, a exécutés d'après le Panthéon de Rome, et que vous désirez faire figurer dans une prochaine exposition des œuvres des jeunes artistes admis aux concours de l'Institut Britannique.

L'Etat étant seul propriétaire des envois de MM. les pensionnaires de l'Académie de France à Rome, notre

compagnie m'a chargé de transmettre à Monsieur le Ministre votre demande, sur laquelle il peut, seul, statuer.

En m'acquittant, aujourd'hui même, de cette mission, j'ai fait connaître à Monsieur le Ministre que l'Académie avait émis un avis favorable à votre demande.

Agréez, Monsieur, l'assurance de ma considération très-distinguée.

CITE. HRI. DELABORDE.

Fontainebleau, le 27 décembre 1894.

A Monsieur le Président de l'Institut Royal des Architectes Britanniques.

MONSIEUR LE PRÉSIDENT,—J'ai l'honneur de vous informer que Monsieur le Ministre de l'Instruction Publique et des Beaux-Arts ayant accueilli favorablement la demande relative à l'envoi à Londres de mes dessins sur le Panthéon, que vous lui aviez adressée par l'intermédiaire de l'Académie des Beaux-Arts, ces dessins seront expédiés de Paris, très probablement demain soir.

Ces dessins étant nombreux, et leur classement pouvant présenter quelques ennuis, je me permets de vous proposer de me rendre à Londres, le jour que vous jugeriez convenable, afin d'aider à leur mise en place. D'autre part, s'il vous était agréable, Monsieur le Président, ainsi qu'à Messieurs vos collègues, d'avoir quelques explications sur la marche et la nature de mes recherches, c'est avec le plus grand plaisir que je vous les donnerais.

En terminant cette lettre, je tiens à vous dire combien j'ai été sensible à la désignation que vous avez faite de mes études, et combien je vous en suis reconnaissant.

De la part d'une association aussi considérable que celle de l'Institut des Architectes Britanniques c'est un honneur dont je serai toujours fier. Soyez en assuré, Monsieur le Président, et veuillez agréer, ainsi que Messieurs vos collègues, l'expression de mes sentiments les plus dévoués.

GEORGE CHEDANNE.

Drawings made by the late Mr. Gribble, the architect of the Oratory at Brompton, representative of his executed works, are promised for exhibition simultaneously with the annual exhibition of students' work.

The late William Gratus Coward [F.].

At the meeting of the 17th ult. the decease was announced of Mr. W. G. Coward, who died from the effects of injuries received in a railway accident. He was elected a Fellow in 1891, and was a member of the Council of the Institute of Architects of New South Wales. The President of that body, Mr. J. Horbury Hunt [F.], has been good enough to forward the following particulars of his late colleague's professional career:—

Mr. Coward was born at Cambridge, and educated at a Grammar School in that city. In 1872 he entered the office of Mr. R. R. Rowe [F.], of Cambridge, to whom he was articled for five years, remaining with him altogether for nearly eight years. Under Mr. Rowe he made the best use of his opportunities, and gained an extensive knowledge of his profession. For six years he was a student of the Cambridge School of Art, winning distinction and carrying off many prizes. Here he was awarded full certificates for freehand, perspective, and model drawing. At the annual meeting of the School in 1879 the

Slade Professor, Mr. Sidney Colvin, referring to the advantages of students attending the Life class, particularly commended Mr. Coward for his drawing of anatomy, observing that his studies took high place among the best works of the year. Leaving Mr. Rowe, for the purpose of gaining general experience he served for a time in various offices in Lincolnshire, Somersetshire, and Cornwall. In 1881, his health failing, and being advised to seek a change of climate, he decided to settle in Australia. He obtained an engagement at Sydney in the office of Mr. Thomas Rowe [F.], a namesake of his old master, and remained with that gentleman for two years, when he entered the Government service, from which he retired to start business in partnership with Mr. W. A. Bell. The partnership, unhappily, through the dire calamity which ended in his death, endured but a short time. The works executed in Sydney from his designs and under his superintendence fully justified the honour conferred upon him in his election as a Fellow of the Royal Institute. He was held in esteem by all who knew him, both in his profession and among the builders. Of a nervous temperament and tender of heart, his sufferings in the accident above mentioned must have been truly awful. He was terribly scalded both externally and internally, the steam of the engine boiler passing in on those who were confined in the carriage next the engine.

The late James Murgatroyd [F.].

Mr. John Holden [F.], President of the Manchester Society, sends the following obituary notice of Mr. Murgatroyd, compiled from information kindly supplied him by Mr. A. W. Mills, formerly a Fellow of the Institute:—

The late James Murgatroyd, architect and surveyor of Manchester, a member of perhaps the oldest firm of architects in that district, was born in Ardwick, Manchester, on the 3rd January 1830, and was consequently within a few days of being 65 years of age at the time of his death, which took place on the 26th ult. As a boy he was educated at the Chorlton High School, on leaving which he was sent to the Handels Schule, Leipzig, where he became a great favourite with the masters, particularly with the architectural master, as he at an early stage developed that taste for the profession which he afterwards followed so successfully. After leaving Leipzig he returned home and commenced his business career. He at once obtained a seat in the office of Mr. Alexander W. Mills, who was then a rising architect in Manchester, and to whom his parents were known, and a very close intimacy then commenced between master and pupil, which continued without intermission up to the day of his death. At the termination of his articles he, by the advice of his friend and master, Mr. Mills, travelled for a couple of years on the Continent.

On his return he contemplated commencing practice on his own account, but ultimately joined his old master, and in 1853 the firm, originally "Alexander W. Mills," became "Mills and Murgatroyd," the partnership thus commenced terminating in 1881.

The business, which was established by Mr. Mills in 1838, had already at the date of the partnership attained considerable importance; and amongst other works in hand at that time was the extension of the Exchange Building in Manchester—afterwards, by letters patent, "The Royal Exchange"—and in this work particularly he as a young man took a lively and active interest, as also in the subsequent works connected with the alteration and the reconstruction in or about the year 1860. Many important works were carried out by the firm, which very deservedly secured a considerable share of the work in and about Manchester. The joint station of the London and North-Western and the Manchester, Sheffield, and London Railways at London Road was perhaps one of the most important buildings erected by it; also the extensive buildings belonging to the Poor Law Guardians of the township of Manchester. The Manchester Grammar School, with its very complete Gymnasium; the High School for Girls, and the large building erected originally for a warehouse, and now known as the Grand Hotel; the Manchester and County Bank, and most of its branches in the surrounding towns, were also erected by the firm. Personally, the two partners seemed made for each other; at no time during their business relations was there any difference between them, and the partnership was determined in 1881 simply by the elder, as it were, putting on his hat and leaving the office to the younger partner—a very rare occurrence, but one particularly showing the strong affection and confidence which existed between the partners.

Murgatroyd's Continental education and travels gave him considerable advantages, as he could converse fluently in German and French, and almost as well in Italian. His knowledge of mathematics was considerable. He was always greatly interested in educational matters connected with the profession, and was for many years actively engaged in the management of the School of Art and the Technical Schools, and was one of the committee appointed by the Corporation to visit the Continent for the purpose of collecting information preparatory to arranging for the building of the extensive technical schools which will shortly be commenced in Manchester.

For many years past Murgatroyd was largely engaged in valuing properties, more particularly in connection with the city improvements. He acted as umpire or arbitrator in a considerable number of disputed cases, in which his clearness of judgment was invaluable. He was a Fellow of the Institute, having been elected in 1877.

and one of the founders, in 1865, of the Manchester Society of Architects, of which body he was twice President; and he may be said to have been one of its mainstays. His circle of business friends was very large. He was well known for his strict integrity, and was, I may say, trusted by everyone with whom he came in contact.

"The Antiquary."

With the number for January, *The Antiquary*, an Illustrated Magazine devoted to the Study of the Past [Elliot Stock; 62, Paternoster Row], enters upon its sixteenth year and its thirty-first volume. Several improvements are at once recognisable in the new issue, which is well printed on good toned paper, the pages embellished with quaint ornament, and the whole tastefully and artistically got up. With the increased number of illustrations promised, and the always popular reduction in price—in this case, from a shilling to sixpence—a future of distinction as a notable Illustrated Journal of Antiquities may be confidently predicted for the New Series. The proprietors need have no fear but that a largely increased circulation will speedily recoup them the extra outlay required for its production. With regard to the contributions, there is nothing but praise to be said. In the brightly written "Notes of the Month" information is given upon some of the latest finds of antiquarian interest in Great Britain, among the most important of which may be mentioned the discovery of a Roman Villa at Darenth in Kent, now being thoroughly explored under the direction of Mr. George Payne. The author of *Folklore of the Isle of Man*, Mr. A. W. Moore, contributes the first of another series of articles on his own pet subject, in which he will make use of a mass of fresh material, collected mainly from oral sources. "Ancient Bookbindings" deals with Mr. Brassington's *History of the Art of Bookbinding*—an art which, though it suffered in some degree from the general decadence of an artistic spirit, yet never wholly lost its cunning. Some remarkable specimens are illustrated in book covers belonging to Queen Elizabeth and Charles I. Elizabeth's Prayer-Book with the wonderful covers, by the way, fetched £1,200 at a recent auction sale. The Church of St. Dunstan-in-the-East (not to be confounded with St. Dunstan's in Fleet Street) forms the subject of an article of considerable interest, supplemented as it is by a curious inventory of goods and chattels belonging to this church, compiled early in the reign of Edward VI. and preserved in the Public Record Office. The present building was erected at the beginning of the century, on the site of one restored by Wren after the Great Fire, and serves as an interesting example of early nineteenth-century church architecture. A short time since, the church was threatened with demolition, but this has happily been averted. Ecclesiastical Archæo-

logy—under which head we are to expect a contribution by the Rev. W. J. Loftie on "Wren's City Churches"—and Old English Arts, Crafts, and Trades will be dealt with in future numbers of *The Antiquary*.

REVIEWS. XIX.

(55.)

THE LOGIC OF LINES.

A Handbook of Ornament. With 300 Plates, containing about 3,000 illustrations of the elements, and the application of decoration to objects. By Franz Sales Meyer, Professor at the School of Applied Art, Karlsruhe. Second English edition, revised by Hugh Stannus, F.R.I.B.A., Lecturer on Applied Art at the National Art Schools, South Kensington, &c. 8o. Lond. 1894. Price 12s. 6d. [Mr. Batsford, 94, High Holborn, London.]

There must surely be a word missing in our vocabulary to express what, for lack of a name, one must call the architecture of common things. Or is it that Professor Meyer, in his *Handbook of Ornament*, has really combined under that objectionable term two elements which, though closely united, are really distinct—I mean the Art of Form and the Art of Decoration? In the domain of building these two come under the common heading of architecture, but when we examine the world of small things to which art is as applicable and equally essential, we find no name embracing the two departments of structural shape and that embellishment which, though harmonious with, is not essential to construction. Professor Meyer's own country is somewhat better off than ours for a nomenclature: *Ornamentale Formenlehre* was the title of his book as originally issued—an expression which, if inadequate, is more accurate than the translated equivalent.

One stands aghast before the task of classifying the systems of decorative art. Not that the subject-matter is a mass of chaos—far from it—but the possibilities of classification are so numerous that it is difficult to select the lines upon which the dissection into genus and species shall be conducted. Pattern alone, a mere branch of the subject, admits of several systems of analysis. It may be handled chronologically—or, as is frequently attempted, ethnologically—a treatment which has much to recommend it, as the differentiation of design is largely a matter of national characteristics. Or, again, it may be approached from a more essential standpoint and classified on a geometrical basis, of which system there is a good example in the handbook of Mr. Lewis F. Day. The great work of the late Owen Jones, while preserving the national and chronological treatment in the arrangement of the plates, deals with the question of colour from a semi-scientific standpoint, inventing for the purpose a series of axioms the truth of which may or may not appeal to the reader.

It is rather remarkable that this book by Professor Meyer, while treating of ornament, rather affects to ignore constructional form, though the illustrations, which by the way are admirable throughout, exhibit over and over again the fact that constructional form is an important, an integral part of the subject-matter. For instance, Division III. deals with "applied ornament," and opens with a page on which are exhibited what are justly called "the fundamental forms" of various vessels—as much as to say, "Here are your pots and pans, plain and simple, now for the *applied* ornament;" but look through the pages that follow, and you find that it is not really a case of applied ornament at all, but of endless variation of structural form—with decoration, of course, but with decoration dependent on, and allied to, form. I do not mean that one expects "applied ornament" to signify ornament applied in the sense of being extraneous, or "stuck on." I merely wish to point out that the illustrations convey a far deeper analysis of the evolution of common things than is anticipated in the headings of the text. It is the wretched word "ornament" that is at fault. There is a difference between an egg-cup and an amphora, but if both are perfectly plain, as they may well be, the difference is hardly to be expressed intelligibly in terms of "applied ornament."

After all, these objections, which may be purely captious, do not diminish the value of the book as a compendium of examples quite unrivalled in its scope. To say that here and there one finds a lacuna is merely to observe that in one book, even of 3,000 illustrations, it is impossible to comprise all the possible examples which the whole world has produced. If you consider for a moment that the art of common things began in prehistoric times, and that it has had no geographical limits, it becomes obvious that the largest possible collection of examples can only be a handful compared with the vast array there is to select from.

Professor Meyer devotes his first division to the bases of ornament, or motives ranged under the groups of A, geometrical motives; B, natural forms; and C, artificial forms. By the last named he means trophies and so forth, which, to be captious again, I should consider so far secondary as not to be co-ordinate, in a truly logical analysis, with geometrical and natural sources of design. Next comes, in Division II., the treatment of "ornament as such," with which also I find fault, purely on logical grounds, as containing pages illustrative of pilasters, columns, gargoyles, and other architectural features which, though they *may* be regarded as ornamental affixes to a building, are not fundamentally of a merely decorative nature, and should rather have been placed in the chapter on applied ornament, which forms Division III. Again I repeat that the illustrations, most of which seem to have passed under the Pro-

fessor's own hand, are voluminous and admirable; they cover an enormous field of research, and more than atone for the illogical arrangement of the book—a blemish which one would entirely overlook, but that one has a way of expecting every German professor to be an Aristotle.

PAUL WATERHOUSE.

(56.)

STAIRCASE JOINERY.

Practical Stair-building and Handrailing by the Square Section and Falling Line System. By W. H. Wood. 4o. Lond. 1894. Price 10s. 6d. [Messrs. E. & F. N. Spon, 125, Strand, London.]

Yet another addition has just been made to the number of treatises on staircase joinery, a branch of work which boasts quite a respectable literature of its own. Many authors have written upon it, and most of them seem to have found such fascination in their subject that they have contrived to invest it with an imposing air of mystery, perhaps not quite warranted after all. But the would-be architect, as a rule, seems to find the results of their labours so uninviting, if not repellent, that he is apt to leave them severely alone. Certainly the realities of staircase-planning have often proved a terrible stumbling-block: an instance occurs to me of a man, clever enough in most ways, an excellent draughtsman and colourist, who after studying architecture for several years gave it up altogether, because, as he said, staircases were too much for him. With a good textbook, such as this one of Mr. Wood's, such difficulties ought to be impossible; and it is chiefly in the interests of students that attention is drawn to it here, for, though intended primarily for the artisan, every young architect would find a thorough acquaintance with it of great assistance in his early essays in design.

The present work neither claims to be, nor is, an exhaustive treatise on timber-staircase construction; but it forms a very good general manual of the subject, and is throughout eminently practical and sound. Illustrations and diagrams are numerous, and, what is most important, boldly and clearly drawn; they are also conveniently placed in relation to the text, and not, as is too often the case, massed at the end of the book. On the general principles of setting-out Mr. Wood gives some good advice: "The rise should not be less than 6 inches, nor more than 7½ inches; while the going and the rise added together should not be less than 16½ inches, nor more than 18 inches." This simple rule might well supersede the elaborate *formulæ* and tables which take up so much space in some standard works, and with a little common sense in its application is all that anyone requires to know. About "winders" also Mr. Wood is worth quoting: "In drawing the winders keep the narrow ends as wide as possible, and for this purpose they can be brought past the newels into the strings; as we can have no sympathy with

“the system that crowds all the narrow ends of winders into the newels, by that means making the stairs unnecessarily dangerous.” The elevations given here are probably not intended to be criticised, except from a purely practical standpoint, or some of them might fairly be objected to, as not being fit subjects for imitation; but many sections are given on a large enough scale to give rise to the question, why the risers are invariably shown merely resting on the upper side of the tread, without any indication of tonguing or housing, although the under side of the tread is shown properly grooved for the bed-mould, and all screws, blocks, &c., in full detail: this may be a saving of labour, but as an improvement seems a doubtful one. Handrailing occupies the larger portion of the book, and the author’s own methods of getting out wreaths, ramps, and twists are fully and clearly explained. Mr. Wood’s “system” has much to recommend it for accuracy and simplicity in execution, and the sections of handrails which he recommends are somewhat above the average patterns, especially the first one. The important question of the height of the handrail is briefly dismissed with the remark that the height should be 2 8”, half an inch better than what “Rivington,” quoting from Newland, recommends, but certainly too low for the majority of staircases. One well-known authority on building declares that handrails 3’ 3” high are absolutely necessary for safety; and though such a height can hardly be necessary in ordinary cases, yet it would certainly be an improvement on Newland’s rule if 2’ 9” were made the standard height, with an increase on staircases exceptionally steep, or where rushes or crowding are to be anticipated, as in schools.

ARTHUR S. FLOWER.

(57.)

ANCIENT EGYPT.

Life in Ancient Egypt. Described by Adolf Erman. Translated by H. M. Tirard, with 400 illustrations in the text and 11 plates. Roy. 8o. Lond. and New York. 1894. Price 21s. net. [Messrs. Macmillan & Co., 29-30, Bedford Street, Covent Garden, London.]

Apart from the many itineraries of travellers describing their tours and giving descriptions of Egypt and its monumental remains, recent years have witnessed the publication of the accurate and invaluable works of Mariette Pasha, M. Maspero, and M. Naville among Continental authors, and of Professor Flinders Petrie, Mr. Griffiths, and Mr. Newberry among English authors.

Although the revival of the interest in Egyptian art is due, to a certain extent, to the great advance in the facility with which the hieroglyphics can now be deciphered, there is no doubt that the increased protection which is given to those who undertake the excavations is an encouragement to research. I recollect the piteous account which Mariette Pasha gave us in 1866 of the lukewarm-

ness of Ismail Pasha on the subject. On one occasion he had discovered a magnificent tomb of one of the early dynasties, with all the sculpture perfect, and of such beauty that he at once determined to reproduce it for the Exposition of 1867. Knowing well the character of the Arabs, he took special precautions to hide the entrance to this tomb; but it was of no avail. During his absence it was reopened for the benefit of some travellers who had brought special-made saws with them to cut out the bas-reliefs. He at once reported the occurrence to the Viceroy, describing in detail all his precautions, and demanding a strict inquiry into the matter, and punishment of the offenders. Ismail Pasha, however, only burst out laughing when he heard how the wily Arabs had frustrated Mariette Pasha’s devices. To a certain extent the same danger still exists, but the activity of the existing conservators and the protection upon which they know they can rely at all times have lessened the risk or the apathy of former days.

The object of the author of the book under notice has been to supply a popular work on the manners and customs of the ancient Egyptians, such as was brought out many years ago by Sir Gardner Wilkinson. Some of the letterpress in this, Mr. Erman remarks, has already become obsolete; and although for the most part the illustrations are still of great value, other works have been produced since, which have enabled the author to add considerably to them.

Of the twenty chapters devoted to the subject, that which contains a description of the ancient Egyptian house is naturally the most interesting to us; and the interpretation which Mr. Erman gives us (pp. 175-183) of the representations of plans, elevational views, and sections is graphic and clear. In some cases he does not seem to have gone far enough—in other words, he has not brought forward the subject to date. On page 169 he deplores that it is now impossible to form an exact appearance of an ancient Egyptian town, for nothing remains of the famous great cities except mounds of rubbish. This is true so far as the great cities are concerned; and the same applies to all ancient periods, owing to the fact that unburnt brick would seem to have been the principal material employed, and when, owing to age or to the proximity of a flood, the walls gradually settled down, the new buildings were erected on the top. Professor Flinders Petrie, however, published in 1891* plans of the town of Kahun, in the Fayoum, a town which was built for the workmen and overseers of the Illahun Pyramid, and deserted shortly after its completion. This discovery added a new chapter to the history of domestic architecture, and plans and descriptions of the arrange-

* *Illahun, Kahun and Gurob.* By W. M. Flinders Petrie. 1891.

ment of these houses would have added to the value of Mr. Erman's work. I am not sure, however, if he is as well acquainted with architectural matters as he is with Egyptology. If I may judge by the descriptions given on page 417 of the method of building walls of unburnt bricks, he is altogether at sea, for it is impossible to make head or tail of what is written. "Greater strength" (line 15) should be "greater width and thickness of wall." Line 16: "the corners of the building are formed by round posts" means that the angles of the building are protected by bundles of reeds bound together with withes, which are carried into the brick joints. Line 18: "In the same way," he says, "the upper edge of the wall is protected by a similar beam, without which the rafters would crush in the soft walls." There is no beam outside; the upper angles are protected by a similar torus moulding, composed of reeds bound together, as the vertical or sloping angle; and this has nothing to do with the wall plate, which, inside the building, carries the roof beams. Line 21: By the "hollow recess" does he mean the cavetto moulding which crowns an Egyptian wall? The last four lines of the paragraph, as well as the note, are quite incomprehensible.

Again, on page 419, the base of the column is described as having been derived from clay heaped up round the column to give it a firmer hold. But the bases found at Kahun were in stone, and their object was to give a proper bearing for the column, for which reason their diameter was half as wide again as the lower diameter of the column; and the base was raised above the ground to keep the column free from damp.

However, these are, perhaps, technical matters which concern more especially the architectural reader, and detract but little from the general scope of the work, which has been most carefully translated. It is also admirably illustrated, both in the selection of subjects and reproduction.

R. PHENÉ SPIERS.

(58.)

THE CHURCH OF ST. MARY OVERIE.

The History and Antiquities of St. Saviour's Collegiate Church (St. Mary Overie), Southwark, illustrated, with Appendix. By the Rev. W. Thompson, M.A., D.D., Rector. 8o. Lond. 1894. Price 2s. 6d.; with Appendix 3s. [Messrs. Ash & Co., 42, Southwark Street, London.]

The Rev. Dr. Thompson, Rector of St. Saviour's Church, has recently published a handbook-guide of 152 pages, including the appendix. It is illustrated by forty-five engravings of various sizes, including some reproductions of old engraved portraits; and it consists not only of an architectural description of the fabric, but also of a notice of the various tombs of interest within it, with biographical notices of the persons interred. The latter is by far the most interesting and

valuable portion of the little work; and the more so since the author has freely used the opportunities which his office affords of examining the old documents relating to the parish and the persons. By this means much new light is thrown upon the subjects treated of. The whole is written in a clear and readable style, with chatty references and allusions, which are always of interest, even if at times somewhat away from the immediate subject-matter before the reader.

Less than five pages are all that are devoted to the history of the church, although some more is presented when the fabric is described in the sensible arrangement of a tour round the interior, the subject-matter being arranged under various headings which admit of easy reference, as the different objects calling for remark are met with during progress. Architectural students will regret that the work does not treat more fully of the many and various objects of interest abounding in this remarkable and beautiful fabric. But the general public will doubtless appreciate the book better in its present form, and the architectural students may be content with the information to be derived from the presence of nearly a dozen sketches from the graphic pencil of Mr. H. W. Brewer, which have the happy result of indicating much that is not referred to otherwise. The book has sketches, too, by other hands, among which are some showing features of Norman or late Norman date, which, I am glad to hear, have been preserved in the new north aisle. There are also some fragments of the Processional doorway, which formerly led into the cloisters on the north side from the demolished conventual buildings.

When the new nave was begun a valuable ground-plan was published in *The Builder*, showing the remains of walls, plinths, and many other features of the ancient fabric laid open to observation on the removal of the nave erected in 1839. It was stated, however, that all had been cleared away to make room for the new work. A feeling of disappointment was experienced by antiquaries at this destruction—what had been spared by the builders of the poor fabric removed had been demolished by the restorers. The sketches are therefore gratifying, showing, as they do, that the principal features referred to are still in existence, and capable of being sketched. The pretty fragment of the south aisle arcade, which in past days could only be seen partially, owing to the covering of deposited rubbish, in the heating chamber of the former building, is now, we are told, visible in the new fabric. It is gratifying, too, to know that it is intended to lay open to view a curious fourteenth-century arcade, now concealed by the flat ceiling beneath the present central tower. This is not one of the least interesting features of the old work, and it indicates the previous existence of a central tower of different design from the existing one, with which we are all familiar.

From the lightness of the four main arches at the crossing it is probable that a tower and a spire had been contemplated or erected before the building of the present tower.

I am sorry to hear that the south transept window has given place to a new design, for with it has disappeared the last visible feature of the Palace of the Bishops of Winchester, once adjacent. The beautiful and well-known rose window of that building was reproduced in the head of the window recently removed, and a record of it was thus preserved close to the place where the original had existed for so many years. But this transept seems to have been remarkable for having had more windows in succession than any other building known to me. There was the window which, we are told, was introduced in the time of Cardinal Beaufort, and which, it is supposed, has now been reproduced. Then there was the traceried window shown in Hollar's views, which I have always thought to have been this very window, from its resemblance to the style of the side windows still existing. Then the poor window which the restorers of the early part of this century found in position. Then the window with the Winchester House rose, now removed.

The book contains several examples of reproductions of old portraits, which show what can be done by modern processes for cheap book illustration. I hope that our author may be encouraged by the sale of the present edition of his book to make use of similar means to illustrate the former aspect of the church from among the abundant old views still in existence, but which may not be an easy matter for an ordinary reader to collect. The etching by Billings of the original nave deprived of its roof would be one very good subject to reproduce. Taylor's History has a good print of the Processional doorway when perfect. Gwilt's own engraving of the east end before his restoration, of which there is, or was, a copy in the Ladye Chapel (Retro Choir), shows what the Tudor gable was like; while there are many others in the *Graphic Illustrator*, the *Mirror*, and other works which show the condition of the exterior of the Ladye Chapel before Gwilt's time, by which we can trace how much the present work is due to his good taste and skill. He produced a good and, perhaps, the best proportioned example of modern Gothic work that was done prior to the Revival. On this account one is sorry to find that the author considers Gwilt's stained-glass window to be crude in effect. It is a curious example of such work executed at a poor time, and in the history of the Revival it has its value, which should prevent its removal. The author styles the church "Collegiate," but it must be remembered that it ceased to be so at an early period.

The chatty part of the book, which comes before the reader during the tour of the interior, is of considerable interest, since many points of history

and many curious customs are illustrated by evidences remaining in the church. Of these the funereal ones are not the least, for there are many variations of taste and mode in the building. There are a few evidences of flat floriated slabs of early date; a well-known cross-legged Crusader, one of the few remaining effigies carved in timber; an emaciated figure; a capital Elizabethan (or Jacobean) canopied tomb, with kneeling figures; monuments with quaint inscriptions, one of which has the well-known lines beginning "Like to the 'damask rose you see.'" Dr. Thompson need not doubt them to be by Quarles, since they are printed at the end of his *Argalus and Parthenia*, ed. 1632, with two other verses.

The Austin monument is an interesting example of the emblematic style of the early part of the seventeenth century. Bishop Andrews's memorial is a fine and late altar-tomb with life-size effigy, and the poet Gower's shows that Mediæval inscriptions could sometimes be as laudatory as those of later date. Burials by torchlight are referred to, as is also the curious custom of interring a body at one place and the bowels in another. Marriages at the church door, the bearing of coat armour by persons engaged in trade, as at the present day, the use of tokens at the administration of the Lord's Supper, and many other customs find their evidences here. Dr. Thompson is hardly fair to the victims of the Maryan persecution in endeavouring to explain away their title of "Protestant," and they deserve better than to be met with the *tu quoque* argument—they persecuted like their persecutors—now all too commonly used by a certain party of the clergy. After the display of such devilry to God's martyrs, who were dragged from the church to be burnt alive at Smithfield, it was but fit that the beautiful Ladye Chapel should remain unhallowed at least for a time. Fortunately, no irreparable destruction took place, and the fabric must have been in fitting condition after Bishop Andrews's time to receive his effigy in the contiguous chapel now removed. There was a tradition twenty years ago that the staircase in the north-east turret of the Ladye Chapel led downwards to a subterranean passage communicating with the Prior of Battle's house to the east. But since there is no reference made to it in the book this appears to have been forgotten, and the passage not explored.

There is no reference made to the labours of Mr. Drewett, who was sexton for many years, and who devoted himself, Old-Mortality-like, in looking after the monuments, the old bosses, and similar matters. Many things now in existence owe their preservation to him, notably the plain piece of Roman pavement which he found in digging a grave. The book will be found of service to every stranger who may visit the church, and I understand that its very moderate price places it within the reach of all.

E. P. LOFTUS BROCK.



PROCEEDINGS OF ALLIED SOCIETIES.

DUNDEE.

Some Principles of Decoration in Marble, Mosaic, Sculpture, Painting, &c. By Alex. N. Paterson [et.].

Read before the Dundee Institute of Architecture, Science, and Art on 11th December 1894.

When we seek to discover, if may be, some of the main principles—the essential and underlying characteristics—of Decorative Art, we are at once confronted with the necessity for an exact definition. What, then, is Decoration? It is a means of giving beauty to an object otherwise devoid of it, or of increasing beauty where it already exists, by the addition of surface form or colour, or of both in combination. The aim is beauty, the means art, or, more exactly, the combination of many arts, graphic, plastic, textile, &c. Let us note before passing that the decoration may, and often does, have an added meaning. We may enrich our walls with a pictorial record of history or of moral truths, or with lettering in the form of the Commandments or Beatitudes; our Christmas decorations may suggest the festivities of the season, and the colour of a hat-ribbon include a great political party or a whole seat of learning. Such added meaning, be it serious or frivolous, has no bearing upon the æsthetic value of a decoration; whatever subject may mean to a picture, in this connection it is absolutely unessential. Beauty, fitness, and truth are here the dominant ideas. Beauty of form in composition, distribution of plain surface and ornament, mass, outline, and light and shade; beauty of colour in harmony, contrast, and proportion of tones; fitness of both form and colour to the sentiment and character of the surroundings and to the vehicle employed; truth to constructional form, so that a solid wall may not delude the eye with a filmy perspective of landscape, or a stained-glass window ape a piece of solid architecture. The subject thus disclosing itself proves a very large one—one requiring severe limitations to keep it within the bounds of a single lecture; for, notwithstanding the straitness of our definition, we find immediately after that both mistletoe and millinery are legitimately included within its scope. These I shall not attempt to touch. With design and ornament as applied to furniture and the common utensils we shall to-night concern ourselves but little—here a wide subject opens out. Rather, we shall take as our subject decoration in so far as it may be applied to architecture, our public buildings, churches, schools, and dwelling-houses; and within these limits again limit ourselves principally to the consideration of interior effects, mainly because such can be more readily detached from the larger subject of architecture proper. Here we come in touch with those vehicles of decoration commonly called the “minor arts,” works in glass, metals, textiles, &c.; and that they are not improperly called minor we see from the fact that they are not complete in themselves. For the individual worker in them, it is true, they are; for him they form, and, if good work is to be produced, must form, the boundary of his horizon. But with respect to decoration they are but means

to an end. They are the component parts; the completed scheme comprehends them, but at the same time stands outside, a thing apart. We find an illustration of this relationship in the sister art of Music. In an orchestral symphony we have a complex work of art in the production of which many different instruments are employed. Of these some, as the violin or cello, the flute or clarinet, are so far independent; as solo instruments they adequately render music written for that purpose, but in the production of the symphony they rank only with the bassoon or drum; they are but means to an end. Herein we have a perfect analogy with the minor arts and decoration. What, then, are the essential elements to the production of the symphony? On the one hand, a group of skilled musicians, each in his own degree an artist, thoroughly versed in the manipulation of his particular instrument; on the other, the inspiration, the scheme, the working out in the mind of the composer, and the interpretation, the direction, of the conductor, with a thorough knowledge on the part of both of the capabilities and limitations of the various instruments employed. The last two combined (as indeed is often the case in music also) typify the decorator in chief, the architect. Do not misunderstand me; it is not suggested that every architect—so called—is capable of devising or directing a scheme of decoration; or that there are not artists (using the word in its broad sense) capable of doing and presently carrying on such work, who yet, working not in stone and lime, do not call themselves architects. All I desire at present to insist on is that for the decoration rightly understood of any building, be it Pantheon or parlour, a guiding mind is essential, and that architecture being the art of building with beauty, and “beautiful within, like king’s palaces” being as integral a part of the art as soundness of construction and perfect convenience, such guiding mind is most fitly designated by the title of architect, whether he call himself so or not. What are the qualities necessary in such a one? Those of our *chef d’orchestre*—the artist mind to conceive; a knowledge of the resources at command, so that he may give to each its most perfect development consonant with the due effect of the whole; and the power to combine, control, restrain, and direct. Such men, you may be sure, are not wanting; their powers, and the artistic and manipulative skill in our painters, sculptors, and art craftsmen generally, only want developing. But without the public appreciation and demand for such work, it having no outlet in our art—that is our picture—galleries, it cannot be executed. It is in the hope of stimulating such appreciation and demand that I have undertaken, however unworthily, to direct your attention to this subject to-night.

Turning again for a moment to our definition, we find that decoration is obtainable by means of surface form or colour, or of both combined. When we come to analyse further, the discovery is at once made that, though convenient for the purpose of examination to separate them, the two are in reality inextricably bound up together. In the study of architecture this indissoluble partnership is apt to be, and frequently is, overlooked. Yet the fact remains that architecture, external as well as internal, is impossible without colour of some sort. We are apt to think of the painter, he who wields the brush, the artist—to give him the title which the British public has handed over to one out of many art-workers for his sole right and use, and which monopoly not a few of the craft accept with complacency—he, I repeat, we are apt to think of as essentially the colourist. The picture to the mind’s eye is a coloured thing; is it so with the building? Yet the *terra-di-siena* of the painter and not a few of his other pigments are but the architect’s materials ground small. The meatest he has to use, be they but stock-bricks, deals, and galvanised iron, have their colour value. Pass from these to the numerous and ever-increasing range lying to the hand to employ—in timber, from the white of pine

through all the yellows, browns, and reds, to the black of ebony; in stones, from the delicate and ever-varying shades of grey, brown, red, to the full-blooded tones of marble; in metals, the dull sombre grey of lead, the cold gleam of steel, the yellow, russet, and green of brass and copper and bronze, the white radiance of silver, and the ruddy glow of gold. To these materials, coloured directly by Nature, add those in which she is assisted by man—bricks and terracotta in all the tones suited to their dull surfaces, with the same vivified and lustrous in tiles and faience, the stains of glass and of enamels, the dyes of stuffs for hangings and coverings, with all the pigments in addition—then indeed we recognise that the painter's palette is of but limited range and weak resource compared with that spread for the architect. Decoration, I have tried to explain, is an integral part of architecture, and much of the noblest decoration is that obtained by the appropriate use of the materials which we have just enumerated; hence my insistence here on the necessity of recognising their colour value in our study of decorative art. I am here, however, confronted with a difficulty in the matter of illustration; for while colour is an essential to our subject, coloured slides,* owing to the great increase of size in the picture before it reaches the screen, are of no service to us where accuracy of tone in detail is required. I must content myself, therefore, in this connection with explaining some of the leading principles guiding the right use of colour in decoration, and describing such examples as I may be able to put before you in black and white; and thereafter, pursuing the same tactics with regard to the other main branch of our subject, we shall note as to form also what is right and what wrong, what therefore we should expect to find and learn to look for in good work. Right and wrong when not morals but art is the subject of inquiry! "A mere question of taste," said the foolish disputant in a well-known dialogue on a kindred subject. "No, sir," was the uncompromising reply; "it is not a question of taste, but of knowledge, sir, and of ignorance."

The facts regarding colour, with the relations of coloured light to pigments elucidated by the scientific study of the subject, are of great value to the decorator. The science of this I can scarce turn aside to consider in detail to-night; it is but necessary that we should glance at some of the practical rules which result from it as to the right use of colour in decoration. The effect of colours upon each other, when used in juxtaposition for instance, is a subject of great importance; so also the degree of luminosity in various colours as affecting the amount of surface over which they should be employed; and, again, the "saturation" of colour as depending upon the surface quality of the material, and by which the same tone will have an entirely different effect in paint, velvet, and glass. Now the various colours, as you are doubtless aware, may be arranged in pairs, called complementaries. Such pairs are known scientifically, in that when mixed as light and in certain proportions they produce, not a resultant colour, but white; artistically, that they offer the most brilliant contrast to each other, and, so to speak, balance each other. Colours placed side by side are known to have a definite effect upon each other—each is tinged with the complementary of its neighbour; hence the complementaries—red and bluish-green, yellow and violet, &c. (the relationship exists all through the scale)—when placed in juxtaposition will each appear more brilliant from being tinged with the complementary of its neighbour—that is, with a greater degree of its own tint. Thus, if a band of red be placed upon a bluish-green ground, the colour will appear more brilliant in position than when in the paint-pot, and the decorator will take steps accordingly. Non-complementaries will, by the same action, be lowered

in tone—red and yellow, for instance, being placed together will make the red appear purplish, the yellow greenish. Dark tones will affect lighter tones in their vicinity in the same manner, but in greater degree. From the experience of these effects comes the practice of outlining in coloured ornament common to the decoration of all periods and countries; ornaments on a gold ground being separated by an edging of darker tone or black, on grounds of other colours being outlined in white, black, or gold, &c. Again, such knowledge is made use of in blending tints by placing different colours on small surfaces repeated over a large area, so that in the distance the resultant tone is produced on the retina. The special value of this lies in the fact that the blend is not a perfect one; the surface seems to flicker or glimmer, with the result that a soft and peculiar brilliancy is imparted to it, and a transparency of tone is produced. This is a characteristic method of the latest school of impressionist painters, who render by its means the iridescent quality of the colour in nature. In decoration it is an ancient and time-honoured practice. A small repeated pattern of blue on a red ground imparts a rich purplish bloom to many an Indian hanging and Persian carpet; in the Alhambra (that treasure-house of coloured architecture) a blue ground with diaper of gold produces a shimmering green of exquisite quality, and the same idea is happily made use of in many modern wall-papers. Once more, colour, when we know the degree of luminosity in the various tones, may be used (one of its most valuable attributes) in developing form; blues will deepen the depth of a recess or moulding, reds and yellows heighten the projections. Primary colours, on the same scientific grounds, should be used in small quantities and on upper surfaces, secondaries and tertiaries in larger masses and on lower levels. You will readily see the value of such knowledge in carrying out decorative work; for the appreciation of it, it will help but indirectly; yet a knowledge of the technique of art assists the mind to discriminate in locating beauties or faults, of which the presence might be felt, but the reason without such knowledge would be unknown.

Truth in Colour.—Of truth in the case of colour I must also say a word. There is an inherent falseness, and therefore badness, in colour decoration which attempts to obscure the underlying material or construction. The colouring and jointing of cement or plaster to make it look like stone, the graining of wood and marbling of stucco columns, till recently the high-water mark of the house-painter's ambition, and, in the higher line of decoration, the fresco which, while not isolated from the wall by a surrounding frame, yet makes full use of aerial and linear perspective, so that the eye of the spectator is carried beyond and away from the fact that the wall is there—all such artifices, in fact, while perfectly legitimate in picture-painting, are radically wrong and false when regarded as decoration. In the same category must be placed the favourite, but reprehensible, practice of decorating (save the mark!) china or pottery with paintings of flowers, treated as realistically as possible. Of all these it may be said that the better they are done the worse they are, as a lie becomes the more vicious the more closely it simulates the truth.

Convention.—Convention—that is, abstraction of the character and beauty of an object without imitation—is indeed one of the first principles of good decoration. Why it should so be is at first sight a little difficult to understand, though we have sufficient warrant for belief in the fact that it has been characteristic of all the best decorative art in past times. The main reason, however, will be found, I think, in what we have just been considering—namely, the falsehood involved in the attempt by a close imitation of nature to deceive the eye as to the character of the underlying surface.

Right in Form.—As to the right use of form in decora-

* A large number of illustrations were shown throughout the lecture by means of lantern slides.

tion, convention is a principle of equal if not greater importance, for we have here an additional objection to the close imitation of nature in the unsuitability of the material employed—be it stone, wood, or metal—to such a purpose.

Restraint.—Closely akin to this as a principle of right is that of restraint. All effect in the use of ornamental form is lost unless we have a sufficiency of plain surface—a level space on which the eye may rest, returning again with renewed pleasure to those richer parts in which the decoration is concentrated. Generally speaking, this should be where the eye is likely, from outward causes, to linger—as, on the outside, about the doorway; in a room, about the chimney-piece; in a church, about the altar or the pulpit, as the case may be. Mr. Inskin, for this reason, objects, with his usual impetuosity, to any attempt at ornament about a railway station; for there a man, he says, is transmuted from being a traveller to a “living parcel,” his only desire to “find his way out as fast as possible.”

Proportion and Scale.—Again, we must look for good proportion in our ornamental forms—proportion within itself in its various features, and proportion to the size of the object or surface decorated. The ornament, in technical language, must be *in scale* with its surroundings. Also, it must be in scale with the materials employed—simple, even massive, in granite, with a gradually increasing fineness of detail in stone, wood, marble, metal, ivory.

Truth to Construction.—Last in our list, good ornamental form must be true to the underlying construction, or, as the aphorism puts it, we must “ornament construction, never construct ornament.”

Such are some of the leading principles the embodiment of which we should look for in good decoration by means of colour and form. There are many others, which it is impossible to touch on at present, but some of which, with those already mentioned, I hope to be able to illustrate from the examples shown in the lantern. For the purpose of illustration a vast field stretches itself. As it is mainly our aim, however, to elucidate principles, we can, perhaps, best arrive at these—and at the same time retain some scheme in our presentation of them by arranging our illustrations in groups, according to the means mainly employed in producing the decorative effect, be this marble, wood, or plaster. In doing so we shall discover that, broadly speaking, the characteristic methods of decoration were, in classic and early Christian times, by means of marble and mosaic; during the Gothic period, painted decoration, both figure and ornament, with a liberal use of precious metals, gems, tapestries, wood, stained glass, marble, tiles, and stone carving; during the Renaissance period many new methods were introduced, while the Gothic means were retained and the classic reverted to. In our own country decorative effects mainly depended upon the use of moulded and modelled plaster and carved wood, with a liberal painting and gilding of both; but marble and stonework, tapestries and decorative painting, also played their part. Of latter-day times we can predicate little, till within the last few years, but the apotheosis of wall-papers, cretonnes, and Liberty silks!

Marble.—First, then, we shall consider some examples of the use of marble and mosaic; and, at the risk of exhausting your patience, I must say a word regarding these before proceeding with the illustrations. Than marble we have no richer and more enduring means of decoration at our disposal, and it is one which we find employed from the very earliest times. To judge from the way in which it has been used in our typical dining- and drawing-room mantels of the past generation, it might be assumed that it exists only in two colours—black and white. In reality it offers us an almost complete range of colour, both in simple tones and in exquisite combinations. So rich is the material, so precious artistically, that it demands a certain reserve in its use; a too lavish display, unless upheld and justified by nobility of design, will but

savour of ostentation and vulgarity. It is best employed in simple flat surfaces and in columns; the richness of the material is but frittered away if it is attempted to cut it up into thin lines of light and shade. Carving should therefore be used with the greatest reserve, and any mouldings employed should be flat, soft, rounded, like ripples on the surface.

Mosaic.—Much the same rules apply to the use of mosaic, which, for extension of range, richness of texture, and durability, stands unequalled as a means of decoration; while the necessary simplicity of its lines and masses renders it, when properly treated, perhaps the most suitable of all means of obtaining colour effects in architecture. Of the many kinds of mosaic which have been used two principally demand attention—marble mosaic, in which small cubes of marble of different colours are employed to produce the design, and the so-called glass mosaic (enamel is really the more appropriate term), where the coloured material is formed of tesserae of fractured glass, rendered opaque and coloured by means of one or other of the metallic oxides, or by the introduction of gold or silver leaf within the substance of the cube; in both cases the materials are set and jointed in cement. Away in the remote antiquity of the Book of Esther we find the use of mosaic described; with the Greeks and Romans it was largely used for floor and wall decoration; but its greatest glory was reached in Romanesque and Byzantine architecture, as exemplified in the basilicas of Ravenna and Rome, the cathedrals of Monreale at Palermo and St. Mark's at Venice, those shrines of colour in caskets of gold, at once the delight and despair of modern art.

From these we learn as to the use of mosaic (I quote from a recent authority on the subject) (1) that the joint is an integral element in the structure of the picture, and should play its part in the design and colour; (2) the surface should not be brought to a dead smooth level, the play of light on the variously set planes of the tesserae being an important factor in the effect; (3) a minimum of tints produces the happiest results; (4) a simple, bold, and uncomplicated treatment is a necessity of the material; (5) any attempt at realism is inadmissible. And, further, the best effects are obtained on curved forms or on plain surfaces, rounded at the angles so that a various play of light is secured, and all attempt at moulding must be set aside.*

Monumental Painting.—I shall now put before you some examples of decorative painting, but before doing so would say a word or two on this branch of art. So large a subject might in itself fitly form the material for a series of lectures: for the present the barest glance at some characteristic features must suffice us. It is only within what may be called modern times—since the Italian Renaissance—that painting as a fine art has been severed from architecture. Till then there was, in truth, “but one art”; the design of the building, its painted decoration in figure and ornament, and its sculptured reliefs were not infrequently the work of the one master. The press and hurry of modern life has changed all that, and irrevocably. The easel picture has come into existence, frequently a work of art of transcendent beauty—and price. In it the great painter-artist is bound up, and we have lost—I had almost said entirely—the decorative painter. It needs little reflection to see that the two arts are widely different. To be seen rightly, a picture, as now understood, must be looked at under one condition of light, from one point of view, at the correct distance and level required by the conditions of perspective under which the scene was composed. (Could anything prove, in passing, more abundantly the folly, from an art point of view, of our picture exhibitions under the present conditions?) The wall decoration must be seen, on the other hand, from many points and under all conditions of light; and if it is

* See the Papers on Mosaic and Fresco by Mr. Harrison Townsend and others, JOURNAL, Vol. I. Third Series, p. 245.

to be carried out successfully must be approached by the painter in an entirely different way from the easel picture. Two methods only are admissible; either, as in the Middle Ages, in the subjects delineated at different elevations on the walls attention must be rigorously withdrawn from such subjects as horizon line, picture plane, perspective effect, and exact light—the wall-surface, in fact, treated as a wall-surface, the pictorial decoration and ornamental bands enriching it, indeed, with beauty of line and colour, but leaving it flat, the background generally being kept light, the modelling conventional, outlining extensively used, especially between different tones of equal intensity, and gold admitted both as background and embroidery; or, as in the sixteenth and seventeenth centuries, the difficulty as to the position of the decoration with reference to the point of view must be resolutely confronted by tracing the scenes on wall or ceiling according to a unique perspective, which supposes that all the objects and personages shown to the spectator are really placed where they are represented, and consequently display themselves under an aspect determined by their actual position, so that on a ceiling a personage may be seen upwards from the sole of the foot. There need be little question as to which of these methods is the more beautiful from an architectural—that is, a decorative—point of view. The latter is only admissible where, by means of mouldings in relief, it is separated from the surrounding constructions, leaving enough plain space to retain the sense of solidity. Further, it is at best only a partial solution of the difficulty; there is a point from which the eye of a spectator may from the floor of the apartment obtain a correct view of the surrounding decorations, but there is only one; the decorations, in fact, become pictures, fixed as regards position in relation to each other, but without other reference to the building which contains them. One other condition of monumental painting we shall here refer to. The most insignificant accessories must be painted with as great care and placed in as good light as the principal personages. The walls of an apartment are always seen obliquely, and the eye demands a general sustained surface equally rich, equally solid throughout.

Sculptured Decoration.—On the subject of sculptured decoration I must also say a few words before introducing to your notice some examples of its use in the past. Carving in marble, stone, and wood, with modelling in the plastic materials, has ever formed an effective instrument in the hands of the decorator. In its relation with the parent art of architecture it suffered after Renaissance times a disruption similar to that referred to in painting, though the severance has never been so complete, nor the result so disastrous. With regard to the characteristics of good work, most of what I had already occasion to say as to what is right in form here applies. Restraint is here a quality to be sought after. Sculpture, in fact, should in general be employed sparingly, for much relief necessarily destroys repose, that quality so essential to an art which must ever occupy itself with a background to human event. It must not be forgotten, on the other hand, that sculpture properly employed, as in a band or frieze in low relief, may be the very means of giving breadth and repose to a wall surface cut up otherwise with distracting forms. Again, while, generally speaking, restraint in its use with plenty of surrounding plain surface is desirable, when an effect of extreme richness is aimed at it may be allowable to treat the whole in relief; only in this case it should be done in planes, so to speak, the main portion being treated as a background with a simple repeating design in low relief, the more important parts as self-contained ornament in higher light and shade and distributed in points. We must not only have our carving in scale with its material—a fineness of ornament suitable to marble being open to condemnation in stone—but we must have the constituent

parts of our ornament in scale with each other. With the same relief it is, for instance, inadmissible to have a large figure in close proximity to a small one, though the eye is not offended in the same way with a large figure in full relief while others on quite a different scale are in contiguity, it may be, on the pedestal, if these are in low relief. Further, I think that, having found out what good sculpture is, we should insist on having, and having only, the best of its kind. Far better have none at all than be satisfied with inferior work. Having secured that the sculpture be good, it would seem natural to put it where it can be seen, and that is certainly not on the topmost pediment, or along the parapet of a high building, or on the apices of the thousand pinnacles of a cathedral, as at Milan. No doubt the æsthetics of architecture demand that a building be simple and solid on those lower stages which support the whole, richer and more elegant the higher it soars; but the ornament this treatment requires should be such as can be made simple in detail, vigorous in outline, able to tell its story and no more at the distance from which it will be seen.

Plaster-work.—The next vehicle of decorative effect to which I would briefly draw your attention is plaster, than which, properly used, there are few more useful materials for interior decoration, offering, as it does, the two extremes of breadth and delicacy. Under the hand of the artist it is impressionable, sympathetic, and immediate in producing the desired effect; it forms an admirable ground for colour, and gives us a ready means of producing surface form. Its history among the decorative arts is curious and interesting. The use of plaster in one form or another as an internal finishing of the dwelling has no doubt in all times furnished one of the first indications of civilisation, and the ready means of ornamenting such a plastic material would unquestionably be early taken advantage of. The first use of it of importance to us in its artistic influence was by the Romans, among whom it flourished and attained a high degree of excellence, as we shall see later. For long centuries—from the fall of the Roman Empire till the Italian Renaissance—it was practically a lost art so far as Europe was concerned, though, like the Roman power, it had gone eastward and influenced Indian, Arabian, and thence Moorish art. In the fifteenth century, in that search for and study of the arts of antiquity in which the Renaissance was nurtured, it was rediscovered. The exhumation of the old baths and tombs furnished exquisite examples of its use; research and tradition, maybe, with patient experiment, provided knowledge for the production of the material and the methods of manipulation, and Raphael, Giovanni da Udine, and kindred artists were soon busy in the Vatican, the Villa Madama, and many other houses and palaces, producing work rivalling and surpassing the Roman prototypes. From Italy the art soon found its way to France, where it first found a home in the decoration of the Palace of Fontainebleau under Francis I. Our own Henry VIII. invited “many excellent artificers” to England, and his wonderful palace of Nonesuch—now, alas! existing only in the enthusiastic descriptions of the period—was a glorification, both outside and inside, of the art of the plaster-worker. Under Elizabeth and James it developed an indigenous style in the treatment of ceilings with flat interlacing tracery, terminating at times in pendentives, the panels enriched with delicate and beautiful modelled ornament. In Scotland the art was largely taken advantage of, with what excellent effect may be seen in many of the seventeenth-century houses and castles scattered throughout the country. It continued to flourish, modified in design by each successive phase of architectural thought, until the days of the famous architects, the brothers Adam, about the end of last century; but, as I have heard it said, “in Adam all plaster-work died.” Its use as a material has indeed continued, and even

grown amazingly since then, for the jerry-builder finds that for a time at least, like charity, it covers a multitude of sins. But as an art it has been dead, as in the middle ages, till within our own days signs of revival have set in. In the hope of encouraging such revival, very tentative as yet out of London, I have devoted perhaps more than its fair share of our time to-night to this short history of the art. Into the technical processes I need not go; the best results are obtained by direct modelling of the ornament on the ground, with casting of repeating parts and running of cornices and rib-mouldings. The nature of the material suggests that the treatment be delicate in light and shade, breadth of effect where required being obtained not by bulk and heaviness, but by simplicity of surface and softness of outline.

Other Materials and Methods.—Many materials and methods of decoration of historical interest and present usefulness I must pass with simple mention; of such are leaded and stained glass; the casting, hammering, and chasing of the many metals from iron to gold; the use of tapestry and of embroidery, and sewn stuffs generally; and that of tiles, faience, and pottery. Not that these are of less importance than those which have gained our attention. But we must cut our coat according to our cloth, and limit the number of our examples to suit the duration of a lecture. With marble, mosaic, painting, sculpture, and plaster they have each their place in the decorative scheme, a place assigned to them by their constructional and artistic qualities, a province closely defined—railed off, so to speak—by their limitations. Of some revivals of old methods and the introduction of new ones I shall speak later in considering the decorative art of to-day.

We have considered together what man has done in the past to beautify and ennoble his immediate surroundings by means of the arts. How do we stand to-day? Our houses are more comfortable and more sanitary doubtless than those we have been looking at. Are they also more beautiful? We shall agree in saying, I am sure, that they are not; yet I cannot think but that progress in beauty is at least as important as progress in comfort. "Is not the 'soul more than raiment?'" As to our churches, it would seem to be the opinion of many that whether "stone walls 'do not a prison make'" be the case or not, they are amply sufficient with a modicum of white plaster and varnished deals to constitute a church. Yet where can beauty more fitly be lavished than on the building to which we go in order to approach nearer, if it may be, to Him who is the source of all beauty? To these and similar questions there be many who answer that this is a scientific age, and science and art are incompatible. In this there may be some truth, yet it is noteworthy that in the times of the Renaissance increase in knowledge and in art went hand in hand. Again, it is said that the uncertainty of house tenure in the present day does much to discourage spending money on decorative work; yet many things within this category can be moved from house to house, while even on the short lease principles the rooms are not left altogether bare, and good decoration costs no more than bad. Personally, I believe that we have a more fundamental reason in the fact that the art instincts of the people have been misled for the last century by constant insistence on the pictorial and imitative side of art. There is, in truth, an enormous amount of art energy abroad among us, and nine-tenths of it is misdirected. In almost every family one finds the girl who "goes in for art"; the art faculty, instinct, what you will, is there. How is it employed? Why, in learning to paint pictures: flowers probably to begin with, landscape next, ultimately portraits of friends, the final goal of ambition! Our picture galleries, crowded to the cornice, show the result, and they in their turn reiterate with a hundredfold force that art means pictures, and that the function of art is to tell a story, or at the lowest to make a likeness of a man so that his dog

would know it. Believe me, the first function of art is *not* to tell a story, however beautifully. Much of the art which we have thrown upon the screen to-night had no story to tell; its qualities were those only of truth and beauty, and yet those examples rank among the greatest productions of art history. There are far too many pictures and picture-painters, amateur and professional, in the world; and meanwhile our furniture, curtains, and wall-hangings are left to be provided by the wholesale manufacturers, and our architects are chosen because of their knowledge of drains. The same curious perversion of the art appreciation of to-day is exemplified in the not uncommon case of the man who, content with a house as it comes into his possession, though it has hideous plaster cornices and centre-flowers, and a builder's stock chimney-pieces and doors, yet spends many thousand pounds on the pictures he hangs on the walls. But to return to our budding artist. It is not easy to make a beautiful design, whether it be in embroidery, or in stone and lime; far from it; but, given the artistic faculty, it can be taught, just as picture-painting can. The picture is not wanted, there are too many of them; while of beauty in design and its appreciation, what a lack is there! The artist who, in the present state of things, makes use of his or her talent and training in producing, of his or her own design and execution, a beautiful doily, does more good to art than one who paints a flower-piece, even though it be hung in the neighbourhood of the line in your local galleries, to form the centre of an admiring group of friends. A large proportion of the public take their ideas on art as they do their religion, without much reflection, from the authorised professors thereof, and they have been taught for generations by the Royal Academy and kindred bodies that picture-painting is Art—with a capital A—and the whole of it. It must take years, perhaps generations, of effort in the face of opposition and pecuniary loss to rid the public mind of that fallacy; but it is a purely modern one, and I do not see why it should be ineradicable. Already a tendency in the right direction is making itself felt; a revival of the arts decorative as opposed to pictorial is dawning. I have spoken before of our day witnessing the apotheosis of wall-papers, cretonnes, and Liberty silks. It is not much, but it is already something if these be good in colour and design, as many of them are.

During very recent years these first efforts have been largely supplemented, chiefly under the fostering care of the Art Workers' Guild and other kindred Societies. Among their members are artists of the first rank, who are devoting themselves to work in the various mediums to which I have drawn your attention (thereby, of course, setting aside all opportunity of present popularity), and seeking to educate the public by occasional exhibitions of such art. Exhibitions like these may be wrong in principle; the works gathered there should be seen in the places for which they were designed. But for the time they serve the purpose of showing that art has not its only home within the gilded picture-frame; and this idea once got rid of there will be no further need for exhibitions, as the work will be seen in every home. In this wider art, this new revival, we in the North are still far behind. In London, St. Paul's Cathedral is at present being decorated in mosaic from the designs of one of our great artists, and executed under his supervision by a local school of mosaic-workers.* There also are artists in plaster and stucco producing work equal to that of the Elizabethans and Italian Renaissance masters; while another kindred art of that age—that of Sgraffito—has been revived, and is being successfully prosecuted for the decoration on a large scale of exterior and interior wall-surfaces. The art of the Della Robbias has been quite recently again taken up in England, and promises the best results; furniture is being

* JOURNAL, Vol. I. Third Series, p. 248.

designed and executed with a beauty of form and soundness of construction which at last render it unnecessary for present-day purchasers desirous of obtaining good work to refuse anything later than Chippendale and Sheraton. Decorative painting, glass staining, works in marble and the metals, are all likewise receiving attention, with the best artistic results, or at least with the promise that with more matured experience such will be arrived at. Is it too much to hope that the isolated workers here and there throughout Scotland will ere long be reinforced by many artists willing to turn their backs on picture-painting and an exhibition popularity, and to devote themselves to art in a larger and higher sense? Could we not have local Arts and Crafts Societies to encourage such workers, and foster, with however small beginnings, the public appreciation? In the direction of municipal encouragement of decoration, Manchester has shown the way in the beautiful series of mural paintings which adorn her Town Hall, the work of the late Ford Maddox Brown, whose recent death followed close on the completion of the last panel. Birmingham is at present following suit; and a scheme is even now taking shape in Glasgow for the decoration, under the able supervision of Mr. Leiper, of the Banqueting Hall in the Municipal Buildings. There can be little doubt that the Corporation and the architect in charge will carry out this scheme in the largest spirit, and so give our local artists an opportunity for executing a work of permanent interest on a large scale. This opportunity they are thoroughly able to take advantage of, if only they will loyally act in concert under the direction of their decorator-in-chief, and set themselves to learn the traditions and canons of mural painting and the essential differences between it and pictorial art, some of which I have indicated to-night, but which are set forth more fully and more authoritatively elsewhere.

I trust my somewhat rambling lecture has not too greatly tried your patience. My difficulty has been, in choosing illustrations, in the case of the old work to make selections from the enormous mass of fine materials at my disposal, in the work of the present day to obtain examples sufficiently fine to rank with the classic art of the past. Nor do I pretend that they are worthy so to rank. Faulty they may be; but a generation since they would have been impossible, and may serve as illustrations of the revival of the decorative arts in progress. A generation hence the same difficulty will not, I believe, be experienced. But the future lies with you; without appreciation and encouragement, as I have said before, such art has little or no opportunity of making itself felt. For want of it decoration during the century has declined and almost disappeared, and the public has been, and to-day is, enormously the loser. We hear much of the rights of man, and still more of the rights of woman. We are all born with a sense of delight in beauty, and as such have an inalienable right to demand that the works of man, within sight of which so many of us have to pass our lives, be beautiful as are the works of God in nature. Of one of the sources of this delight the present age has, largely by its own fault, deprived itself. There is assuredly no necessity that it should continue to do so.

GLASGOW.

Glimpses of Four Great Periods of Italian Art. By T. L. Watson [F.], President of the Glasgow Institute.

Read before the Architectural Section of the Glasgow Philosophical Society on 17th November 1894.

It is not my purpose to attempt a lecture on the art of Italy, but rather to record a few of the impressions received in the course of a short holiday in that country, and to consider some of the lessons that Italian art may have for us at this time. Four periods stand forward prominently in the history of Italy and of Italian

art:—(1) The period of antiquity, during which Rome dominated not only Italy but all South and Western Europe and portions of Asia and Africa; (2) The Byzantine period, dating from 329 A.D., when Constantine the Great transferred the seat of empire from Rome to Constantinople—the ancient Byzantium. Here a period of great activity in the arts set in, the influence of which was soon felt in Italy, and is most manifest in Venice and Ravenna. Constantine was the first emperor to adopt Christianity, so that Byzantine art is closely identified with early Christianity. From the tenth or eleventh till the fifteenth century we have (3) the Mediæval period, which, again, in the fifteenth century, gave place to the last short and brilliant period (4) of the Renaissance, which, so far as greatness is concerned, terminated soon after the middle of the sixteenth century.

My intention is to occupy a short time mainly with certain aspects of the art of the Middle Ages and the Renaissance; but I have thought it necessary to refer, however summarily, to the architecture of ancient Rome, and to the period of Byzantine art, because it is the peculiarity of the mediæval period in Italy that it is always under the influence of the art of antiquity, not only in its beginning, but right on through its whole course, while in particular districts the Byzantine influence is also apparent. In France, Germany, and England, Roman influence is strong up to the twelfth century, and the architecture of this period is appropriately termed Romanesque. But with the birth of true Gothic architecture in the twelfth century, the Roman influence in these countries may be said to disappear almost wholly. In the South of France it lingers a little longer; but, speaking broadly, we have in the Northern countries a new architecture from the end of the twelfth century, which shows hardly a trace of the Roman works from which, in part, it took its origin. In Italy it is altogether different. The pointed style of architecture did not originate in that country; it is an importation, and it was imported into a land in which the round-arched architecture of Rome had been firmly established for a thousand years. While in Northern Europe pointed architecture carried everything before it, in Italy the Roman influence was too strong. There the two styles grew together, and a certain amount of fusion took place between them. It is this fact that makes the mediæval architecture of Italy so interesting, and it is this which makes it important in its bearing on the future of architecture. That, however, is beyond the scope of my remarks.

When we speak of Italian Gothic it is necessary to discriminate. There is an Italian Gothic that is almost French, and one largely derived from Byzantine. There is the Romanesque Gothic of Florence, and the purely Italian Gothic, perhaps more Italian than Gothic, of Orvieto and Siena. Each of these has marked peculiarities distinguishing it from the others; and, indeed, nearly every important town, and certainly every division of Italy, develops a style to some extent its own. Through them all, however, certain leading characteristics run, two or three of which may be mentioned. First, there is the one to which I have already referred, the influence of the classical art of antiquity, which is felt throughout the whole Gothic period in Italy. This is seen in the general effect of breadth, in the horizontal treatment and the flat surfaces, as opposed to the vertical treatment and the deeply-recessed openings and mouldings of Northern Gothic. It is seen in the indiscriminate mingling of round and pointed arches. It is observable, again, in the fondness for the single round pillar or shaft in place of the clustered column, and for the tapered form of pillar instead of the cylindrical or parallel-sided form almost invariable in the North. It is seen most particularly in the sculpture. In the foliated sculpture we have the acanthus and the scroll scarcely modified from the best Roman work. In figure sculpture there is very little trace of what we should call

Gothic feeling. It is Roman sculpture refined and made more expressive and individual.

The second characteristic of Italian Gothic, as compared with French or English work, is a certain defect of what may be called the constructive sense, one obvious mark of which is the prevalence of the iron tie-rod to hold their arches together. It may be said that this is quite good construction and good design also, as the iron tie-rod is as much in evidence as the arch itself. It is certainly better in principle to have the tie-rod openly employed, if it is required, than to have its employment in some way concealed or evaded, so that the arch is maintained apparently by a special interposition of Providence. The tie-rod may be allowable, and in some cases it may even be admirable; but on the whole it is much less satisfactory than the Roman and Northern principle of meeting the thrust of an arch by an opposing thrust, or by an abutment. But the iron tie-rod is not the only evidence of this defect of the constructive sense in medieval Italy. We constantly find heavy walls or piers carried upon slender shafts apparently quite unequal to their task. The fact that they are still standing after 500 years is a proof that they are in reality strong enough, and something must be allowed for the known hardness and strength of marble, as compared with the building stones to which we are more accustomed. After every allowance is made, however, it has to be admitted that the apparent weakness and instability of many of their buildings form a characteristic and serious defect.

The third characteristic of Italian Gothic to be noticed is no defect, but, on the contrary, a great charm. I refer to the almost universal use of colour. It is true that colour was largely used in Northern work also; but it has nearly all disappeared, and we find it sometimes difficult to realise that it ever existed. In Italy we still find wealth of beautiful colour. We have this in the marbles which they used so lavishly, in their brick and terra-cotta, in their mosaic, and in their fresco painting. I shall not be able to show any of this colouring to-night, but hope to be able to illustrate some early mosaics and some of the later paintings, so far as these can be shown by photographs. It is to Italy that we must go to find painting really allied to architecture, not merely applied to it. Many of their painters were also architects, and even those who are not known to have been so showed an intimate knowledge of architectural forms and details. The architecture which they so frequently painted as accessory to their figures was in harmony with that of the building decorated, and established a bond of relationship between painting and building. Not only so, but their figures were treated as part of the architecture, and were not degraded, but, on the contrary, much dignified, by this treatment. Symmetry, restraint, and repose were among the architectural qualities which the painters of the Medieval period infused into their work, which the painters of the early Renaissance in Italy maintained and, in some respects perhaps, improved. Since the sixteenth century these qualities have been generally conspicuous by their absence, and both architecture and painting have been poorer in consequence.

We are apt to regard the Middle Ages as a period of darkness and ignorance. So far as the early part of it is concerned, something may be said in support of this view; but the later part of the period was a time of great intellectual activity, and the arts, and even the sciences, were carried to a high point. Commerce flourished, universities were founded, and in literature the names of Dante, Petrarch, and Boccaccio in Italy, and Chaucer in England, attest the greatness of the period. The time was one of awakening, of renewed life, and of the love of nature and art. With the Renaissance in the fifteenth century there came the revival of classical learning, and in Northern Europe the introduction of the classical architecture of ancient Rome. Italy witnessed rather a change of spirit

than of substance in her architecture. While Gothic forms were discarded, it can hardly be said that classic forms were introduced, as these had persisted through the Gothic period. Outwardly at least, the change was less abrupt in Italy than it was elsewhere. For a short time the period of the Renaissance was one of the most brilliant, if not one of the greatest, in the history of art. It produced two of the greatest geniuses who have ever lived, Raphael and Michael Angelo, with whom came half a dozen others only less eminent than they, and a host of inferior but still distinguished artists. For rather more than half a century the most graceful and beautiful works of architecture, painting, and sculpture were produced with wonderful profusion; but they were followed by swift deterioration. Before the close of the sixteenth century architecture had lost its vigour, purity of form, and delicacy of detail. In the seventeenth century it became what we see it in the large, ornate, and generally hideous Jesuit churches of Rome. In painting and sculpture there were still some great names, but these arts were more and more separating themselves from architecture, and in doing so lost their finest qualities as decorative works.

PARLIAMENTARY.

Housing of the Working Classes.

The Local Government Board, in connexion with schemes and proposals submitted to them by local authorities in pursuance of Parts I., II., and III. of the Housing of the Working Classes Act 1890, have had occasion to consider the principles which should be observed in the construction of new dwellings, when these are provided either by the local authorities themselves or by other persons under grants, leases, or contracts to which the local authorities are party. In this memorandum the Board have summarised their views upon the more important of these principles, so far as they are applicable to the erection of (a) separate houses or cottages, whether containing one or several tenements, and whether detached, semi-detached, or in rows or terraces; (b) buildings arranged in blocks comprising separate dwellings; and (c) buildings intended for use as lodging-houses, occupied otherwise than as separate dwellings.

I. Separate Houses or Cottages.—The ordinary dwelling adapted to the working-class family should comprise a living room with a scullery and pantry attached and two or three bedrooms—one for the parents, and one or two for the children—together with the necessary conveniences and out-offices. In rural districts accommodation may sometimes be conveniently arranged in a one-storey cottage, but in urban districts it will more often be found economical to arrange it in a two-storey cottage.

It is important that every dwelling should be arranged so as to have ample open space both in front and at the rear; and likewise that windows should open into such space in each storey, so as to ensure adequate through ventilation of the dwelling.

The living room, being the principal one and used by all the inhabitants in common, ought to be as large and commodious as practicable. It should have a floor-area of some 200 square feet, with a clear height of from 8 to 9 feet. The pantry or larder is better entered from the living room than actually within it, and, in either case, it should be well lighted and ventilated by a separate window opening into the external air, and be well removed from proximity to any fireplace or chimney-flue, in order that food may be kept there without being affected by heat or by the air of the room itself. There are objections to arranging a larder where food is to be kept, either in an underground cellar or at the top of the stairs leading up from cellars. If, however, cellars are properly constructed they afford certain definite advantages which are of value.

The scullery, which should have a floor-area of some 90 square feet, should be entered directly from the living room, and be fitted with a sink (with water laid on), plate-rack, &c., and a boiling copper for washing purposes. In some districts a bread oven may also be provided in the scullery, in which case an oven in the kitchen range in the living-room fireplace is not so necessary, but a boiler, for hot-water supply, is always indispensable in the kitchen range. The fuel store, whether for coal or wood, may be either outside in the back yard or in a cellar; but wherever a cellar is provided it is important that special care should be taken to protect the interior of the house from damp, and ground-air penetrating the walls of the cellar. The cellar should have means of light, and of through ventilation into the external air; and, whether a cellar be provided or not, it is essential that the site should be covered with an impervious layer of cement concrete. The cellar should likewise have facility for effectual and proper drainage. The staircase should be as independent of the rooms as possible, in order to obviate the possibility of its conveying vitiated air from the cellars or living room to the others above; under no circumstances should the stairs rise directly from the kitchen or scullery. There should be a separate water-closet, earth-closet, or privy of proper construction* for each dwelling, and while a privy must of course be outside the building, it is best to so arrange the water-closet or earth-closet also, or, at any rate, to wall it off from the interior and give it an entrance under cover if possible—as from a porch—direct from the outside. Where detached water-closets are provided, it may be well to bear in mind the advantages of certain efficient kinds of automatic slop-water closets, which are but little likely to be affected by frost. The bedrooms ought to be as large as the circumstances permit, and from eight to nine feet in height throughout. That for the parents should be at least 120 feet in area, and be provided with a proper fireplace and a good cupboard. The children's rooms, in which fireplaces are also desirable, should have a floor-area of not less than some eighty square feet each.

The above accommodation will be found adequate for an average of some five persons in the dwelling. It may, however, occasionally be desirable to provide an additional bedroom in an attic storey, but this is rarely needed for the family; while, where it is not so needed and is still provided, it tends to encourage the practice of receiving one or more lodgers—a practice which is by no means free from objection. Where persons needing lodging accommodation are at all numerous, the Sanitary Authority would do well to consider the expediency of providing suitable working-class lodging-houses under the Act. While, however, accommodation in three or four bedrooms is recommended in each tenement or dwelling, there may frequently be demand for two-room tenements by persons of a class who would be reluctant to avail themselves of the lodging-houses; and it may be worth considering whether some such accommodation might not usefully be provided in the block dwellings referred to below.

II. *Buildings in Blocks.*—Where the dwellings have to be arranged in blocks, as is often necessary in the midst of towns and comparatively thickly populated areas, care should be taken so to arrange each block relatively to other blocks or adjacent buildings that ample open space may be provided both in its front and in its rear, in order that the rooms in every floor may receive a reasonable amount of direct sunshine during every day when the sun is not obscured by clouds, and likewise that there may be free circulation of air about the building. To this end it is desirable to limit the height of the blocks to some three, or at most four, storeys, unless the distance across the open space to the front and rear be unusually great; also to restrict the length of each block as much as possible,

in order that wide gaps may be provided between them for promoting circulation of air about them. Blocks of dwellings must not be directly connected together at a right angle or an acute angle. The staircase giving access to the several dwellings in a block should be quite open, on one side at least, to the external air, and of convenient width and easy rise, wider steps being avoided as far as practicable.

The dwellings are best arranged so that each staircase will give access to two dwellings—one on each side of it—in each storey. Balconies or galleries in each storey, having a staircase at each end, are generally objected to as means of access to a range of dwellings in a block or series of blocks, as failing to give the same amount of privacy that is afforded by the staircase between the vertical sets of dwellings.

Where dwellings are arranged in blocks special care becomes necessary that the water-closet requisite for each dwelling is contrived so as to be practically outside the dwelling. It can generally be entered from a recessed open verandah, which will also be found useful for other purposes. Space will have to be found for a sufficient store of fuel, and it is desirable to contrive this so that it may be filled from the staircase, and thus avoid the dust and dirt that would result from bringing in sacks of coal and emptying them inside the dwelling. So, too, a dust shoot from each of the upper floors should, if provided, be exterior to the dwellings, and would need special contrivance, by means of double doors opening and closing together, or by some other means to prevent it becoming a nuisance.

The construction of the block dwellings must be as reasonably secure from danger of fire as possible. The stairs must, of course, be of incombustible material, and it is highly desirable that the floors should also be so formed as far as practicable. If the roof is constructed flat in order to serve as a place of recreation for children, or as a drying place for linen, after being washed in properly arranged washhouses which may be constructed there, it will serve as a useful means of escape, in case of fire, from one staircase which may be temporarily obstructed to another staircase in the same block. Where the roof is constructed in this way, however, it is desirable to make it not only weather-tight, but as sound-proof as practicable, as otherwise the occupiers of the dwellings immediately under the roof are liable to be inconvenienced by the noise of children and others above them.

III. *Lodging-houses.*—It is desirable to limit the size of any building intended for occupation as a lodging-house so that it may be of a capacity to hold not more than some 200 lodgers. It should be arranged so as to secure ample means of thorough ventilation within it, and the utmost facilities for the access of sunlight and for free circulation of air about the outside of it. To this end the distance across the open space on its two opposite sides should be such that the sun, when shining, may reach the windows of every storey during some portion of the day. Windows will also have to be provided in each storey opening on such open space.

The accommodation within, if intended for both sexes, must be arranged for the complete separation of one sex from the other, except in any case where married couples may be received. It should comprise, for each sex, an entrance and a staircase to the upper floors, an office being provided in such a position as to control the respective entrances for the males and females. A day room with floor-area affording some 15 square feet to each lodger is requisite, and, unless a proper kitchen range is provided therein, a general kitchen will be requisite with suitable range or ranges and other appliances where the lodgers may cook their food. A scullery is also desirable where the food utensils may be cleaned and kept.

The sleeping rooms may appropriately be in the upper storeys, and are best of moderate size, holding not more

* See the "Model Bye-laws."

than about 20 lodgers each. They should be some 10 or 11 feet in height, and if provided with good means of ventilation by windows in their opposite external sides they may be arranged so that each bed will have some 5 feet lineal across it, 40 square feet of floor-area, and from 300 to 400 cubic feet of space. If, however, the means of ventilation be indifferent, those amounts of space ought to be increased. The windows should be arranged as far as practicable so as not to come immediately over any bed. It may often be desirable to provide a certain proportion of accommodation in separate rooms or cubicles for lodgers who may be able and willing to pay at a higher rate for privilege of privacy.

The water-closet accommodation should be provided at the rate of one closet for every 15 to 20 lodgers, and lavatories with fixed basins and strong taps and waste pipes in the proportion of one basin to about every 10 lodgers. A few baths may also be usefully provided. Both the water-closets and the lavatories should be on the ground floor, the closets for each sex being in a separate yard. But at least one water-closet for occasional use in connection with the dormitories may be provided in the upper storeys if it be properly separated from the interior of the building by a well-ventilated lobby. A good slop sink with water laid on should also be provided near the dormitories, likewise a dry clothes store closet in which a supply of clean sheets and blankets can be kept. A hot-water cistern may conveniently be fixed in this store closet, and thus tend to keep the sheets well aired. A properly contrived hot closet is also desirable as a means of drying the wet clothes of lodgers who have been exposed to rain during the day. It is useful to provide in some convenient position a set of lockers in which any lodger may place under lock and key any small articles and property which he does not desire to carry about with him.

The structure of the building should be as secure against danger of fire as practicable, and in every case it is desirable that alternative means of egress from the upper floors should be provided, so that in the event of the staircase in one direction being temporarily obstructed by smoke or otherwise a safe exit may be afforded in another direction. It must be understood that, in the lodging-houses, as well as in blocks of buildings comprising separate dwellings, a certain amount of systematic supervision will be requisite to ensure proper cleanliness and order throughout, and to protect the several tenants from neglect or carelessness on the part of their neighbours.

LEGAL.

Building Plans—Rejection by Local Authority.

EX PARTE GOULDING; IN RE SWINTON AND PENDELBURY LOCAL BOARD.

On 5th December 1894 an application was made to the Queen's Bench Division by a builder, in business near Manchester, for a *mandamus* to the Swinton and Pendlebury Local Board to approve of certain plans and sections for the building of certain houses on land of his which he had submitted to them, and which they had rejected without assigning any ground or reason. On 12th November a Mr. Goulding delivered to the Board plans and sections for forty-nine new houses or cottages which he intended to erect on land which he had lately purchased. He sent with them a notice that on the 27th November he intended to proceed with the buildings. On the 24th November he had a letter from the clerk of the Board in these terms:—"I am instructed to return to you the plans and sections for forty-nine cottages, and to inform you that they are 'not approved of by the Board.'" There was an affidavit of the applicant that the plans were in accordance with the Public Health Act 1875 and the by-laws, and this

was supported by the testimony of two skilled and experienced architects. There was also an affidavit by the applicant that on several occasions he had asked the surveyor and the chairman and another member of the Board to give the reason for the rejection of the plans, but had always been met by a refusal; and that on one occasion the surveyor told him that his instructions were not to disclose the reason why the plans had been rejected. On affidavits of these facts Mr. Poland, Q.C., moved for a *mandamus* to the Board to make an order, and stating their approval of the plans. He said there was already authority for such an application (*The Queen v. Newcastle-upon-Tyne, 53 Justice of the Peace, 788*). The Local Board, in such a case, had not an arbitrary power of rejection of building plans without any real ground or reason; they could only reject plans on some specific and intelligible ground. And where, as in the present case, they refused to state the grounds and reasons on which they had proceeded, there was no remedy but such an application as the present. The Court (Mr. Baron Pollock and Mr. Justice Grantham) granted a rule *nisi* for a *mandamus*.

Vested Interests and Sanitary Science.

VESTRY OF ST. MARY, BATTERSEA, v. HUDSON.

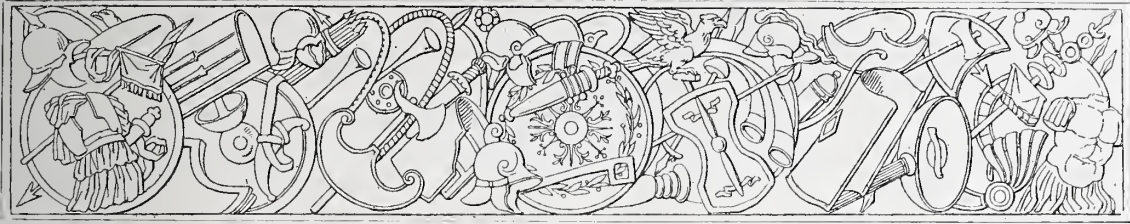
At the South-western Police Court, on 10th December 1894. Mr. E. W. Hudson answered a summons, at the instance of the Vestry of St. Mary, Battersea, in respect of his premises at 29, Kersley Street, stated to be insanitary by reason of the soil-pipe being improperly constructed, and terminating too close to one of the windows. It was proved that the system of drainage had existed at the house for twelve years, and that when constructed it was in accordance with the latest sanitary requirements, and that a similar system was in force at New Scotland Yard. Mr. Pidditch, consulting architect to the Duke of Bedford and sanitary engineer to the Marquis of Salisbury's estate, deposed to having made an examination of the soil-pipe to which exception had been taken, and failed to discover the existence of a nuisance. It was not the best form of drainage.

Mr. Gover, for the summons, argued that the vestry had no power to interfere, as they had already sanctioned the existing system of ventilation. Although medical scientific discovery had advanced, the vestry, he contended, could not compel private owners to keep their property up to the standard required by each new discovery.

Mr. Young, for the defence, pointed out that it was the duty of the sanitary authority to enforce necessary sanitary requirements in the district over which they had jurisdiction. He was unable to say that there was a nuisance, but a nuisance was likely to occur at any moment. The vestry could not defer action until an outbreak of fever occurred.

Mr. Denman declined to hold that sanitary fittings were likely to produce a nuisance because they were not up to date in sanitary science. If that contention were allowed, it would mean that all old fittings would have to be pulled down and replaced. It was impossible to think that the Legislature, in passing the Public Health (London) Act 1891, had any such intention. He dismissed the summons, but, nevertheless, thought that a temporary imperfection in the pipe should be remedied.

This decision, observes the *Law Journal*, while in accordance with the ordinary rules for construing statutes, seems to have been given without reference to the powers of the County Council under section 39 of the Act of 1891, or the by-laws made in 1893 under that section. Rule 4 deals with the reconstruction or alteration of existing soil-pipes, and Rule 3 deals with traps to existing sanitary appliances, and section 5 with all new apparatus in connection with any such appliances; so that to some extent at least the local authority is entitled to insist on sanitary progress, even without proof of actual risk or existence of nuisance.



ADDRESS TO STUDENTS. By the President, FRANCIS C. PENROSE, F.R.S., at the Sixth General Meeting, Monday, 14th January 1895.

GENTLEMEN,—

FROM the two preceding Presidents you have received, at this period of our Session, Addresses of high professional value. These Addresses, and especially the last three, occupy so large a field of the practical requirements of students, and I may say, not of students only, but of fully-fledged architects also—for indeed we should all be classed as students, and be brought within the definition which Michael Angelo gave of his own position when he answered some one who marvelled at seeing him, in the zenith of his fame, busy measuring a piece of antique detail, “I also am a student”—that it would be unnecessary and undesirable for me to enlarge upon it. I cannot, however, avoid repeating here and there what Mr. Anderson has so admirably brought before you, as when in his first discourse he rightly claimed for Planning the title of an art—for an art it is, quite as much as when a sculptor studies the anatomy and the skeletons of the figures of his groups, or when a landscape painter arranges the articulation of the limbs and trunks of the trees which he proposes to cover with foliage. I would strongly advise the younger students who did not hear the discourses I speak of, to refer to those numbers of the JOURNAL which contain them; and not only to the Address on Planning which I have mentioned, but also to those later Addresses on the reciprocal duties of students, and commencing architects, to their teachers, their work, their employers, their professional brethren, and to themselves—qualities affecting character which are quite as necessary to success, or even more so than intellectual or artistic power and learning.

THE EXAMINATIONS.

Under the new regulations, a very important matter to any one entering the profession must necessarily be the Examinations, which he must pass to qualify him for a place in this Institute, at any rate—and it is not unlikely that something analogous will practically come to be required of all architects. Care has been taken to make these Examinations a fair test of efficiency, yet not so severe as to form an inaccessible bar to those whose talents show real sympathy with the profession of architecture; so that the passage shall not be an obstruction to any one who, although only moderately endowed with natural quickness, is willing to entertain the one thing needful, alike to him as to one with an intellect of the highest order, namely, fondness for the profession as the great aim in life, and the determination to secure the necessary steps by careful and continuous study. But it should be borne in mind that, important as is the passing of the Examinations referred to, they should be considered, not as the final end in view, but as the means of attaining it. And I specially mean by this observation that work of the nature of “cram” is to be discountenanced. The Examination questions are very properly published in the KALENDAR as a guide to the sort of examination the candidates are to expect; but it would be a very bad preparation to dwell too much on the confines, as I might call it, of such published questions, instead of study of a broader description. The Examinations may easily take such a turn as to defeat a partial preparation;

but a candidate who has a good general knowledge is much less likely to be nonplussed. It is of vital importance that whatever subjects are studied, whether in a broader or narrower circle, should be fully assimilated.

DRAUGHTSMANSHIP.

Dismissing these remarks on the door of admission to our ranks, I will endeavour to place before you some considerations which long experience has led me to think essential to success in Design.

The very first thing for a student to acquire is the power of accurate drawing, the obedience of the hand to the eye, and the ready manipulation of the instruments he uses. These may have been already partially attained: if so, so much the better; but they are indispensable. I will suppose the student entering an architect's office. If in that office there are, as is probable there would be, assistants and senior pupils, the natural modesty of a youth will perhaps inculcate an amount of shyness which will hinder him from gaining from them, at first, sufficient information as to the meaning of what is going on; but in ordinary cases this shyness soon wears off, and he will find his seniors ready to give information, especially if asked for at convenient times. This manner of study was practically the only one available to aspirant architects when I first began my studies, and very few books were usually accessible. The only book in the office where I was a pupil was Peter Nicholson's *Dictionary*—a book I by no means undervalue, but mention to show how limited our literature was in those days. It is very different now. The extensive Library of the Institute is open to you, and there are courses of all kinds which you may attend. Still, the value of the instruction in an architect's office, especially in practical matters and construction, remains where it did, in addition to the advantage of friendships generally formed there with fellow-pupils.

Passing through the copying stage, you will begin to sketch, whenever opportunities offer, from existing buildings. In visiting works in progress do not be shy of asking the Clerk of Works the meaning of what you see. You will seldom find him disinclined to give information. Some of you doubtless will join in the pleasant and profitable Architectural Association excursions. In these I may venture to offer some advice to students, drawn from my own experience at this stage.

Suppose you have come to study some ancient building of merit—I do not mean that the advice would not be equally applicable to a modern building; but ancient structures are more attractive, and more likely to be visited for detailed study. The first inclination would be to get a note or sketch of everything that takes the fancy; and I find in my early sketchbooks pages and pages of different objects too slightly drawn, and only now and then is there a subject sufficiently explained to be a proper memorandum of what I saw, and which then attracted my attention so much. It is better, instead of rushing to work in this way, to spend some time in the general examination of the building, and to write down as concisely as possible, in a clear hand, and not too small (remembering that the keenness of youthful eyesight does not last for ever), what you think to be the chief characteristic of the work before you, and not till then devote such time as is available to sketching. Try to make your sketches as accurate and clear as you can. If there be time for a general view to be finished adequately, it may possibly be the most valuable; but if not, choose such piece or pieces of detail as can be properly rendered. Endeavour to get an accurate outline, together with plans and sections of mouldings; never mind how much time and how much use of india-rubber it may require, for rapidity and artistic effect come with practice. Leave your sketches alone when you leave the place; or should any relaxation be allowed to this rule, it should be limited to what may be done at the first resting place, before the distinct impression produced by what you have endeavoured to portray has been effaced from the mind. This distinct impression can hardly ever last more than a few hours.

We may ask ourselves, what is the great value of this power of sketching? Is it to store up plenty of material for copying? In respect to new designs, certainly not. For restoration of ancient buildings—on which I propose to make some further remarks—no doubt such sketches may be of great service, so far as they are accurate. The chief value of the power of sketching in designing new buildings I conceive to be twofold: one is, that facility in sketching gives an architect readiness in designing in perspective concurrently with his geometrical elevations and sections; but the main advantage, as it appears to me, is that, from familiarity with his own rendering of an existing building, he can realise better the effect that a design from his own hand will have in execution. For this end you will see the high importance of accurate representations. Picturesque treatment is quite another thing. If the drawing be both accurate and picturesque, so much indeed the better; but of the two, accuracy is the needful quality. A design cannot win true excellence unless it is right both in form and colour. Form is the more important of the two, but injudicious combination of colours may spoil a well-formed design. When simple materials are used, the colour can seldom be wrong; but when stronger contrasts are attempted, much care will be necessary. In sketching from nature, including buildings, too much attention to colour is apt to induce carelessness in respect to form. One of the finest and most truthful artists both in form and colour as a landscape and architectural painter I ever knew, the late Rev. John Pettit, was so much aware of this tendency that during three years of his earlier work he denied himself altogether the use of colour, and drew simply in monochrome. In studying a design where much colour is proposed I would recommend a complete representation in monochrome before any coloured drawing is made. It is right also to caution the architectural student against striving too much after architectural effect.

It may be said that in architects' competitions the picturesque style prevails, and is most telling. I believe that committees who invite competitions are becoming aware of the weakness of the competitive system in this respect, and it is now not unusual to find among their conditions that "only geometrical drawings" are required.

During the earlier years of his education (whatever he may feel inclined to do afterwards) I should advise the student to make no use whatever of photographic apparatus. His object should be to impress the forms he sees upon the mind, to educate the hand to follow the mind's conceptions with rapidity and certainty; not merely to store up examples in portfolios, which can be of very limited use to him in comparison. I am not referring to collections of photographs by others, but to his own particular study.

GEOLOGY AND ARCHÆOLOGY IN RELATION TO ARCHITECTURE.

Besides drawing, and the practical studies of construction, &c., there are some subjects which the student should recognise as not unconnected with architecture, though any particular study of them is, very rightly, scarcely even suggested in the curriculum recommended in the *KALENDAR*. I refer particularly to two of these, which are very fascinating subjects for research, namely geology and archæology, using those terms in their fullest sense. I am far from meaning that a student can be properly equipped if he is quite ignorant of those subjects; for no proper knowledge of masonry can be altogether independent of geology, and the knowledge of the different characteristics of Classical and Mediæval architecture is not attainable without an acquaintance with the general principles of archæology; but the more detailed researches in such subjects may, for those whose inclination leads them to it, be left for future leisure—and, as "the wise housekeeper will bring forward out of his treasure things new and "old," it will not be without profit for him to do so; but the old is mainly valuable for the sake of the new. Good architecture in all time has been the development of what has gone before; and unless the new is well keyed into the old, there is no reasonable prospect whatever of

success. Too close an adherence to the past is also to be deprecated, but on different grounds. There is, however, one exception to this last remark. I refer to the case of those who may be engaged in the restoration of churches and other ancient buildings. In works of this nature archaeological conditions should be paramount, or only controlled by the requirements of Divine service or other necessary use; but it should be historical archaeology, and not selective. In restorations it is scarcely possible to be too conservative. It has not unfrequently happened in church restorations that valuable historical links have been sacrificed to the preference of the characteristics of some particular period. True loyalty to historical succession, and attention to the advice given in the Papers on the subject which have been issued on the authority of the Institute (see pp. 298-307 of the *KALENDAR*), will almost always point out the right path; but as cases of difficulty might arise, I should recommend a commencing architect, who finds himself face to face with a difficulty of this kind, to put himself in communication with the department of the Institute under which this subject has been considered; and from this body a *bona-fide* communication would be sure to receive a courteous and careful reply. If additions have to be made to old buildings of various styles, the circumstances will generally point out which of these styles ought to be followed. The architect, however, should not allow individual fancy to prevail too much in selection, but should endeavour to put himself as far as possible in the position of a surviving partner to the designer of the original building, and should think at least as much of his predecessor as of himself. In new creations of his own, carried out in any recognised style, I would by all means advise him, whilst inspired and guided by archaeological teaching, not to allow himself to be confined and hampered by it. The new materials and means now available cannot but lead us, as years go on, more and more away from the past; to succeed, however, it must be done, not by revolution, but by evolution.

To sum up in a more succinct manner what I have said on this subject, the student and commencing architect should be so far an archaeologist as to study, and endeavour fully to understand, the development of the Classical styles of architecture from the best Greek period to the Decline. The Roman variety, with its important accessory the arch, its earlier and better phases, and final corruption. The Mediæval styles which followed, especially our English development from the Norman to the Tudor, taking cognisance also of the associated arts of sculpture and painting of all these periods. But with respect to the special domain of antiquaries, such as painted vases, palæography, coins, jewels, and heraldry, he must remember that art is long, and life short. Nevertheless, should his inclination lie that way, there is no reason against his indulging in the hope that at some future time he may have leisure for a more complete examination of them. If architecture be well studied, practically and historically, sufficient general knowledge on the necessary archaeological points connected with it will come in its train. A detailed knowledge will not assist him in his art, and it may absorb time better employed—at first, at any rate—in practical construction. I have no desire to undervalue the study of archaeology proper; but as it has become a much more favourite study than formerly, and is itself an engrossing and fascinating subject, all I wish to do is to point out that it is not one of the primary desiderata for the student, except so far as it comes to him in connection with the history of architecture. On the more abstruse parts of this, as well as the other allied sciences to which I have made allusion, it is well to be content with the advice of specialists when occasion for it may arise.

MATERIALS.

One of the most important considerations at the outset of architectural study is to entertain sound notions respecting materials, not only as regards their strength and durability,

but as to their proper employment; and especially so when we consider the number of new materials now available. I am not advising the patronage of novelties, but of such as have already won the favour of practical men. In actual building it is well to remember that whilst studying all reasonable economy, which is a duty in almost every case, sufficient solidity of construction and well-chosen material, and a good shape, which generally involves but little, if any, extra cost, are far preferable, and will give more satisfaction, both to the employer and the general public, than any effect to be obtained by ornament. To give a very simple illustration: a plain chimney-stack, surmounting a roof of good thick slating, is far more effective than an elaborately-panelled stack rising from a covering of the flimsy character of which we have now too much in the market.

In the earlier part of this century there was a great abuse of stucco and Roman cement, which were used in situations quite unfit to endure the action of the weather and the test of time. Fluted Corinthian columns, with their base mouldings and capitals and other enrichments, were constantly executed in these materials, so much so as to have provoked a pasquinade aimed at George IV., in travesty of the compliment paid to Augustus for having found Rome brick and left it marble:

Our George he did the same, but did it faster;
For he found London brick, and left it plaster.

This skit, and the stronger artillery used by A. W. N. Pugin in his *Contrasts* and other writings, brought in the desire for more truthful materials, and plaster had to retire from the field in all works of any character, or at least to the more congenial atmosphere of interiors. The reaction against stucco, however, was carried to such a degree that it has been dispossessed of even its legitimate field, that of clothing plain brick or rubble walls, for which it was frequently used by the Greeks, the Romans, by the great architects of the Italian revival, and constantly in Mediæval works—for instance, by William of Wykeham—as an external coating of flint-walls. Plaster surfaces should indeed never be used so as to pretend to be anything different from what they are; they should only be employed when desired to cover rubble or uneven brickwork, and when so treated should not be blocked in imitation of ashlar masonry. For the use of plaster-work so restricted the architect will have a good argument to offer, drawn both from reason and authority. To the complete oscillation of the pendulum of fashion away from the over-use of stucco, I attribute a great mistake which has often been made in church restoration, in which we too frequently find that the rubble walls of the interior have been denuded of their original coating of plaster, a covering which in ancient times was frequently adorned with frescoes, and which might very properly be so treated now; and the walls so exposed exhibit a very forbidding aspect of confused pointing and general untidiness. But pray consider that, whilst I am calling your attention to the one legitimate use of this material, namely, stucco, I wish to object as strongly as any one possibly can against its improper employment. Let everything which has to endure strain and pressure or the searching of the elements be of better material, as well as everything that is to show the hand of the artificer in carved or moulded work; the latter had better be left out altogether than be displayed, in external work at any rate, as mere cast repetitions. I do not include terra-cotta in this general condemnation. It is not a new material, though its extremely fashionable (and I might add hackneyed) use is comparatively new. The objection to the mechanical repetition so disagreeable in plaster enrichments does not apply so strongly in terra-cotta, because in the kiln a certain amount of variety is produced, and therefore both on this ground and because of its greater durability it is much freer from objection; but I consider that it should be used with greater reserve than it often is, and with more consideration for the fitness of the material

with which it is to be associated. It may combine with an exterior otherwise mainly brick with excellent effect as a superior quality of the same nature. The old houses at East Basham, Norfolk, and Sutton Manor, near Ripley, in Surrey, are good examples of this kind. I do not think, however, it should be used in combination with rubble or flint walling; and I think also that it is out of place when the general effect is supposed to be of masonry, but with terra-cotta simply substituted for stone. It is, however, in the proper employment of steel and iron where chiefly the new materials demand exercise of thought; and this question becomes every year more prominent. Iron has become admirably useful, and is constantly employed as a concealed material; but the time must come before long when for some classes of building it will have to take its own place in architecture; and the best way to meet this requirement may very fitly occupy the thoughts of the rising generation of architects. I do not pretend to have any practical suggestions to offer—I have never had to grapple with the problem. I am inclined to think that the proper treatment of shop-fronts will bring about the solution; for there is now a marked contention between the ground storey, where every possible square foot of plate-glass is demanded, and the more usual and quasi-domestic character of the superstructure. Nothing is more dreadful in appearance than the façades which we often see with a display of solid architecture, where the Orders and pedimented windows seem to rest, as if by magic, upon the surface of plate-glass which occupies the whole breadth of the front at the street level. In this contention the shop-front must, I think, carry the day, and the old-fashioned form of the upper storeys will have to yield. How this is to be done I do not venture to advise, but it will, I believe, rest with you, Gentlemen—our successors and, as I hope, successful future Fellows of the Institute—to work out the desired result. This you will achieve by using building materials in the most natural way; truth of construction will then produce a satisfactory result, if directed by the intelligence which grows from proper study and by a feeling for proportion.

DRAWINGS BY THE OLD MASTERS IN ARCHITECTURE.

The Institute has recently received in trust, through the liberality of the Duke of Devonshire, a fine collection of drawings by some of the old masters in architecture. I think it may be of advantage, for the purpose of directing still further your attention to them, to give a running description of some of these. There are several portfolios containing drawings by Palladio, the greater number of which seem to be authentic works by his own hand. There are also some by Vignola and some by Inigo Jones: all these deserve your attention. Palladio's drawings mainly consist of a very complete series of the ancient remains existing in Rome in the middle of the sixteenth century, and particularly those of the Baths. What I chiefly wish to remark upon is the style of drawing in these works.

The buildings are all carefully planned with a good supply of the leading dimensions. The principal lines only—including, however, everything of importance with reference to the general masses—are shown. There is no confusion. Soffits are never indicated by dotted lines. In the elevations and sections, tints, usually brown, perhaps sepia, are frequently used to denote shadows and recesses—pen-hatching more rarely, but, whenever used, very lightly drawn, so as not to obscure outlines. Where the scale admits, columns and entablatures are carefully drawn, and great pains must have been taken to insure the exactness of the proportions. The capitals and bases of columns are very cleverly indicated, so as to suggest roundness in mere outline. Drawings of the Baths of Antoninus show some admirably drawn columns and entablatures to a good scale, and full detail of enrichments, with measurements and plumbs (in fact, complete working drawings); but there is no aim at picturesque effect. They are exactly what a carver would wish to have.

There are also drawings of buildings designed by Palladio, some, no doubt, by his own hand, treated exactly as the drawings of Roman remains previously mentioned; but there are some drawn more mechanically. Amongst the latter are some made for the cloister of the "Convento di Carita da Andrea Palladio, Architetto, par Antonio Vesentini "Veneto."

The Chiericati Palace at Vicenza is well represented and accurately drawn. The angle columns—according to Vitruvius's rule, which must have been derived from Greek practice—are slightly larger in diameter than the intermediate columns. The somewhat unusual feature of impenetrating columns, which strengthen the angles of the front projection, has a Classical prototype—viz. at Brescia, and also in the lately discovered basilica at Lincoln and in some Romano-Greek examples in Asia Minor. The proportions of the Chiericati Palace are very refined, and I remember finding that in drawing it, it demanded as much exactitude as a Greek temple to convey any adequate idea of its character. There is in the same portfolio a rather rough elevation of the Valmarina Palace at Vicenza. Here I will make a short digression from my main subject to observe that the beauty of this design is little understood from a mere elevation, because all the strength seems given to the centre, and nothing but weakness to the angles. Fergusson, in his *History of Modern Architecture*, criticises this design severely: "The angles, instead of being strengthened either by being brought forward or "rusticated, are weakened by having two more storeys of windows inserted, and instead of "repeating one of the pilasters which encumber the centre, we have only a detached statue to "support the great cornice, thus adding absurdity to weakness. We find, in short, in this "design ornamentation entirely divorced from construction." I am inclined fully to believe that any architect who knows this building only on paper, in the published designs, or indeed in this very portfolio, must agree more or less with Fergusson; but it is a different thing when the palace itself is seen at Vicenza. The street in which the palace is built forms an internal angle at each end of the front, and the houses on each side of the front abut solidly against these extremities, giving to each of the statues the effect of being placed in a kind of niche, so that they have a very different meaning in reality from what they seem to have when the design is looked at as of a detached building.

There are, further, a few drawings by Vignola, which are well worth your attention. They are both highly artistic and practical. All is good explanatory drawing, and without any tricks of effect. Palladio's drawings have the same practical merits, but a higher artistic quality. If the executed buildings of the two are compared, Vignola will be found quite to hold his own. Many years ago I saw at Bologna an interesting collection of drawings by several noted Italian architects of the sixteenth century (about 1560), being competition drawings for a west front for San Petronio. Among the designs were two by Palladio and one by Vignola. I find, by a note made at that time, that I thought the draughtsmanship of Vignola much the more artistic of the two great rivals.

With the Vignola drawings are some by Inigo Jones, for the most part more sketchy than the drawings by the two Italians above spoken of, but a few are excellent specimens of draughtsmanship. I particularly refer to a finished drawing of Inigo Jones's famous Water-gate, outlined in pen-and-ink, and slightly shaded by hatched work. This drawing is well worth the attention of those who prefer that style of treatment; but the Italian architects chiefly relied on a rather slight shading in monotint, which I must consider less likely to confuse the form of the outline than pen-and-ink hatching.* There are several highly

* Some exceedingly valuable criticism on the imperfections too often attending this manner of drawing was given in the Review of the Students' Work in January 1893 [see *The R.I.B.A. Journal*, N.S., Vol. IX. p. 146].—F. C. P.

finished drawings by Kent well worth examining. They are most carefully drawn and shaded—rather too deeply, I think—in monochrome.

MONSIEUR CHEDANNE'S DRAWINGS.

I have now the pleasure of referring to the magnificent collection of drawings illustrative of the Pantheon at Rome, by M. Chedanne, which has been so graciously lent to us for this occasion by the French Government, and of which we are looking forward to a description this evening by M. Chedanne, to whom we are most glad to offer hands of fellowship, and are not unmindful of the sacrifice of personal comfort he has made for us in coming over at this season of the year. Into the interesting historical and archaeological points illustrated in these drawings I do not propose to enter—it would be foreign to the purpose of my Address.

What I do wish to call to your attention is the wonderful elaboration and refinement of finish in these drawings, and the pains which must have been taken to ascertain, and accurately, as well as artistically, delineate the mass of valuable detail he has collected. I feel sure that these drawings will hold a high place amongst the works of the *Grand Prix de Rome* Students; but it is important for us to remember that almost every year works worthy of being collocated with these are produced in France. Our best draughtsmen will be the first to recognise that we in England have nothing comparable to them. It is perfectly true that our architectural education does not lead us to aspire to draughtsmanship of such perfection, and there is nothing in this country parallel to the encouragement given to it by the French Government in these Studentships. It is, moreover, in France the growth of many years of emulation; for I well remember the perfection of the French architectural drawings fifty years ago. Although, however, I do not think that, considering our methods of education and our requirements, we should be justified in urging our students to attempt rivalry with such works as we see here to-night, it is well worth the attention of those who wish to improve their draughtsmanship, beyond the utilitarian limit, to examine well M. Chedanne's drawings for the sake of their stimulating effect. The drawings which it seems to me will be of the greatest benefit to our students are the fine outline drawings, such as Nos. 21, 23, and 30. But from the exquisitely shaded works, such as Nos. 4, 6, 9, 10, and 11, there must be many valuable hints to be obtained. The very creditable drawings in outline by some of our students this year assures me that they, at least, will not examine M. Chedanne's drawings without profit. Extraordinary indeed is the difference between Palladio's simple handwork and these finished drawings. A sound, practical *via media* between the two seems not to be unattainable by us, which if we can reach—as I hope we may—the kind courtesy of our French contemporaries will not have been lost upon us.

REVIEW OF THE WORK SUBMITTED FOR THE PRIZES AND STUDENTSHIPS 1895. BY J. M. BRYDON [F.].

GENTLEMEN,—

FOLLOWING a custom which has now become almost an established tradition, it has again been considered advisable that some review of the work submitted for the year's Prizes and Studentships should be placed before you this evening. The Council have been good enough to depute this duty to me; and, while acknowledging the honour, let me say that I deem it a great privilege in being thus afforded the opportunity of saying a few words of encouragement, and, may I hope, of instruction, to our younger members. At the same time, I am fully aware how delicate a matter it is to criticise architectural work in the presence

of architects—possibly even of its authors. There are so many different points of view, so many varied ideas, as to the form such work should take, and how it should be carried out, that perhaps I may be pardoned if I approach the subject with some little diffidence. You know the common saying, almost the common refuge of the critic, “ ’Tis all a matter of taste ; ” but it is not so much a matter of taste as a matter of knowledge. Without knowledge—that is, a cultivated taste—the critic’s views may be worth but little. On one point, however, I apprehend we are all agreed : the essential value of such work as that entailed in competing for the now numerous Prizes and Studentships annually offered by the Royal Institute—and in this agreement none would seem to join more cordially than the young men themselves ; for never before, I understand, has it called forth such a liberal, and such a generally intelligent response. Whether it is, as I hope, that the value of these competitions, especially that of the Travelling Studentships, is becoming more highly appreciated year by year, or that the subjects are more than usually attractive, the result is very gratifying and encouraging—gratifying that the prizes founded in hope have brought forth such good fruit, and encouraging for the future prospects of the art we love. It is a great gratification also to be able to remind you that, through the generosity of Mr. Aldwinckle [F.], another Studentship—for travel in Spain—will be open for competition for the next three years, under such regulations as the Council may think advisable.

The artistic work of the year may be considered under two main divisions, viz.—Studies of Ancient Buildings, and Original Designs. Let us take them in their order.

STUDIES OF ANCIENT BUILDINGS.

The wisest of men truly said, “ Wisdom is the principal thing,” and “ With all thy getting, get understanding.” Now he that would practise architecture must first understand it, and there is no better road to the root of the whole matter than the diligent study of old work. Moreover, as a part of the procedure, I know of nothing more valuable than making careful measured drawings of important buildings. In this way is gathered not only the letter, but, what is far more essential, the spirit of the work. In this way the great Italian artists of the fifteenth and sixteenth centuries, studying the classical remains of ancient Rome, were able to produce the mighty works of the Renaissance. In this manner is learned the grammar of the noble language in which you are afterwards to clothe your sermons in stones. This being so, it is not surprising that for the Measured Drawings Medal there should be seven competitors. Of the sets submitted, those of the Gateway of St. John’s College, Cambridge, by Mr. W. H. Ward [A.], under the motto “ Lady Margaret,” are unquestionably the best ; they are carefully measured and clearly drawn with firm lines, in a broad, simple style, quite expressive of the subject, and the details show both feeling and understanding. Those of Llandaff Cathedral, by Mr. J. H. James (“ Earendel ”), make a good second ; but they lack the precision and style of drawing so conspicuous in Mr. Ward’s.

In this connection may I echo the hope expressed by Mr. Graham last year, that the copies of measured drawings deposited in the Library of the Institute from time to time, in fulfilment of the terms of this competition, be classified and made more accessible for reference and study ? It is a suggestion fraught with such value that I trust means may soon be found for carrying it out. Permit me also another suggestion. Considering the work involved in properly measuring up buildings, work in itself essential from an educational point of view, it seems to me that the honorarium attached to the Medal is rather inadequate for the purpose, and I therefore submit for the consideration of the Council whether it would not be advisable to increase the amount to twenty guineas.

For the Pugin Studentship there are seven candidates, and for the Owen Jones there

are two. For the former nothing could well be more beautiful than the drawings submitted by Mr. A. J. Dunn, more especially those of the sedilia in All Saints' Church, Howton, Notts, and the Vicar's Chapel at Wells. The drawing of the sculpture and carving on the sedilia is specially noteworthy for its truth and expression, full of the spirit of Mediævalism in every line. He thoroughly deserves the Studentship, and one looks forward with more than usual interest to the result of his travels in the United Kingdom. Mr. Inglis's drawings are also very good indeed, though not of the surpassing merit of those placed first. Some err, however, in sending too many merely pretty sketches. Now that is just what is not wanted. Architectural drawing is a conventional business altogether, and must be represented conventionally by plans, elevations, and sections. Carefully measured, carefully drawn studies of old work of the best periods are worth any number of sketches; and I may add that where it is possible to give the colour of the materials, such as brick, or stone, or timber, it should invariably be done. It not only increases the interest and value of the record, but helps one to understand the methods of design and the expression of the building accordingly.

Of the two sets submitted for the Owen Jones Studentship it has been very difficult to decide between them; both are alike excellent in their different styles. Of the two I am not sure that I do not prefer the drawings of Sant' Anastasia, Verona, by Mr. Corlette [A.], as practical working drawings of colour applied to decoration. They are clear and vigorous, and apparently give us the actual tones of the colours themselves, and not an impression of them. At the same time nothing could well be more delicate than Mr. Joass's studies in the Norfolk and Suffolk churches, so famous for their coloured decoration. Both sets, however, are excellent examples of the kind of work required. I wish I could say something that would impress on you the importance of this Studentship, and of the value of colour in our buildings. It is a little disappointing to find so few candidates for what ought to be one of the most attractive in the list. Last year there were only two, and no award was made; this year is certainly an improvement in quality if not in quantity. I know it probably entails some special gift for, or love of, colour for its own sake. I know, also, that it requires more than usual application in its study. You may remember what Ruskin said of the wonderful painting by Paul Veronese in the Sala del Collegio of the Ducal Palace at Venice—"The traveller who really loves painting ought to get leave to come to this room whenever he chooses, and should pass the summer mornings there again and again. He will not otherwise enter so deeply into the heart of Venice." And he is right. It must be studied "again and again": in no other way can you gain the secret of colour. Is it a vain hope that through the medium of this Studentship, or others like it, there may yet be cultivated a knowledge of the true principles and practice of coloured decoration in conjunction with architecture which may in time lay the foundations of a school of decorative art known and read of all men? Never, perhaps, has there been a time when so many public buildings were being erected all over our land. I do not mean great monumental works—they come but few and far between—but for the ordinary requirements of municipalities—county halls, libraries, schools, and so forth; they are designed and carried out with more or less care and cultivation, and there, so far as the architect is concerned, it often ends. When their walls and ceilings, their domes and corridors, come to be decorated, the artist who understands painting—especially figure subjects as applied to architectural interiors—as it was understood and practised by the men who adorned the Renaissance palaces, does not yet exist. To encourage his development, to instil into his mind that there is a higher and nobler method of decorating our buildings than merely by easel pictures, is the object of the Owen Jones Studentship.

Before leaving the subject of studies of old work I would refer for a few minutes to the magnificent drawings of the Pantheon at Rome by M. Chedanne. We have to acknowledge

the courtesy of the French Government, and of M. Chedanne himself, for the opportunity of inspecting those wonderful designs, which for beauty of draughtsmanship, for accuracy of delineation of the existing structure, and for the knowledge displayed in its restoration, have probably never been surpassed. They must be a revelation to many of us as to the possibilities of measured drawings. As the work of a Travelling Student they are perfectly astounding; an object-lesson of the highest value of what to study and how to do it—not only architecturally but archæologically, for I understand that M. Chedanne in the course of his work has made discoveries of design and construction of the greatest interest, which go far to set at rest the history of that wonderful fane—

Simple, austere, sublime,
Shrine of all saints, temple of all Gods,
From Jove to Jesus.

As one looks through the series, the question arises how best to turn the lesson to account. We have no prize like the Prix de Rome, which keeps its fortunate winner for four years at the Villa Medici; but in the six months of the Soane, for instance—would it were longer!—might it not be an instruction to its holders to study and map out, as completely as the time will allow, the whole or a part of some famous example of ancient art, and, returning, read a Paper thereon with their drawings for illustrations, instead of dividing up the time over a number of subjects supposed to be more or less serviceable in after life? I submit the matter to the consideration of our future students. With such work as M. Chedanne's before their eyes, there should be no lack of enthusiasm to follow his splendid example.

ORIGINAL DESIGNS.

The prizes for original design have brought forth an unusual number of competitors—eighteen for the Soane Medallion, eleven for the Tite Certificate, and eight for the Grissell Medal. Perhaps, as I have said, the subjects were more than usually attractive; perhaps the Travelling Studentships are becoming more highly appreciated. Be that as it may, the result is encouraging in every sense of the word. For the Soane—the Blue Ribbon of the Institute—the subject, a Gallery for Pictures and Sculpture, is specially interesting: on a site, too, open all round, with no questions of light or air or party-walls, no complications of plan, no sanitary requirements worth mentioning, and no limit of cost. Truly it is an ideal problem! For what does it really mean? A palace dedicated to all the arts, a shrine by Architecture for her sisters Painting and Sculpture. What visions of artistic beauty does the very proposal not conjure up! No wonder we have so many candidates striving for victory; the regret is that it should be but academic. Consider for a moment the possibilities of the subject: a stately building of noble mien, its wall-surfaces broadly and simply treated, with striking opportunities for the combination of sculpture and architecture, a dignified entrance, a grand staircase approached through a magnificent hall, and leading to a noble series of galleries with splendid vistas from end to end, their walls enriched with the masterpieces of many lands, interspersed with costly marbles lovely in form and rich in colour. The imagination revels in the poetry of the situation, as the historic palaces of the Renaissance float through the mind, and one begins to feel that a rival to any of them is within one's reach. All one's knowledge of proportion, all one's feeling for detail, all one's intention and expression of plan and design, is called into existence for the fair apportionment and embellishment of wall and of window, of column and of cornice, till its development becomes a positive delight and its accomplishment a triumph of art, for art's own sake. What may one not expect from our young artists as the answer to such a glorious proposal! That at least the competition shall

be above the average. And to their credit, be it said, it is quite above the average. There are fewer eccentricities and more really satisfactory designs than have been seen in the Soane for some time past. True there are some which do not come within measurable distance of what is really wanted; but, on the other hand, there are more of a high order of merit, which ran each other so close for first place that it was a matter of more than ordinary difficulty to award the palm.

But let me be frank as well as favourable. Though there are many points of excellence scattered throughout the whole, not one of them comes up to the ideal palace. Perhaps this was hardly to be expected; the ideal is difficult of attainment; there are evidences also of the influence of the special, not to say questionable, features of some recent buildings which a little more thought or a little more knowledge would have avoided. For example, we seem to have entered on a craze for rustication as a decorative treatment. Well, we may be none the worse for that; but, as I had occasion recently to point out in the studio of the Architectural Association, there is a use and an abuse of rustication. When a column becomes so oppressed with it to the extent shown in the design marked "Scallywag," it ceases to be a column at all, and becomes a square pier, with deep markings across it at intervals. Now this is an abuse of the motive; the original feature is lost in its accessories, and may as well not be there at all. Another weakness is the craving after towers. Now a tower is primarily intended for a clock and bells, which are not primarily necessary in an art gallery, more especially when they do not grow naturally out of the plan, but are evidently introduced for their own sakes as purely decorative features. Domes also, though perhaps more appropriate, may be overdone, as in the case of the design with two, and they of quite different character, so that any repose to be obtained from the repetition is lost in the variety. These, however, may be charitably set down to the exuberances of youth. To inexperience also may be set down the points that are lost in the planning: hardly any one has fully grasped the possibilities of the staircase as a great internal feature. When one thinks of what Michael Angelo has done with simple means at the Laurentian Library in Florence, or the noble staircases of the Genoese palaces, one sighs to think of the opportunities lost in these Soane designs. Again, what could be more impressive than a stately hall adorned with sculpture as an approach to the grand staircase? But we almost look in vain for such: or what more imposing than the vista of gallery after gallery, communicating by handsome openings? In several of the plans this has apparently been forgotten, or never thought of, and we are left to look only from one room to another. The masters of the Renaissance understood the effect to be gained by an architectural plan better than this; their plans are well worth studying for the advantage they took of all these important points, and many others besides. Suffer me to commend them to future candidates for the Soane.

It is more pleasant, however, to praise than to blame, and most heartily do I congratulate Mr. H. S. East [A.] on his winning this important prize, the more so as he hails from beneath the Southern Cross. "Advance, Australia!" by all means; it is at such a moment we feel members of one common brotherhood of kindred as of art, and proud of the colonies who send their sons to share honours with the mother country. Taking its merits all round, "Southern Cross" has been adjudged the best design. It is not free from faults, for all that. The staircase, for instance, is too near the entrance; it is reached too early; the mind has not had time to appreciate its advent. Again, though the staircase with its dome above is good in itself, the steps are too narrow, their turnings and direction too complicated; much of the effect is thereby lost. Externally the dome would have gained in dignity had its lines been carried down to the ground; a slight projection of the central portico would have secured this, and probably a pediment over the upper Order increased its importance in this connection. The

rustication has, I am afraid, gone rather wild, the angle quoins and the courses of the niches being quite out of scale with each other; and they, again, with the dressings of the windows below them. On the other hand, the exterior lines are simple and dignified, and the detail full of character. The necessity for windows in the lower storey and none in the upper has doubtless perplexed the competitors considerably. Generally one of two treatments has been adopted for the upper storey: either it is a plain wall adorned with a band of sculpture, or it is enriched with niches and statues therein. I confess my preference for the former treatment, but in no case has it been boldly and successfully carried out. The sculpture is all on too small a scale, missing the sumptuousness of effect, as if it were something to be afraid of. One is surprised at such moderation when money was no object! "Southern Cross" has adopted the niche treatment; and, but for the want of harmony in scale I have mentioned above, the result is fairly satisfactory.

In "Lion's Head" (Mr. C. H. B. Quennell) the planning is the weak point, especially the ground floor, which is mainly given over to tea and coffee and packing-cases. The elevational treatment, both externally and internally, is full of interest, and shows much thought and invention; its detail also is often charming; and working with great restraint, its author gains thereby in dignity. Indeed, the design of the central portion of the façade is almost too simple; the upper windows might have been more enriched with advantage. "Lion's Head" adopts the sculptured frieze for the upper portion of his walls; but it is on far too small a scale: it is overpowered by the architectural surroundings. Were he to revise his design, I think on second thoughts the tower would probably be omitted. Of the other designs, "Scallywag" and "Westward Ho" have good plans, but they fall away in elevation and in detail. Nevertheless, the former is quite worthy the honours it has won. Some are quite nondescript in style, notwithstanding one claims to be "English" and another "National Renaissance." Gentlemen, without desiring to curb your imagination, may I plead for more purity in style? Believe me, originality is not everything, especially when striven after for its own sake. Renaissance, English or otherwise, is not a medley. Of what country that named "National" is the home puzzles me entirely: perhaps it claims to belong to that fussy order of things with which we have seen some coquetting lately, and which some genius in a moment of inspiration dubbed Anglo-Spanish. Why Spanish, and what it has to do with England, Heaven only knows; but it is fervently to be hoped it will never become "National" here, where we have a priceless Renaissance of our very own. A word to the wise. Study *that*, and not the vagaries of the last decade of the nineteenth century.

From the Soane Palace of Art we come to the Pleasure Pavilion of the Tite; and on the cool waters of the lake row past the eleven claimants for the prize. Taken as a whole, they are as good as, if not indeed better than, the Soane. The subject is quite as attractive, especially for those who love the Upper Thames. The requirements are few, the conditions easy, and money, again, no object. Happy competitors! Not even a new and amended Building Act to live up to; but—ah! there is always a "but," otherwise the laurels would not be worth fighting for—the style must be in accordance with the principles laid down by Palladio, Vignola, Wren, or Chambers. Sir William Tite was wise in his generation for the benefit of ours and those that may follow: he was anxious to keep alive in England the study of Italian architecture. If you would win, therefore, you must know something of the principles on which those great men worked and wrote—Symmetry, Harmony, Proportion, and the greatest of these is Proportion. In their unity lies greatness in design; in their absence, febleness. You need not be original; you need not be picturesque—though, of course, you may be both or either—but you must be proportionate, and how much we have

lost sight of this great principle needs little telling. Let me give you an instance—and this applies also to some of the Soane designs. I am no stickler for a rigid adherence to the letter of the five Orders as laid down by more than one of the men whose principles this prize is designed to perpetuate; but, unless you can materially improve upon them, any wayward departure for its own sake is hardly wise. Just now attenuated columns and pilasters—Ionic for choice—seem to be particularly fashionable; and by way of contrast to their meagre shafts they are made to carry an entablature quite a third or more of their own height. The result is in such bad proportion artistically that the shafts look as if they would break down under the superincumbent weight. The entablature also has great liberties taken with it; the frieze is abnormally enlarged, and the architrave starved, or left out altogether. In one case both frieze and architrave are dispensed with, and the cornice sits comfortably on top of the capitals—alone in its glory. The intention of the mouldings that form the cornice is also strangely misunderstood, and we find a cluster of puny members in juxtaposition with others—by comparison—of gigantic size, out of all relation the one with the other; while a pediment is nothing now unless it is either broken or has a subsidiary one to assist it. Now all this may be new—but it is not true; therefore, if you would be true, strive less after the new. But, in saying this, pray do not let me be misunderstood. I repeat, I have no desire to restrain your invention—only to beg you to curb your exuberance. Were some of the great men of the sixteenth and seventeenth centuries to revisit us in these last days of the nineteenth, and learn the object of this prize for which you have been contending, I think there can be little doubt but that they would pray for the repose of the soul of Sir William Tite!

After these general remarks, I do not propose to enlarge very much on the details of any particular design. It seems to me the tendency has been to overdo the size of the building. Some are more like villas than pavilions, though some, again, have caught the true spirit of the subject. Such, for instance, as “Luctor,” by Mr. Shekleton Balfour [A.], which has fairly earned first place; “Il Gondoliere” (Mr. Banister F. Fletcher [A.]); “Kismet” (Mr. Kennedy [A.]), and “Jonah” (Mr. Conner [A.]). In their own ways they are clever, well-thought-out designs, nicely drawn and detailed. “Luctor” and “Il Gondoliere” are specially good internally, and the loggias are just the places to while away an idle hour in pleasant chat before or after a spin on the lake. If they have a fault, they rather run to domes, though “Il Gondoliere,” by Mr. Fletcher, offends less in this respect than the others.

For the Grissell Medal there are no fewer than eight competitors. Some of them have strained the conditions somewhat by showing staircases passing through two floors instead of one; others, again, are octagon instead of spiral. They are all more or less fussy in design, and some are doubtful in construction—so much so that the Medal has been withheld, and the money prize only awarded to “Quercus,” by Mr. J. H. Fogerty [A.]. This is a matter for regret, as nothing can be more useful than a Study in Design and Construction.

THE ESSAYS.

It is a pleasure to bring these remarks to a close with words of unqualified praise. Not for many years past have the essays attained such a high standard of literary excellence. This is just as it should be when the subject is “The Influence of Literature on Architectural Development”—a fascinating theme truly, when we think how much the rise of the Renaissance was due to the spread of classical literature during the first half of the fifteenth century, and of the influence of the works of Sir Walter Scott on the Gothic revival in our country. It is most gratifying to find that out of the eight essays submitted four of them are quite in the front rank, displaying not only high literary merit, but, in common with the rest, an amount of thought and research worthy of all praise. Of these four, that bearing the motto “Bid

“me Discourse,” by Mr. Arthur Thomas Bolton [A.], Soane Medallist for 1893, has been awarded the Silver Medal and Twenty-five Guineas; and “Craigside,” by Mr. Geo. T. Sutcliffe [A.] the second place, with a prize of Ten Guineas; while “Research,” by Mr. J. Humphreys Jones, B.A. [A.], and “Ye Skeptic,” by Mr. Alfred C. Houston [A.], Ashpitel Prizeman for 1892, have each received Honourable Mention. May we hope the high standard attained this year will be maintained, and that the study of general literature, as bearing upon architecture and the allied arts, will never fail to find its votaries in our ranks?

Most heartily do I congratulate the Institute on the success that has attended these competitions this year, and the various prize-takers on the rewards they have so honourably won. To the unsuccessful, one word of encouragement: Persevere in your good work; success comes with experience and practice; he who follows me in this friendly duty may yet have the pleasure of congratulating some of you on the attainment of your desires. It is better, in such competitive warfare as this, to have fought and lost than never to have fought at all.

MONSIEUR CHEDANNE'S DRAWINGS OF THE PANTHEON, ROME.

SUMMARY OF HIS REPORT TO THE ACADEMIE DES BEAUX-ARTS (INSTITUT DE FRANCE). By R. PHENÉ SPIERS [F.], F.S.A.

MR. PRESIDENT AND GENTLEMEN,—M. Chedanne has been kind enough to place in my hands the report which he submitted to the Académie des Beaux-Arts, in conjunction with the magnificent series of drawings which are now exhibited in the galleries downstairs, in explanation of the special researches which he was enabled to make by the permission of the Italian Government and of his hypothetical restorations. I have been asked to write a *résumé* of this Report, as it would be impossible to give a translation in full owing to the short time at our disposal. Broadly speaking, the report includes two distinguishing elements: first, that which cites in detail the various references to the Pantheon by writers of all periods, and in which, from time to time, M. Chedanne combats the various theories which have been put forward as to its construction; and secondly, that which describes in detail M. Chedanne's own researches, and the discoveries which he was able to make in consequence of special facilities granted to him by the Italian Government. The latter are given in so concise a manner that I have felt they would lose much of their importance if I attempted to curtail them; and as this is, perhaps, the only opportunity you will have of testing the accuracy of M. Chedanne's contentions by an examination of the drawings, I have come to the conclusion that my best course will be to confine my attention to them this evening, leaving the historical part for a future article in the JOURNAL, if thought desirable. M. Chedanne says:—

Before commencing the work of restoration, I had already noted, when measuring the plan, that the axes of the small altars, which form the chief elements of the interior decoration, and those of the semicircular recesses (formed in the thickness of the wall), were in the same line. This fact was of great importance, as it gave me an absolute proof that the builder of the edifice was also its decorator. My researches commenced at the springing of the vault above one of the four rectangular chapels. On the removal of the stucco decoration of three coffers of the lower range, three small arches were exposed, whose springing was vertically over the columns of the ground floor, whilst that of the greater arch, which enclosed them, rested on the piers on each side. The surface of the bricks proved that these small arches had been built in, to accord with the design of the coffer, and not cut afterwards, as might have been supposed. A hole which I was enabled to cut at a higher level opposite the top of the greater arch *showed this arch to be vertical*. This at once disproved the hypothesis of Piranesi, that this greater arch formed part of a series which constituted the outer skin of the cupola. Further

examination also disproved the assumption that the dome of the Pantheon was constructed in light porous stone and pottery, and would not be able to carry the bronze flower-bosses in the centre of the coffers and on the ribs, as I found bronze cramps built into the solid vault to carry these features. The whole vault is, in fact, built in solid brick, and is supported at its springing by the great vertical arches already referred to, which are carried through the thickness of the wall, rising outside to the top of the circular wall of the building. The removal of some of the bricks of the small arches referred to was facilitated by the fact that certain grave cracks had displayed themselves in the vault, which necessitated their restoration. These cracks were the result of an unfortunate restoration made in the attic storey by the architect Posi in 1747. Posi, who was the architect of Benedict XIV., cut through the discharging arches immediately over the columns of the ground storey in order to increase the size of his niches, and it is in the vault above this that the cracks have developed.

In order to explain more fully M. Chedanne's arguments, I may be allowed here to point out that the Report from which I have quoted was that submitted in June 1892. Since that time the question of the real construction of the whole building has occupied M. Chedanne's continued attention, and it will, I hope, appear some day in a monograph on the subject. In the course of a long discussion which I had with him on Saturday, I ascertained that the whole of the rotunda is built in brick with a facing of "*opus reticulatum*." This was afterwards faced with marble, the conjectural restoration of which is shown in Drawing No. 21. The bricks which form the core were of irregular shape, bedded in mortar, and grouted at various levels, with occasional beds of the two-foot bricks carried through the thickness of the wall as a bond. The whole thickness of the vault is also built in brick laid in horizontal beds, at all events up to the level of the fourth range of coffers, as ascertained by M. Chedanne; the same horizontal bedding of the bricks also being found in the proximity of the central opening in the vault.* This throws altogether a new light on the construction, and although it bears out the theory put forward by Professor Middleton, that *the whole vault is solid, and exerts no thrust*, it is due to a totally different cause—viz. the horizontal bedding of the bricks of the vault, and not to the cohesive properties of the concrete mass of which it was supposed to be composed. The reference made to the springing of the small arches in the vault, and their position exactly over the columns of the ground storey, emphasises M. Chedanne's argument, that the decoration formed part of the original and main construction, and that the columns in question, which have been assumed by most writers to be decorative features, and added at a later period, form part of the integral construction of the rotunda. The numerous relieving arches which M. Chedanne shows in Drawings Nos. 15, 16, and 24, are all necessary constructive features in his estimation, and the cutting through of some of them by Posi in 1747 led to cracks in the superstructure.

The removal of some of the bricks from the main vault was facilitated by the cracks already existing there, and it was not without astonishment that I noted they were stamped with dies known to be of the time of Hadrian, and of the probable date of 123 A.D.

The stamps to which he refers are those shown, full size, in Drawing No. 12, being Nos. 1, 2, and 3 respectively, the two latter being found on bricks removed from the small arches, the first from that in the greater arch. The discovery of these stamps on the bricks in the vault naturally led to a desire to examine those in other parts of the structure, and M. Chedanne accordingly obtained permission to search elsewhere. On this drawing, No. 12, eight stamps are shown: the first three referred to, and five others which are copied from

* M. Chedanne was unable to examine the vault between the fourth coffer and the central opening; but he is of opinion that a range of arches was built on a centering at

this level, where the diameter is reduced to about 80 ft. The horizontal beds are not quite horizontal: they slope down outwards 4 centimetres to a metre.—R. P. S.

bricks taken out of, No. 4, the arch above the great chapels; No. 5, the relieving arch over the columns; No. 6, the circular wall and stairs; No. 7, the foundations of the circular wall; and No. 8, from the main drain under the pavement of the interior, which carries off the rain falling through the central opening in the vault.

The result of this discovery, which is by far the most important made by M. Chedanne, not only enabled him to decide that the whole of the rotunda was built by Hadrian, but led to a series of researches respecting the famous portico of Agrippa, on which subject M. Chedanne continues:—

The existing portico: was it the original portico, against which the rotunda, with its brick projection (*avant-corps*) on south side, had been built? Till within recent times this portico has always been looked upon as an addition made by Agrippa to shelter the statue of Augustus and his own, which the Emperor forbade him to place in the interior of the temple by the sides of those of the Cæsars. Its composition and plan were regarded as a confirmation of the writings of Dion Cassius, which forms nearly always the starting-point of studies relating to the Pantheon.

Again, the design of the portico itself has occasionally been criticised adversely by competent authorities, who have also pointed out the clumsy way in which part of it is built into the projecting brickwork of the rotunda. This defect has been condoned by the remark that it was in consequence of its being an addition. The excuse, however, will not hold good, for on careful examination of the construction it is easy to see by the bond of the courses, the projection of cornices, the brick bonding courses, and the setting back of the exterior wall-surface of the circular wall *that the rotunda, with its brick projection (avant-corps), and the portico were built at the same time.* That which surprised me the most, however, in my study of the work was the absence of any suggestion as to the numerous defects which constitute the clearest proof that the existing portico is *a reconstruction long posterior to the age of Augustus.*

In support of this argument M. Chedanne says:—

The modillions of the cornice of the pediment are not equally spaced out—the decorated mouldings under them are cut irregularly by the existing joints—the bases and capitals of the pilasters inside the portico intersect in a clumsy way, not always being on the same level. And, finally, the right hand return of the portico is not quite at right angles with the principal front.

Besides these minor details, the proportions themselves of the pediment afford an unmistakable evidence that the existing portico was built of features taken from an earlier edifice. The height of the pediment is a little more than a quarter of the width of the front—a proportion satisfactory in a tetrastyle portico like that at Pola, but quite inadmissible, according to Vitruvian rules, in an octastyle portico.

M. Chedanne then proceeds to give the reasons for his hypothesis that the original portico of Agrippa was decastyle. He was led to this hypothesis by a singular discovery he made when measuring the cornice of the pediment, the modillions of which he found were *not vertical*, but inclined at an angle of $\cdot 0146$ metre in their height, which is $\cdot 24$ metre.

M. Chedanne points out that of the original portico there exist in the present one:—(1) The columns, which retain their original intercolumniation; (2) the entablature, with the famous inscription; (3) the cornice of the pediment, with the exception of a portion on the left-hand side (including five modillions), which was restored under Urban VIII. (1623). The intercolumniation is $2\frac{1}{7}$ of the diameter, nearly the same as that of the Temple of Venus and Rome in Rome, and of the Temple of the Sun at Baalbek, both decastyle temples.

M. Chedanne calculates that the correct proportion for a pediment of a decastyle portico would be one-sixth of the width of the same. The inclination of the modillions of the existing pediment is exactly that which would arise if a portion of a cornice of a decastyle portico with vertical modillions were utilised, as it is suggested to have been in the existing portico. The left-hand angle of the pediment was restored; the right-hand angle is broken away; there

remained only the summit to be examined. It was necessary that a new block of stone should be cut to fit the older portions of cornice used up *with a raised pitch*, and here M. Chedanne found that the builder of Septimius Severus—to whom M. Chedanne attributes the raising and alteration of the portico from the decastyle to the octastyle example—showed his weakness. “He did not even take the trouble to space out equally the modillions on each side, and “the ornamental mouldings he carved under them are of the poorest kind.”

These discoveries led M. Chedanne to pursue his investigations under the paving, and here he found on each side the original foundation wall, in travertine stone, of the extra column required to complete his decastyle front. This wall was carried back towards the north on the return sides as far as would allow of five columns resting on it; and on the west, or right-hand side, he discovered *in situ* a portion of the original base moulding of the podium (which returned again to the east), and a fragment of the marble facing. The paving on which this rested was 2·40 metres, or nearly 8 feet, below the pavement of the original temple, which was 2·10, or nearly 7 feet, below the actual pavement of the present rotunda. Continuing his examination of this foundation wall, which in the excellence of its construction belongs to the Augustan era, M. Chedanne noted that the additional courses of foundation which were added in the time of Septimius Severus were of inferior construction to those on which they rested. In Frame No. 10, downstairs, there is an admirable sketch of the fragment of the base of the podium just referred to.

Frame No. 13 shows a plan of the foundations and of the excavations made on the site, and on it, marked in blue, is one of the original foundation walls crossing the portico. This, having been raised, carries the row of columns running back from the front on the left-hand side. From this it would appear that, as at present, there were two intermediate rows of columns to carry the roof. In the existing portico the central span is about 36 feet wide between the columns, the two side spans about 22 feet; in the original portico they would be equal if the intercolumniations were constant.*

This same drawing, No. 13, shows also the position of the excavations made inside the Pantheon, some of which revealed the pavement of the original temple, 2·10 metres, or 6 feet 10 inches, under the actual pavement. The traces of this pavement are marked A on plan; and although one of the spots indicated might just come within the cella wall, if the return flanks of the decastyle portico had been carried through, the return of the foundation walls above referred to makes the hypothetical restoration of the original cella a difficult task, respecting which M. Chedanne reserves his inquiries.

I have only now to direct your attention specially to Drawing No. 4, in which M. Chedanne has shown the original bronze trusses which carried the roof of the portico, and which were taken from Peruzzi's drawings, made in 1627, before the bronze plates of this portico and all the trusses carrying the roof were taken away for the cannons of the fort of St. Angelo—the Baldacchino of St. Peter, which is supposed to have been cast with this material, is in Venetian bronze, and was cast, according to M. Chedanne, long before the demolition of the bronze trusses of the portico—and the hypothetical restoration of the bronze-plated circular ceiling over the central aisle of the portico.

M. Chedanne has further pointed out that Agrippa selected for the site of the Pantheon and for his Thermæ (which are in the immediate rear) the lower portions of the town, which, previous to his time, had virtually been a marsh. This site he was able to obtain at much less cost than elsewhere; and he drained it so effectually that it was not till a later period (when Hadrian commenced the Rotunda) that it was found necessary to raise the level. At the present day the Rotunda is occasionally flooded with water, and many of M. Chedanne's

* The central intercolumniation was occasionally wider.—R. P. S.

explorations had to be conducted with the water up to his waist. In a further explanation which M. Chedanne gave afterwards he believed that when Hadrian built the Rotunda he left the decastyle portico in its original position, and built the *avant-corps* against the portico, so that originally there must have been a flight of steps with the portico to reach the higher level. It was Septimius Severus who took down this decastyle portico and re-erected it as an octastyle one, as we now find it; and Caracalla continued Septimius Severus's work. The same is recorded on an inscription in two lines on the architrave below the inscription of Agrippa.

VOTE OF THANKS TO THE FRENCH GOVERNMENT.

THE PRESIDENT.—Gentlemen, it is my pleasant duty to ask you to record a Vote of Thanks to the French Government for the loan of these drawings which have been prepared by M. Chedanne. I consider it to be a very great kindness on their part to have answered so cordially our request, and that it is a very great advantage to the architects and artists of this country, and especially to the Institute, to have had these splendid works lent for our inspection. It is most important for us to see what can be done in the way of architectural delineation by the students of other countries, especially of France.

MR. E. W. MOUNTFORD [*F.*], President of the Architectural Association.—Mr. President and Gentlemen, as representing the Architectural Association, I am proud to have the honour of seconding the Vote of Thanks to the French Government. I can assure M. Chedanne that our Association is filled with enthusiastic admiration at the enormous labour, the great and patient research, the very considerable artistic power, required to produce such drawings. The marvellous care and precision with which the architecture is drawn, the able manner in which the sculpture is represented, and the delightful colouring of the whole, combine to make these drawings the most beautiful it has been my lot to see. I am afraid, Sir, it will be a long time before the architectural students of Paris have to propose a Vote of Thanks to our Government for the loan of any architectural drawings—the one point upon which British policy is invariably consistent and continuous being a determination to spend as little money as possible upon architecture, and to encourage the study of it in no way whatever. All the more, therefore, do we owe the French Government a very hearty Vote of Thanks for the loan of these drawings. And I think, Sir, we ought to include in the Vote of Thanks our confrère M. Chedanne for having made them, and our friend Mr. Brydon for having initiated the idea of obtaining them on loan from the French Government.

THE PRESIDENT.—Monsieur Chedanne, je m'empresse de vous informer que les Architectes Britanniques ont voté à l'unanimité leurs remerciements les plus cordiaux et respectueux au Gouvernement Français pour le prêt des dessins du Panthéon à Rome, dont vous, Monsieur, êtes le plus habile et le très-savant auteur.

MONSIEUR CHEDANNE.—Monsieur le Président, Messieurs, et chers Confrères, je suis profondément touché de votre accueil si bienveillant, et vous en remercie, non seulement en mon nom personnel, mais au nom de nos confrères français, dont je suis ici le très-modeste représentant. Vous avez bien voulu demander au Gouvernement Français, par l'intermédiaire de l'Académie des Beaux-Arts, communication d'une étude faite par un pensionnaire de Rome. La bonne chance a désigné celle que j'ai faite du Panthéon. Vos très-aimables paroles, ainsi que la sympathie que me témoigne l'Assemblée—surtout celle des jeunes architectes britanniques réunis ici ce soir—je les accepte pour notre École française, à laquelle je les porterai bientôt avec le plus grand plaisir.

The reception given by the members of the Institute and the numerous Students present to M. Chedanne's and the President's words, as well as to those of Mr. Mountford, was of the warmest description.



9, CONDUIT STREET, LONDON, W., 17 January 1895.

CHRONICLE.

THE PANTHEON OF ROME.

M. Chedanne's Delineation and Restoration.

The magnificent series of drawings of the Pantheon made by M. Chedanne during the fourth year of his sojourn in Rome were open to the public from Monday 7th inst. until Monday 14th inst., both days inclusive; and a large number of visitors, as well as members, have seen them. The drawings comprise plans, elevations, sections, and details of the existing Pantheon; a series of photographs of the excavations and of portions of the structure exposed during the restoration; a series of engravings of the Pantheon made at various periods; a collection of drawings and prints which have assisted M. Chedanne in his restoration; with plans, sections, elevation, and details of his conjectural restoration.

A detailed list of the drawings is given below. In Nos. 4, 20-23, M. Chedanne gives his conjectural restorations of the building in Hadrian's time. In No. 4 he suggests the bronze plating which was taken away by Urban VIII. in 1632, and melted down to supply the bronze for the canopy over the Apostles' Tomb in the Vatican. No. 13 shows the position of the older paving discovered, and the pavement outside the portico to the eastward. In No. 26 is suggested the original Portico of Agrippa.

1. PLAN GÉNÉRAL.—General block plan showing the remains of ancient buildings in the vicinity, including the Arch of Piety and the Baths of Agrippa and Alexander Severus.
2. DÉTAILS DU PORTIQUE.—Detail of the Order of the Portico, with study of capital restored one-fifth full size.
3. FAÇADE PRINCIPALE—ÉTAT ACTUEL.—The front of the Pantheon as at present existing.
4. ÉTUDE GÉNÉRALE DE LA STRUCTURE.—Isometrical section showing construction.
5. COUPE TRANSVERSALE —ÉTAT ACTUEL.—Cross-section of present building.
6. ORDRE INTÉRIEUR.—The Order of the Interior, one-fifth full-size.
7. PLAN DU REZ-DE-CHAUSSÉE.—Plan of building showing pavement.
8. COUPE TRANSVERSALE—CONSTRUCTION.—Cross-section showing the construction.

9. COUPE LONGITUDINALE.—Longitudinal section through Portico and Rotunda.

10. ÉTUDES VARIÉES.—Studies of various parts.

11. ÉTUDE DE LA DÉCORATION.—Detail of bay of interior showing the marble decoration.

12. CORNICHES EXTÉRIEURES.—Details of exterior cornices, one-fifth full size; and full-size drawings of the stamps found on the bricks in various parts of the construction.

13. PLAN DES FONDATIONS ET DES FOUILLES.—Plan of foundations and excavations made on site.

14. DOCUMENTS POUR LA RESTAURATION DE LA DÉCORATION INTÉRIEURE.—Series of prints, photographs, and drawings, showing early decoration of interior.

15, 16. ÉTUDES DE LA STRUCTURE.—Studies of one bay of interior, showing construction.

17. PHOTOGRAPHIES DES RECHERCHES ET FOUILLES FAITES EN 1891-92.—Photographs of various parts of building exposed during the restoration.

18. CHÂPITEAU SOUS LA PORTIQUE.—Capital of pilaster of Portico.

19. CHÂPITEAU DE PORTIQUE.—Capital of Portico—existing state.

20. PLAN RESTAURÉ.—Study of plan restored.

21. FAÇADE PRINCIPALE RESTAURÉE.—Principal front showing the restoration of marble casing round building, bronze tiles of roof (taken off by Constans II., as stated in No. 30), &c.

22. COUPE TRANSVERSALE RESTAURÉE.—Cross-section showing the original decoration. See No. 14.

23. ÉTUDE DE LA DÉCORATION INTÉRIEURE.—Study of one bay of interior showing the original decorative design.

24. ÉTUDE DE LA CONSTRUCTION D'UNE CHAPELLE RECTANGULAIRE.—Study of one of the rectangular chapels on the diagonal axes; plans and elevations.

25. ORDRE INTÉRIEUR.—Study of the order of the interior columns and pilasters.

26. PORTIQUE DU PANTHÉON D'AGRIPPA.—Conjectural restoration of the original Portico of Agrippa showing ten columns in front.

27. FAÇADE LATÉRALE.—Side view of Pantheon as at present existing.

28. PLAN AU-DESSUS DE LA 1^{re} ET DE LA 2^{me} CORNICHES.—Plans taken above lower and upper cornices.

29. Same as No. 4, but in outline only.

30. Plans showing vault and roofing, and conjectural restoration of the bronze tiles removed by Constans II. in the seventh century, and taken to Constantinople.

The drawings fill thirty-five strainers in all, but only those described above were publicly exhibited, due to want of space for hanging them, and to the fact that, as outline drawings, they could not be seen to any advantage at a height above the eye. These form the work of M. Chedanne's fourth year as a *pensionnaire* of the Academy of France at Rome. During his third year he made drawings of the Tabularium in Rome, and of the Church of the Malatesta at Rimini, as well as of some Renaissance tombs in various parts of Italy. During his first and second years he made studies of ancient ornament and decoration, and drawings of the Theatre of Marcellus. His drawings of the Pantheon, recently exhibited, have not been published, nor has any one of them been photographed.

Mr. Phené Spiers's Description of the Drawings.

At the General Meeting held 7th inst. (Mr. Aston Webb, F.R.S., in the Chair), when the Award

of Prizes and Studentships was announced, and when, in connection with the drawings submitted for them, the exhibition of M. Chedanne's drawings was opened, Mr. R. Phené Spiers [*F.*] made a communication respecting the latter as follows:—

The "Grand Prix" students who are sent to Rome, though the work they undertake is not necessarily confined to the study of the monuments in that city, are expected, in the fourth and last year of the Travelling Studentship, to measure some important building of antiquity, to prepare elaborate drawings of the same, and to send them over to Paris as their "envoi" of the fourth year, together with a conjectural restoration of the building as it was originally built, and a report on the same. M. Chedanne selected the Pantheon as the subject of his "envoi," and had already measured portions of the structure when he discovered that the decoration of the interior formed an integral part of the construction, and could not be separated from it. This new theory having been communicated to the Italian Government, they decided to entrust certain restorations required in the coffers of the main vault to M. Chedanne's superintendence, and he was instructed to design the necessary scaffolding for the same. This formed the second part of M. Chedanne's researches, and it is to this fortuitous circumstance that we owe the most important discoveries.

Before proceeding to my description of the drawings, which I saw for the first time only on Saturday, a few words about the building itself, and the controversy which for many years has been going on with respect to the actual date of the Pantheon, may not be out of place. The Pantheon consists of an immense rotunda, 142 feet in diameter internally and the same dimensions in height. The wall surrounding it is 20 feet thick, in which on three of the cardinal points, viz. east, west, and north, are semicircular apses, the great entrance doorway being on the south side; and on the diagonal axes, four rectangular recesses. Besides these, there are other recesses in the 20-foot thickness of wall, so that it is not solid throughout.

The rotunda is vaulted with a hemispherical dome, with vertical and horizontal ribs enclosing coffers. There are thirty-two vertical ribs and five ranges of coffers, which rise to where the diameter is reduced to about 80 feet; above this the vault is not coffered, but the centre is pierced with an opening 30 feet in diameter, through which the interior is lighted. The centre of the hemispherical vault is about eleven feet below the upper cornice.

A description of the construction of this dome and of the outer shell which was supposed to be built on it is given in Viollet-Le-Duc's dictionary under the article "Voute," and it is accompanied by illustrations which I copied as diagrams for a Paper I read some years ago before the members of the Architectural Association. These diagrams have some special interest now, because they show

that the scheme put forward by Viollet-Le-Duc from the researches of M. Choisy [*Hon. Corr. M.*] does not coincide with the actual construction as shown in M. Chedanne's drawings.

Piranesi, in 1743, had some work to do in connection with the roof of the Pantheon, and he suggested the existence of an outer shell of arches and ribs laid upon the inner vault. Viollet-Le-Duc put forward similar views, differing only in the arrangement of some of the upper arches. Isabelle, however, refused to believe in the existence of these arches, so that we turn with interest to see what is put forward in M. Chedanne's drawings. So far as I am able to follow them, there is no proof of an outer shell. Arches are shown at the back of the inner vault, but these arches are vertical, and are thrown across the eight recesses referred to, to transfer the weight of the vault down on to the piers between, and these arches may have given Piranesi the idea that there was an outer shell. The intersection of these arches with the vertical and horizontal ribs of the coffers is shown in the photograph in Frame 17, and in 15 and 16, studies of the construction of one bay. Further, the horizontal ribs said to have been flat arches are not built as such, as may be seen by the photograph in Frame 17.

The rotunda described is preceded by an octastyle portico 101 feet wide and about fifty-nine feet projection in the centre in front of the rotunda wall. The inscription on the frieze of this portico shows that it was erected by Agrippa 27 B.C., and it is built into the rotunda in such a way as to make it certain that both were built at the same time. Against this assumption antiquarians have pointed out—first, that it is quite impossible that a structure of such importance as the vaulted rotunda could have been built at so early a date. Secondly, that no mention of it is made by Vitruvius, who surely would have dwelt on its magnificent construction. Thirdly, that the grey granite of which several of the columns in the portico are formed was not brought to Rome till the reign of Trajan, or about the beginning of the second century A.D. Fourthly, that the buildings of the Augustan era were not faced with brick.

It may be interesting here to quote the following extract from Fergusson's *Handbook of Architecture*, written in 1855, and expressing his views thereon:—

The pillars are disposed in the Etruscan fashion, and it is probable that originally they formed the portico to a three-celled temple. The portico, as we know, not only from the inscription but from the style, belongs to the age of Augustus, and it is generally supposed that it was at that time added by Agrippa to the existing rotunda. I feel convinced that the contrary was the case, and that the rotunda is very much more modern than the portico. We know from history that the building was frequently damaged by fire, and restored first by Hadrian, and after-

wards by Septimius Severus in the year A.D. 202. If the interior of the building, as originally erected, consisted of rectangular cells of the Etruscan form, constructed of wood—at any rate with a wooden roof—which I believe to have been the case, such disasters were not only possible, but probable; but no fire could damage such a building as we now find. Besides this, we know of no attempt at vaulting on anything like such a scale as this in the Augustan age, and the temples at that time all affected the Greek peristylar form. Thenceforward the cells were gradually enlarged, and gradually, too, the exterior was sacrificed to the interior, which characteristics are here carried to excess. Besides this, the masonry of the rotunda is full of useless discharging arches, and shows the peculiarities of the latest age. All these considerations put together would incline me to place it very near the age of Constantine, could I find any trace of a later restoration than that above alluded to; but, under any circumstances, I do not think it can have been erected before the age of Hadrian.

M. Chedanne's researches have solved, at all events, some of the difficulties thus raised.

Having had to take out some of the bricks in the vertical and cross ribs of the dome, he found them impressed with stamps,* which are known not to be earlier than the first half of the second century A.D.; and as Hadrian is known to have restored the Pantheon it is to his date that the rotunda must be ascribed. This, however, did not get over the difficulties of the date of the portico. In the course of his researches, however, M. Chedanne found the pavement of an earlier building 6·9 feet below the actual floor of the rotunda, and his contention is that Agrippa's portico was taken down and rebuilt at the higher level. The theory, therefore, which he puts forward is this: the portico was the front portion of a Roman temple built on the usual rectangular plan with a square cella, of which this pavement is a relic. This cella was destroyed by fire in Trajan's time, and Hadrian erected the rotunda in its place, attaching it to Agrippa's portico—this latter having been taken down in the time of Septimius Severus, A.D. 193, and rebuilt at a higher level. This is, however, not the termination of M. Chedanne's hypotheses. When measuring the pediment of the portico, he conceived the idea that its cornice formed part of a pediment of less size than the actual pediment, and he suggests that the original portico was decastyle, that there were ten columns in front, and not eight, as at present. He sends a drawing of the original conjectural portico, and it is on this subject that he will, I hope, enlighten us next week.

In the short discussion which followed Mr. Spiers's description of the drawings Mr. H. H. Statham [F.] remarked that they formed a prominent exhibit last May at the Salon in Paris. He was, perhaps, one of the few who had seen them there, and he was very glad indeed that there was an opportunity of their now being seen in London. They were drawings of the highest

* These stamps are shown full size on Drawing No. 12.

interest, and all English architects should see them. They must all feel gratified at the testimony M. Chedanne's discovery bore to the acuteness of reasoning of their own native writer, Ferguson. Ferguson sometimes made mistakes, but in many things he showed an acuteness of reasoning quite extraordinary; and the present instance, when they found his views confirmed by so eminent an authority, was one of the most remarkable examples of it.

The Hon. Secretary, Mr. Emerson, proposed a vote of thanks to Mr. Spiers for the trouble he had taken to put the matter before them, especially as the time at his disposal had been so short.

Mr. J. M. Brydon [F.] seconded the vote, and, being partly responsible for the appearance of the drawings, he heartily congratulated the Institute on obtaining the loan of them. The drawings were indeed very beautiful, and bore evidence of the most remarkable skill and care. Upon the archaeological questions involved in the drawings it would be premature to remark; but he would call attention to the fact that Professor Middleton, who had given a great deal of study to the antiquities of Rome, was of opinion that the dome was really a mass of concrete from top to bottom; that there was no real construction by way of ribs and arches, and no lateral thrust. It simply stood on the top of its walls, and there was no solid thrust in it.

The Chairman (Mr. Webb) said they were indebted to Mr. Brydon [F.] for having suggested the application for the loan of the drawings. It was a most happy suggestion. It was, he believed, the first time that the French Government had lent drawings of the kind for exhibition in England, and they were not at all sure, when they made the application, whether it would be granted. But they were largely indebted to the President of the Académie des Beaux-Arts, M. Daumet [*Hon. Corr. M.*], for exerting his influence on their behalf.

The British Academy of Arts in Rome.

The rising generation of artists may, perhaps, have reason to be obliged to Mr. E. J. Poynter, R.A., for a letter which appeared on the 15th inst., and to *The Times* for having published it, as follows:—

SIR,—May I be allowed briefly to call attention through your columns to the British Academy of Arts in Rome? This institution, founded in 1823, in which many artists now well established in public estimation have in past times studied, has of late years, from various causes, retired into a modest obscurity—"in short"—as Mr. Micawber might say, it has been shut. This complete abnegation of the principle that an academy, to be of any use, must be open for study arose chiefly from the fact that it was situated in inconvenient premises in one of the most crowded and noisiest thoroughfares in Rome, and with nothing to indicate its situation, its existence even being unknown to visitors to Rome.

This drawback has been recently removed by the transfer of the institution to convenient and well-lighted

rooms forming part of a small colony of studios in the Via Margutta, a quiet street behind the Via Babuino, and in the artists' quarter.

The first rule of the Academy provides that "every British artist, on his arrival in Rome, shall be admitted gratuitously to study in the Academy on application to the Secretary."

For this purpose it is open for two hours every evening, during the winter months, for study from the living model, which is provided at the cost of the Academy, the only limitation being that there shall be not less than three students attending the class.

The Academy also contains an excellent collection of casts from the antique, which is open for study in the day-time; and there is also a good library containing many valuable works on art and general literature, from which, under certain conditions, members and students are allowed to borrow books.

By a new regulation ladies will be admitted as students, and various other modifications of the rules suggested in a report recently drawn up by Colonel Slade, at the request of Sir Clare Ford, our Ambassador at Rome, have been adopted, which, it is hoped, will put the Academy on a better footing, and render it more useful to British artists visiting or residing in Rome.

Recently affairs have worked in a vicious circle. Under altered circumstances, and from the fact of the Academy's existence having almost dropped out of knowledge, applications for admission have declined to the vanishing point; and the discouragement arising from this cause, combined with the rule that the class is not to be opened unless there are three students to work from the model, has favoured inaction and led to the closing of the institution.

The class, established in its new premises, is now regularly open and attended by six students, and this number will doubtless be increased as the advantages offered by the Academy come to be more widely known. Things are changed, no doubt, from the days when it was thought a necessary part of an artist's education to go to Rome; but, in spite of changes of fashion, and of other changes more lamentable, Rome still remains the capital and centre of art in its highest expression; and no one who would sound the heights and depths to which the noblest in art has attained can afford to ignore the lessons to be learnt there. There may still be young artists willing and able to make use of its glorious opportunities. They may find it advantageous to supplement their studies in museums and palaces by making use of the Academy life-class, and thus not altogether dropping their practical work.

Further information may be obtained from the Secretary, Alex. Coleman, Esq., 53B, Via Margutta, Rome.

I am, Sir, your obedient servant,

EDWARD J. POYNTER.

28, Albert Gate, S.W., 11th January.

The Academy of France at Rome, as may be seen at p. 185, was founded early in the Great Age of Louis Quatorze, and has prospered to this day. Is there anything—except apathy—to preclude the Great Age of Victoria from rendering the British Academy of Arts in Rome an equally brilliant success? Not, of course, by Government aid or expenditure of public money, but in British fashion—by corporate or private enterprise.

The Prizes and Studentships.

The annual competitions of the Institute this year have revealed one or two facts well worthy of record. The winners, as in some previous

years, are not mainly provincial men, nor are they outsiders. Of the twenty premiated candidates, fifteen are Associates duly qualified by examination. Manchester sent an excellent essayist in Mr. Sutcliffe [A.], who was placed second for the Essay Medal. Cardiff may be congratulated on the drawings of Llandaff Cathedral, which won for Mr. John H. James a Medal of Merit in the Measured Drawings Competition. Birmingham and its Municipal School of Art are already proud of Mr. A. J. Dunn, the newly-elected Pugin Student, whose present address is in Gloucester. Mr. W. Tait Conner [A.], honourably mentioned in the Tite Competition, and Mr. Fogerty [A.], placed first among the competitors for the Grissell Medal, hail from Glasgow and Bournemouth respectively. Not the least important fact to be recorded this year is the prominence of Austrians in the several trials of strength, three of those who submitted designs and drawings having carried off honours always highly appreciated by the Home students of the British Empire.

Manchester is also to be congratulated on having added to the list of Ashpitel Prizemen the name of Mr. Vernon Crompton [A.], who was placed at the head of the 96 passed candidates of 1894 by the Board of Examiners in Architecture. The work of the Pugin Student for 1894—Mr. R. Shekleton Balfour [A.]—was highly commended, at the Meeting of the 7th inst., by the Vice-President in the Chair, Mr. Aston Webb, and again on the 14th inst. by Mr. Brydon, who said:—"Let me commend to your attention the drawings by Mr. Balfour, made during his tour as Pugin Student: the report he submitted with them is an excellent record of his travels, and descriptive of earnest work faithfully and diligently carried out." Mr. Brydon also praised the report of Mr. Adams, the Godwin Bursar of 1894, which treats fully of the Eppendorf Hospital at Hamburg, and the Stuienberg Hospital at Antwerp; and stated that an abstract of the same, or perhaps the report in its entirety, would appear, in due course, in the JOURNAL.

The Burlington-Devonshire Collection.

The terms of the Declaration of Trust entered into on the 17th ult. by the Institute and his Grace the Duke of Devonshire [H.F.] are as follows:—

This indenture, made the seventeenth day of December, one thousand eight hundred and ninety-four, between the Most Noble Spencer Compton Cavendish, Duke of Devonshire, Knight of the Garter (hereinafter referred to as the Duke), of the one part, and The Royal Institute of British Architects (hereinafter referred to as the Institute) of the other part: Whereas a collection of original Architectural Drawings has for some time past been in the charge of the Institute, and the Duke (the owner thereof), being desirous of

making some of such Drawings permanently accessible for the purposes of study and reference, has presented such of the same Drawings as are specified in the Schedule hereto to the Institute by way of gift, upon the terms that the Institute shall execute such Declaration of Trust with such agreements and provisions therein as hereinafter appears, and the same Drawings have been delivered to and are now in the possession of the Institute: Now this Indenture witnesseth that, in consideration of the premises, it is hereby agreed and declared, and particularly the Institute do hereby agree and declare with and to the Duke, that the Institute shall and will stand possessed of and hold the Drawings specified in the Schedule to these presents, and any Drawings acquired by purchase or exchange as hereinafter provided, for the purposes and subject to the provisions hereinafter expressed and contained (that is to say) —

1. The Drawings specified in the Schedule hereto, and any Drawing acquired by purchase or exchange as hereinafter provided (all which are hereinafter referred to as the Collection), shall be kept together in one Collection, to be called the "Burlington-Devonshire" Collection.

2. The Collection shall be kept in some convenient room or rooms in the existing Institute building, or other the Institute building, or principal building for the time being of the Institute. It shall not be obligatory on the Institute to keep the Drawings now in portfolios as at present arranged, but they may at any time and from time to time rearrange the Collection (as well the articles now in boxes as those now in portfolios) in portfolios, boxes, or otherwise, as they may think desirable and convenient.

3. The Collection shall at all reasonable times be open for the purposes of study and reference to all present and future members and students of the Institute, and any other persons privileged in such behalf by the Council of the Institute, under and subject to such rules and regulations as the Council of the Institute may from time to time deem necessary or expedient. Such rules and regulations may (among other things) prescribe the days, hours, and times during which the Collection shall be open, and any rules and regulations may from time to time be rescinded or varied, and new rules and regulations made.

4. The Institute shall have power from time to time, if and when the Council think fit, to sell or exchange for other Drawings or Books of a similar character, or of a character similarly suitable to benefit the study of Architecture, any Drawings or Books comprised in the Collection; but no such sale or exchange shall, during the lives or life of the children, grandchildren, and great-grandchildren of Her Majesty Queen Victoria living at the date of these presents, or of the survivors or survivor of them, or within the space

of twenty-one years after the death of such survivor, or (if and so far as the law will permit) at any time afterwards, be made without the consent in writing of the Duke of Devonshire (if any) for the time being, or, if he shall be a minor, of his guardian or guardians.

5. The Institute will keep and preserve the Collection in good repair and condition, reasonable wear and tear, and loss or damage by fire or accident, excepted.

6. The Institute will forthwith insure, and at all times hereafter keep insured, against loss or damage by fire and other accidents, the Collection in the sum or aggregate sum of four hundred pounds at the least in the Westminster Fire Insurance Office, or in some other Office or Offices of repute to be approved of in writing by the Duke of Devonshire (if any) for the time being, and will whenever required produce to the Duke of Devonshire for the time being or his agent the policy of every such insurance and the receipt for the last premium.

7. Any moneys arising from sales under the foregoing power of sale, or received by the Institute for equality of exchange, or from any such insurance or insurances as aforesaid, shall be laid out in the purchase of other Drawings or Books of a similar character, or of a character similarly suitable to benefit the study of Architecture, and the Drawings or Books so purchased or acquired upon any such exchange as aforesaid shall be added to and for all purposes form part of the Collection.

8. If at any time during the lives or life of the children, grandchildren, and great-grandchildren of Her Majesty Queen Victoria living at the date of these presents, or of the survivors or survivor of them, or within the space of twenty-one years after the death of such survivor, the Institute shall be dissolved or shall otherwise cease to exist, the Collection shall revert to and become the property of the person (if any) who at the time of such dissolution or cesser shall be Duke of Devonshire.

9. In the event of the title of the Duke of Devonshire becoming extinct, the person who shall for the time being be the holder of the next highest title in point of precedence now held by the Duke and for the time being subsisting shall for the purposes of these presents be deemed to be Duke of Devonshire for the time being.

In witness whereof His Grace the Duke of Devonshire has hereunto set his hand and seal, and the Institute have caused their common seal to be affixed the day and year first above written.

THE SCHEDULE.

PORTFOLIOS (17).

I. "Therme di Costantino in Roma, Disegnata da "Andrea Palladio." Seven mounted and two unmounted drawings.

II. "Therme di Vespasiano in Roma, Disegnata da "Andrea Palladio." Six mounted drawings.

- III. "Therme di Nerone in Roma, Disegnata da Andrea Palladio." Eight mounted drawings.
- IV. "Therme di Tito in Roma, Disegnata da Andrea Palladio." Five mounted drawings.
- V. "Therme di Dioclesiano in Roma, Disegnata da Andrea Palladio." Eight mounted drawings.
- VI. "Therme di Antonino in Roma, Disegnata da Andrea Palladio." Eleven mounted drawings.
- VII. "Therme di Agrippa in Roma, Disegnata da Andrea Palladio." Six mounted drawings and one mounted bird's-eye view of Rome, entitled "La Città di Roma delineata nel Pontificato di Pio IV., l'anno MDLXII. 1562."
- VIII. "Fabrichi antichi di Andrea Palladio." Twenty-three mounted drawings.
- IX. "Edificii antichi da Andrea Palladio." Eighteen mounted drawings.
- X. "Edificii antichi da Andrea Palladio." Twenty mounted drawings.
- XI. "Edificii antichi da Andrea Palladio." Twenty-five mounted drawings.
- XII. "Edificii antichi da Andrea Palladio." Twenty-three mounted drawings.
- XIII. "Disegni di Andrea Palladio." Eighteen mounted drawings, one small mounted drawing said to be by Raphael, and one unmounted drawing.
- XIV. "Disegni di Andrea Palladio." Seventeen mounted drawings.
- XV. "Edificii da Andrea Palladio." Sixteen mounted drawings.
- XVI. "Disegni di Andrea Palladio." Twenty-one mounted drawings.
- XVII. "Disegni di Andrea Palladio." Twenty-seven mounted drawings.

BOXES (NUMBERED 2 AND 3).

Box 2.—Works by Kent and others: sixty-four mounted drawings. Forty-two mounted drawings, a numbered series 1-44, two wanting, mostly identified with plates in Kent's book, Vols. I. and II.; Forty-four mounted drawings of Greenwich Hospital (some doubtful).

Box 3.—Twenty-one mounted drawings and one unmounted drawing, mostly copies and duplicates; nine mounted drawings by Vignola and others; sixteen mounted drawings, probably by Italian draughtsmen; seventy-eight mounted drawings, and one smaller mounted drawing, by Inigo Jones, John Webb, and others; twelve mounted drawings with names of Inigo Jones and John Webb inscribed on the mounts respectively; five mounted drawings bearing the signature of "Inigo Jones," and two mounted drawings bearing the signature of "John Webb."

Signed, sealed, and delivered }
 by his Grace the Duke of }
 Devonshire, in the pre- } DEVONSHIRE. (Seal)
 sence of }

C. Herbert Currey, 14, Great George Street, S.W.

Additions to the Library.

His Highness the Maharaja of Jeypore has presented through the publishers [W. Griggs & Son, Ltd., Hanover Street, Peckham] the latest contribution (Part 7) to the *Jeypore Portfolio of Architectural Details*, which is devoted to illustrations of String and Band Patterns. Readers may be reminded that the whole of this valuable series may be consulted in the Reference Library. There are sixty-four plates in the present part, many of which are coloured, and all of which have

been reproduced to a large scale, so that they may be found useful as working drawings, as well as interesting objects of study, by architects. The Portfolio has been compiled chiefly from works in or near Delhi and Agra, and in Rajputana, the series being prepared for publication under the supervision of Colonel Jacob [H.A.], Engineer to the Jeypore State.

The "*Builder Album*" of Royal Academy Architecture for 1894, recently acknowledged in the JOURNAL, has been supplemented, through the kindness of the Publisher of *The Builder*, by the volumes for 1892 and 1893, which complete the continuity of this admirable series on the shelves of the Library.

The Soil in Relation to Health, by H. A. Miers and R. Crosskey [London: Macmillan & Co.]; *The London Building Act 1894*, with Introduction, Notes, and Index, by W. F. Craies [London: Sweet & Maxwell, and Stevens & Sons]; *The London Building Act 1894*, edited by Bernard Dicksee [A.] [London: Edward Stanford], have also been presented.

The following books have been received since the last issue of the JOURNAL: *The Church of Sancta Sophia, Constantinople*, by W. R. Lethaby and the late Harold Swainson [London: Macmillan & Co.]; *The Life of Christ as represented in Art*, by the Ven. Archdeacon Farrar [London: A. & C. Black]; *An Elementary History of Art*, by Mrs. A. Bell, 4th edition [London: Sampson Low & Co.]; *History of the Tower Bridge*, and of other Bridges over the Thames built by the Corporation, by Charles Welch, F.S.A., with a description of the Tower Bridge by J. Wolfe Barry, C.B. [H.A.], presented by the Bridge House Estates Committee; *Seyffert's Dictionary of Classical Antiquities*, edited by H. Nettleship and J. E. Sandys [London: Swan Sonnenschein & Co.]; *Murray's New English Dictionary*, presented by Mr. B. Ingelow [F.] [London: Henry Frowde]; *Pen Pictures and How to Draw Them*, by Eric Meade [London: L. Upcott Gill].

NOTES, QUERIES, AND REPLIES.

FRENCH ARCHITECTURAL EDUCATION.

The Academy of France at Rome.

The list of French students of architecture entered at Rome—and M. Chedanne is one of the latest—is a long one, dating as it does from the year 1720. Since then, with the exception of the years of disorder 1794-5-6, and a few other years, the French Government have sent a student of architecture annually to the Academy of France at Rome; and in some years two such students have been sent. Among them are such names as Dorbay (1739), Clérisseau (1746), David Leroy (1750), De Wailly (1752), Peyre, jun. (1762), A. L. T. Vaudoyer (1783), Percier (1786), Guenépin

(1805), Huyot (1807), Caristie (1813), Lesueur (1819), Blouet (1821), Duban (1823), Labrousse (1824), J. L. Duc (1825), L. Vaudoyer (1826), V. Baltard (1833), Lefuel (1839), Ballu (1840), L. J. André (1847), Brune (1863); and a host of other architects, who did well in their time, whom it is impossible to mention here. Again, among the living may be cited the names of Alfred Normand (1846), Charles Garnier (1848), Honoré Daumet (1855), Hon. Corresponding Members of the Royal Institute of British Architects, and many others in practice at the present time.

The establishment of the Academy of France at Rome was the work of Louis Quatorze and his great Minister, Colbert. The King commanded that "the sound principles and most correct rules of architecture should be publicly taught two days a week, in order that a nursery, so to speak, of young architects might be formed; and to give them more courage and passion for the art," the King ordered that, from time to time, prizes should be awarded to those who succeeded best, promising that a certain number of the young men so premiated should be sent immediately at the Royal cost to Rome, in order that nothing might be wanting on the King's part to complete their education and render them fit to act in the conduct and superintendence of the Royal buildings." This was after Desgodetz had been despatched by Colbert on a mission to Rome to measure the finest of the ancient buildings remaining there—the results of that architect's labours not having been published until 1682. But long before—as early as 1666—Louis Quatorze had sent young painters and sculptors to Rome; and established, at the Palazzo Capranica, an academy in which twelve artists were to be lodged and boarded at the Royal cost, each for a term of five years. Its first Director was the President of the Royal Academy of Painting and Sculpture in Paris; and he, in March 1666, left for Italy with twelve young Frenchmen for the purpose of pursuing their studies in Rome. This period was also eventful for architecture. The Italian, Bernini, who had just completed the colonnade of St. Peter's, and who was in Paris at the invitation of the King, had visibly impressed His Majesty with the magnificence, long fallen into disrepute, of the master-art; and in 1671, by the exertions of Colbert, was founded the Royal Academy of Architecture, which still exists, partly as a section of the *École des Beaux-Arts* and partly as the third section of the *Académie des Beaux-Arts*, one of the five Academies now composing the *Institut de France*, which was founded, by a decree of the Republic, on 22nd August 1795.

The Palazzo Capranica had long been used for the purposes of the Academy, when it was transferred to the Palazzo Mancini; leaving that palace in 1803 for the Villa Médicis (as the French term it) where it is still housed.

The course of events which led to the formation of the present *École des Beaux-Arts*, some particulars of which were furnished about ten years ago to the Editor of the *JOURNAL* by the late Albert Lenoir, formerly Secretary of the *École*, is instructive as showing how the arts emerged from the flood of destruction which deluged in France at the end of the last century and the beginning of this:—

The condition of architecture after the Revolution was most unsatisfactory. Of the Royal Academy, suppressed in 1793, no trace was permitted to remain. The systematic study of architecture was discontinued until David Leroy, a *pensionnaire*, in 1751, of the French Academy at Rome, afterwards celebrated for his researches in Greece, and known to Englishmen from his controversy with Athenian Stuart, collected together a few young men and taught them in private.

About that time Antoine L. T. Vaudoyer drafted a scheme for a School of Architecture, and in 1800 he joined Leroy. The two, with the assistance of L. P. Baltard and, among others, Fontaine and Percier, promoted emulation by offering prizes for designs and drawings, to be submitted in competition, according to definite instructions issued for the purpose, within the studio, or *atelier*, they conducted. This school, founded and developed by private enterprise, was afterwards removed to the *Louvre*, and ultimately taken under Government protection at the *Collège Mazarin* (the present *Palais de l'Institut*), in which, at that time, the students' competitions for the annual *Grand Prix de Rome* used to take place.

In such a manner the *École des Beaux-Arts*, the most justly-famous school of its kind in the world, came into existence. In 1816 it was removed to the *Convent des Petits Augustins de la Reine Marguerite*, in the street of that name, now called the *Rue Bonaparte*, where it is still located. At that time the Convent Buildings contained the *Musée des Monuments français*, which was a collection of fragments of royal tombs and effigies, and of monuments of distinguished Frenchmen, preserved from iconoclastic fury by the reverential care of the scholar and gentleman. The Museum was abolished in 1816; in its place the present *École des Beaux-Arts* was begun. This was effected by the adaptation of parts of the old Convent and the construction of new buildings, first under the charge of Debret, and afterwards of Duban—both members of the *Institut*. On the 4th August 1819 a Royal ordinance determined the rules of the School, and divided the section of architecture into two classes. No change occurred until 1863-64, when the School was reorganised by Napoleon III. and in a manner which has since undergone hardly any alteration in principle.

A young Frenchman, in order to gain admission as an "Élève de l'École des Beaux-Arts," has to pass an examination, after which he is received into the second class of the School. He has then to work on the various competitions and other exercises belonging to this grade, and relating to both the science and art of architecture, to ornament and figure drawing, and to the modelling of ornament. These courses of study, moreover, include mathematics, physics, and chemistry generally, descriptive geometry, perspective, stereotomy, and construction. Numerous prizes of every kind are awarded to the *élèves* both in the first and second classes. It is, however, impossible to devote space to a full description of a French student's career; all that can be done is

to describe the final competition in which he may take part :—

The competitions for the *Grand Prix de Rome* take place at the *École des Beaux-Arts*, and they are open only to candidates of French nationality under thirty years of age, whether students of the School or not. In the case of architecture, as in those of painting and sculpture, the competition is an annual one, adjudicated on by nine architects, who are chosen by ballot from a list presented by the Council of the School. In like manner nine painters and nine sculptors compose the juries of their respective sections. The conditions of admission to the competition for the *Grand Prix* in architecture are very simple. In March of every year a preliminary trial takes place. The candidate has to make a sketch (*esquisse*) in twelve hours, and from the authors of these sketches the jury select 25, who have to undergo a second ordeal, which consists of another sketch, to be made in twenty-four hours. From these last, 10 candidates are chosen, and they enter their *loges* for seventy-two days. A *loge* is an inclosure within which, as before mentioned, a candidate works all day, beginning at 8 a.m., and during the period of trial he is not permitted to enter the *loges* of the other competitors or introduce anybody into his own. A careful programme of the work he has to do is given to him by the Academy of Fine Arts, and this last year (1883) it was "a Necropolis." Out of the 10 competitors 3 are selected and premiated. The first obtains a gold medal, which has always been, and, I believe, is still, regarded as the highest prize open to French students, and he leaves early in the following year for the Academy of France at Rome, where he is lodged and boarded at the cost of the nation.* The competitors placed respectively second and third also receive medals, and gain a just distinction thereby; they further are exempted, should they try again for the *Grand Prix*, from submitting preliminary sketches.

Nor is this the place in which to enter on a description of the Diploma in Architecture granted after examination to students of the *École des Beaux-Arts*, after they have obtained a certain number of medals, &c., in the various competitions of the School, or in the "*Prix de Rome*." To continue :—

At the *Villa Médicis* the student has a bedroom and a studio allotted to him: he dines and sups at fixed hours at a common table; he has to conform to the rules of the Academy, and to submit while there to the orders of the Director, who is always a French painter, appointed for five years, one of the conditions of the appointment being that he shall have previously resided in Rome. The original term of a student's sojourn was five years, but in 1864 this was reduced to four years. By a pleasant fiction he is supposed never to re-enter Paris during those years, the real fact being that, so long as a student fulfils his obligations in the matter of drawing, no restraint is put upon his actions. It is a part of his duty, after the second year, to visit the principal cities of Italy, and he may extend his tour to Greece. During the first year of his sojourn he has to make four studies of detail from such of the finest ancient buildings as he may choose in Rome and Central Italy; the second year he must make four studies of detail, from the ancient monuments of Italy, and add some details of *Renaissance* architecture; the third year he has to draw

two sheets of details from ancient monuments of Italy (including Sicily) and Greece; and all the foregoing must be drawn to a scale of one quarter of an inch to a foot. During this same year the student has also to make a restoration of a part of some ancient monument the details of which he has hitherto been drawing; and the restoration must show the character of the construction the principal points of which he has to describe in an explanatory *mémoire*. The student has, moreover, to make detail drawings of external and internal ornaments, together with views of buildings and portions of buildings erected during the Middle Ages and the *Renaissance*. Tracings of these are preserved in the archives of the Academy, but the original drawings remain the property of the student. In the course of the fourth year he makes the geometrical drawings of an ancient building, either of Italy or Greece. These drawings are coloured and executed from the building itself, representing it exactly as it appeared at the time. The student has also to make another set of drawings of the same building restored to its pristine condition, or as he supposes it to have originally been, adding an historical notice of it and an account of its construction. He has also to make detail drawings, a quarter full-size, of the most interesting or characteristic portions of the building; and all these drawings become the property of the Government.

The student on his return from Rome reports himself to the Academy in Paris, and his name is then sent to the Government. He is afterwards admitted, as an assistant, to the *Conseil Général des Bâtiments Civils*, a council established by Colbert for the purpose of advising him upon matters regarding buildings, which met in the great Minister's time twice a week—on Tuesday and Friday—and still meets on those days. Admission to that board gives the student of Rome in due time a right of presentation to some public building or national monument, in which he becomes the subordinate of some architect of eminence, who has risen to high position after a similar course of training. As an *Inspecteur*, the student passes the day upon building works, checking the quantity and character of materials, and the hours of workmen employed. He rises in time to be assistant-architect, then, perhaps, joint-architect, and he may ultimately become the architect-in-chief to the very work upon which he began as an *Inspecteur*. To quote further from a small English treatise on this and like subjects connected with public buildings in France, the student of Rome will be summoned in course of time to take a place of Councillor on one or other of the several boards pertaining to various administrative departments. The *Académie des Beaux-Arts* will hear of him again; and having at their disposal the record of his earlier career, the Academicians have no need to make a humiliating inquiry of outsiders for possible recruits.

Those who desire to obtain fuller particulars of the Academy of France at Rome than can be given in a hasty compilation like this will do well to read the late Victor Baltard's *Villa Médicis à Rome* (fo. Paris, 1847). Information on the whole subject will also be found in *TRANSACTIONS*, 1883-84, in a Paper entitled "A Brief Review of

* Irrespective of the Government allowance, certain other sums of money fall to the winner of the *Grand Prix* in architecture, the proceeds of special legacies left for the purpose at various times by discriminating persons.

“the Education and Position of Architects in France since the year 1671.”

The Examination for Admission to Candidature :
An Historical Note [pp. 137-141].

From ARTHUR CATES [F.]—

The notice of the Memorial from the Architectural Association contained in the article on the Examinations [pp. 137-141] may fitly be supplemented with some particulars of its origin. In 1854, when the question of architectural education was being anxiously considered by the Committee of the Architectural Association, there appeared in the Paris architectural journal, *L'Encyclopédie d'Architecture*, par Victor Calliat et Adolphe Lance, a series of articles * entitled “Du Diplôme d'Architecte.” These, reprinted in a collected form as “Extrait de l'Encyclopédie,” constituted the Essay by Adolphe Lance, “Du Diplôme d'Architecte,” which formed the subject of the late John Woody Papworth's Paper read on the 19th November 1855. Being a subscriber to the *Encyclopédie*, and receiving it monthly from Paris, I brought these articles under the notice of the Committee of the Architectural Association, of which I was then one of the Hon. Secretaries. In the Session 1854-55 a Paper, entitled “Considerations as to the Propriety of conferring a Diploma upon Architects,” † was read before the Architectural Association by the late John Henry Chamberlain, of Birmingham. The Opening Meeting of the succeeding Session, 1855-56, was held at Lyon's Inn Hall on the 5th October 1855, and in the report read by the Hon. Secretary it was stated that, “in consequence of the interest taken in the Paper on Architectural Diplomas, it had been determined to memorialise the Royal Institute of British Architects on the subject.” ‡ In the course of his Presidential Address delivered that evening Mr. Alfred Bailey expressed most ably and effectively the views and aims of the Association. Mr. William Tite, M.P., at that time one of the Vice-Presidents of the Institute, had been invited to attend the Meeting in the hope that his powerful support would be enlisted on behalf of a scheme of professional education. In addressing the Meeting he dealt at considerable length with the question of scientific education in England, attributing the prevailing low standard to the want of a good, sound elementary education. It was essential, he said, in order to give a proper direction to the scientific instruction afforded at lectures or in the architect's office, that a system of examination should be instituted which might be conducted by the Institute or other competent body. It is interesting to read

Mr. Tite's “Remarks on the Present Condition and Future Prospects of Architecture in England,” with which he opened the Institute Session in November of the same year.* He referred in terms of warm approval to Mr. Bailey's address, and to the aspirations of the young men about to embark in an anxious and arduous profession. The need of a diploma, or other recognition of their attainments, was sorely felt; and it was an important step in the history of their art that they should be willing to submit themselves to an examination in order to obtain an opinion on their professional merits and acquirements.

Mr. Tite concluded his Address by a reference to the qualifications required from architects in Prussia, who were subjected to a strict examination in literature and general and technical science, the examination being oral, public, and competitive. As an Appendix to the Address were printed some “General Abstracts of Regulations for Architectural Education and Examination at Berlin, translated from the Original Papers.” † In the opening paragraph of his Paper, “An Abridgment of M. Lance's Essay, entitled ‘On a Diploma in Architecture,’ with Remarks and Suggestions,” ‡ Mr. J. Woody Papworth referred to the opportunity the Essay afforded “for offering to the attention of the Institute the history of what has been done in France with regard to the important question of which Mr. Tite urged the consideration—viz. the institution of an examination, and of its necessary result, a diploma.” At this same Meeting I announced, on behalf of the Architectural Association, that, as abovementioned, they had unanimously agreed to a Memorial on the subject of the diploma, which would be laid before the Institute. § The presentation of the Memorial was delayed through the serious illness of Mr. Bailey, who was prostrated by a recurring attack of fever, originally contracted at Ostia, and who, in fact signed the Memorial, lying in bed, as soon as he was able to hold a pen.

Elected on the Council in 1875, I at once commenced working to secure the realisation of the aims of the Memorialists. As an Examiner, in 1877, in conjunction with Professor Hayter Lewis and Mr. Penrose, I became acquainted with the details of the Voluntary Examination, the tardy but inadequate outcome of the consideration given by the Institute to the Memorial of the Association, and was more than ever convinced of the absolute necessity for a change of principle. The establishment of the Obligatory Examination in 1882 was a great stride in the required direction, and its success speedily justified a further development; but it was not till 1889 that the aspirations of the Memorialists of 1855 seemed

* Vol. IV. No. 8, 1 Aug. 1854; No. 11, 1 Nov. 1854; Vol. V. No. 3, 1 March 1855.

† *Buildee*, Vol. xiii. p. 412. ‡ *Ibid.* Vol. xiii. p. 482.

* *Sessional Papers*, 1853-56, p. 1.

† *Ibid.* p. 5.

‡ *Ibid.* p. 23.

§ *Ibid.* p. 37.

within measurable distance of realisation. Having taken an active part in the preparation of the "Memorial," I greatly appreciated the privilege, accorded to me on the 8th April 1889, of submitting to the Institute in General Meeting the complete scheme of Progressive Examination* which at length has come into full operation—forty years after the establishment of such a course had been urged on the Institute by the Architectural Association.

The London Building Act 1894.

From JOHN HEBB [F.]—

Many persons are under the impression that the Tribunal of Appeal constituted by the 175th Section of the London Building Act 1894, which a delinquent builder might apostrophise—

Auguste Tribunal, ma gloire et mon appui,
C'est toi dans mes malheurs que j'implore aujourd'hui—

is a novelty, and are unaware that a very similar tribunal for the purpose of settling building differences was established fifty years ago, but proved so unsatisfactory that in the course of a few years it was abolished.

The 80th Section of the Metropolitan Buildings Act 1844 (7 & 8 Vict., cap. 84) enacted "for the purpose of providing for the appointment of competent Official Referees to superintend the Execution of this Act throughout all the Districts to which it is applicable, and also to determine sundry Matters in question incident thereto, as well as to exercise in certain Cases a Discretion in the Relaxation of the fixed rules and directions of this Act, where the strict Observance thereof is impracticable, or would defeat the object of this Act, or would needlessly affect with injury the course and operation of this branch of business." One of Her Majesty's principal Secretaries of State was empowered to appoint "Two Persons, being of the Profession of an Architect or Surveyor, to be Official Referees of Metropolitan Buildings." The Official Referees were prohibited from acting as surveyors "either alone, or with any partner, or by an agent," or as Official Referees with regard to any building or matter in which they were employed as architects. It will thus be seen that the Official Referees were not precluded from taking private practice.

The first two Official Referees appointed under the Act were Mr. James White Higgins† and Mr.

William Hosking, F.S.A.* By a subsequent Act, 9th Vict., cap. 5 (1846), a third Official Referee was appointed, and the prohibition as to the Official Referees acting as surveyors was removed. Mr. John Shaw, an architect of eminence, and surveyor to Christ's Hospital,† and Mr. Ambrose Poynter, father of Mr. E. J. Poynter, R.A., were afterwards appointed Official Referees.

The duties assigned to the Official Referees were to superintend the District Surveyors, and to determine all questions referred to them, whether expressly by the Act or at the instance of one or more of the parties concerned. Their jurisdiction extended particularly, in the inflated language of the Act, "as to whether the Requirements, implied in Terms of Qualification applied to Sites, to Soils, to Materials, or to Workmanship, or otherwise, and denoting good, sound, fireproof, fit, proper, or sufficient, are fulfilled in certain Cases," as to the boundaries of districts, the examination of district surveyors, dangerous structures, and the expenses and proportion of cost of party-walls. The awards of the Official Referees were declared by the Act to have the same force as if they had been appointed by the Court of Queen's Bench, and to be binding and conclusive against every person, including the Queen's Majesty; the Official Referees were further empowered to administer an oath or take an affirmation.

The Official Referees were assisted in the examination of candidates for the office of District Surveyor by a Board consisting of Sir Robert Smirke, Mr. (afterwards Sir) James Pennethorne, and Mr. Thomas Cubitt.

The Official Referees were also assisted by an official styled the Registrar of Metropolitan Buildings, who was appointed by the Commissioners of Works and Buildings. The duty of the Registrar was to seal all documents made by the Official Referees, unless it appeared to him that the documents were contrary to law, or informal, or beyond the competency of the Official Referees, in which case it was his duty to refuse to affix the seal, and to report the matter, together with the grounds for his refusal, to the Commissioners. Mr. Symonds was Registrar of Buildings.

The Official Referees and the Registrar were each paid a salary of one thousand pounds a year, by four quarterly payments, one-half of which was raised by means of a rate of the nature of

* Mr. Hosking (born 1800, died 1861) was engineer to the West London Railway, and Professor of Architecture at King's College. He was the author of several works on architectural subjects, contributed to the *Encyclopædia Britannica*, and claimed to have first proposed to place the Reading-room in the inner quadrangle of the British Museum—a doubtful distinction for which few architects nowadays would care to contend.—J. H.

† Mr. John Shaw, in addition to several buildings at Christ's Hospital, designed the Naval School at New Cross and Wellington College, Sandhurst. He died in 1870.—J. H.

* *The R.I.B.A. Journal*, Vol. V., N.S., p. 263.

† Mr. Higgins was a Surveyor who had an extensive practice in compensation cases, and was employed by the Office of Woods and Forests, the Admiralty, the War Office, the Board of Ordnance, and other Government Departments. Mr. Higgins resigned shortly after his appointment, and for a considerable time all the duties of the office were discharged by Mr. Hosking. Mr. Higgins died 13th May 1854.—J. H.

a county rate levied upon the undermentioned localities in the following proportions, viz. :—

City of London . . . £ 100	County of Surrey . . . £320
County of Middlesex 1,000	County of Kent . . . 80

The remaining half, or £1,500, was paid out of the Consolidated Fund. The office expenses appear to have been defrayed by fees.

The awards of the Official Referees occasioned general dissatisfaction, and their office was abolished by the Metropolitan Building Act 1855 (18 & 19 Vict., cap. 122), the Official Referees and Registrar receiving a retiring allowance of two-thirds of their salary.

The Classical Influence in the Architecture of the Indus Region [Vol. I. pp. 93, 134, 147, 150, 191.]

From WM. SIMPSON [H.A.], R.I.

In my Paper on this subject, read before the Institute about a year ago, an endeavour was made to show from a few well-marked details that the Buddhist architecture of the Indus region and Afghanistan owed its classical features, not to Greek, but to Roman influence, and that these characteristics came to India through Palmyra. Amongst these details, one was the curved form of the upper and lower ends of the panels on the pilasters. I was then able to refer to similar panels on the soffits of the architraves at Palmyra; and to the fact that pilasters also existed among the ruins with a panel approximating so closely to those on Buddhist monuments that it was in itself sufficient to account for the origin. Another reference was to M. de Vogüé's *Syrie Centrale*, where a panel with semicircular ends is given. Professor Hayter Lewis has pointed out to me another, and a very interesting, illustration of the same form, of Palmyrene origin. Strange to say, it is found in this country—which, I think, renders it worthy of notice even though it did not bear on the wider, and perhaps more important, question of the classical influence on the banks of the Indus. The monument was found on the site of the Roman camp at South Shields, and is now preserved in the Museum of the Free Library at that place. It had been erected to the memory of the wife of a Palmyrene—she was a native of Britain, and her husband, it may be supposed, was serving with the garrison of Hadrian's wall between the Tyne and the Solway. An illustration of the monument is given on p. 239 of Dr. Bruce's *Handbook to the Roman Wall*. The inscription on it is bilingual—one in Latin, and the other in Palmyrene. Dr. Bruce's translation of the first is as follows:—"To the divine shades. To Regina, a freed woman and [his] wife, Barates, a Palmyrene, [erected this monument. She was] by nation a Catuallaunian, [and lived] thirty years" [*Ib.* p. 239]. The Palmyrene inscription has been translated as: "Regina, a freed woman of Barate." The monument is a niche with a sitting figure of a woman: there are two pilasters supporting an arch, over which there is a pediment. The capitals

of the pilasters are a rude imitation of the Corinthian—at least, they bear more resemblance to that than to any other order. The panels stop short some distance from the base; the top is square, but the lower end is semicircular. I give an outline of one of them. If a native of Palmyra could carry such a detail across Europe to the banks of the Tyne, it removes all doubt about the possibility of others bearing the same detail to the Indus.

The following quotation is from an official publication of the Bombay Government: * it comes under the head of "Historical Summary." "In the meantime a great migration of the nations

"of Northern Asia
"brought the Yuechi
"or Kushans into
"Baktria [B.C. 126],
"and eventually B.C.
"20] into North-
"Western India,
"while a number of
"Turki or Tartar
"tribes overran Sei-
"stan and Baluchi-
"stan B.C. 100, and
"established several
"kingdoms there and
"in Seind. The new
"comers infused new
"vigour into Indian
"culture; Buddhism
"now first began to
"cross the frontiers
"[A.D. 70]; and the
"trade with Rome,
"which sprang up
"about A.D. 40,
"brought ever-grow-
"ing wealth to the
"cities of the west-
"ern coast" *Ib.* p.
17]. There follows
this in the next para-
graph: "... through
"troubles in Seind
"[A.D. 247], the fall
"of Palmyra [A.D.
"273], and the ex-
"tinction of Chash-
"tana's line, com-
"merce fell into



Pilaster on Monument found at South Shields, on the site of the Roman Wall.

"decay." If this is correct history it would appear that Buddhism began to extend across the Indus about the time when the trade with Rome through Palmyra began. I should be inclined to think that the missionaries had carried Buddhism into Gandhara and Kashmir before that; but the dates given above, I think, indicate that the classic influence probably began about the middle or end of the first century A.D.

* *Geographical and Historical Sections of the General Administration Report, Bombay Presidency, 1892-93.*



MINUTES. V.

At the Fifth General Meeting of the Session, held on Monday, 7th January 1895, at 8 p.m., Mr. Aston Webb, F.S.A., *Vice-President*, in the Chair, with 23 Fellows (including 8 members of the Council), 39 Associates, and 15 visitors, the Minutes of the Meeting held 17th December 1894 [p. 135] were taken as read and signed as correct.

The receipt of donations to the Library was announced, and an expression of the thanks of the Institute to the several donors was ordered to be entered on the Minutes.

The following Associates, attending for the first time since their election, were formally admitted and signed the Register, namely:—George Percy Pratt, John Humphreys Jones, B.A. Lond., and Robert John Thomson.

The President having read the Deed of Award of the Prizes and Studentships 1895, made under the Common Seal [Appendix], the sealed envelopes bearing the respective mottoes or devices of the successful competitors were opened, and their names and addresses found to be as follow:—

THE ROYAL INSTITUTE SILVER MEDAL (ESSAYS).

Bid me Discourse.—Arthur Thomas Bolton [A.], 2, The Sanctuary, Westminster, S.W. (The Silver Medal and Twenty-five Guineas).

Craigsidde.—George L. Sutcliffe [A.], Heptonstall, *via* Manchester (Ten Guineas).

Research.—J. Humphreys Jones [A.], B.A. Lond., 94, Dalston Lane, N.E. (Honourable Mention).

Ye Skeptic.—Alfred C. Houston [A.], 13, Furnival's Inn, E.C. (Honourable Mention).

THE ROYAL INSTITUTE SILVER MEDAL (DRAWINGS).

Lady Margaret.—W. Henry Ward [A.], 18, Lyndhurst Road, Hampstead, N.W. (The Silver Medal and Ten Guineas).

Earendel.—John H. James, 47, Romilly Crescent, Cardiff (Medal of Merit).

THE SOANE MEDALLION.

Southern Cross.—Hubert S. East [A.] (Tasmania), 110, Harbut Road, St. John's Hill, S.W. (The Medallion and, under conditions of foreign travel, £100).

Lion's Head.—Chas. H. B. Quennell, 44, Foxley Road, North Brixton, S.W. (Medal of Merit and £5).

Scallywag.—Harry Jefferis [A.] (Sydney), 37, Maitland Park Road, Haverstock Hill, N.W. (Medal of Merit and £5).

THE TITE PRIZE.

Luctor.—R. Shekleton Balfour [A.], 76, Inverness Terrace, W. (The Certificate and, under conditions of travel in Italy, £30).

Il Gondoliere.—Banister F. Fletcher [A.], 29, New Bridge Street, Ludgate Circus, E.C. (Medal of Merit).

Jonah.—Wm. Tait Conner [A.], 9, Scott Street, Garnet-hill, Glasgow (Honourable Mention).

Kismet.—D. W. Kennedy [A.], 14, Richmond Crescent, Barnsbury, N. (Honourable Mention).

THE GRISSELL MEDAL.

Quercus (B).—J. Fred. Fogerty [A.], B.E., 2, St. Peter's Terrace, Bournemouth (Ten Guineas only, the Medal not being awarded).

On the motion of the Chairman, who referred in sympathetic terms to the recent decease of Mr. Herbert A. K. Gribble [A.], architect of the Brompton Oratory, and

called attention to the drawings representative of his executed works exhibited in the Meeting-room, it was

RESOLVED,—That a vote of sympathy and condolence with the widow and son of Mr. Gribble in the loss they have sustained by his death be entered on the Minutes; and that the thanks of the Meeting be tendered to them for the loan of the drawings exhibited.

Mr. R. Phené Spiers having read a short Paper descriptive of the drawings of the Pantheon at Rome executed by Monsieur Chedanne, and lent by the French Government to the Institute, a cordial vote of thanks was passed to Mr. Spiers, and the proceedings terminated at 9.15 p.m.

APPENDIX.

Deed of Award of Prizes and Studentships 1895.

TO THE GENERAL MEETING OF THE ROYAL INSTITUTE, HELD MONDAY, 7TH JANUARY 1895.

GENTLEMEN,—In pursuance of the terms of By-law 66, the Council have the honour to state that they have examined the work submitted for the two Silver Medals of the Royal Institute, the five Travelling Studentships, and the Grissell Medal.

THE ROYAL INSTITUTE SILVER MEDALS.

(i.) *The Essay Medal and Twenty-five Guineas.*

Eight Essays have been received for the Silver Medal—the subject being “The Influence of Literature on Architectural Development”—under the following mottoes:—

- | | |
|------------------------|-----------------------|
| 1. “Bid me Discourse.” | 5. Patty Moon. |
| 2. “Ceci tuera cela.” | 6. Research. |
| 3. Craigsidde. | 7. “Ye Skeptic.” |
| 4. Decus et Tutamen. | 8. A Would-be Writer. |

The Council have great pleasure in recognising a much higher literary standard than has been attained in recent years, as well as an amount of thought and research that is creditable to the several authors. Most of the compositions are Essays in the true sense of the word, and are in a great measure free from the “padding” and unnecessary descriptive matter that have been noticed on many previous occasions. Four of the Essays may be placed in the first rank in the following order:—(1) “Bid me Discourse”; (2) “Craigsidde”; (3) Research; (4) “Ye Skeptic.”

The Council have awarded the Silver Medal and Twenty-five Guineas to the author of the Essay bearing the motto “Bid me Discourse,” and the sum of Ten Guineas to the author of the Essay bearing the motto “Craigsidde.” They have also awarded Certificates of Honourable Mention to the authors of the Essays bearing the mottoes “Research” and “Ye Skeptic.”

(ii.) *The Measured Drawings Medal and Ten Guineas.*

Seven sets of Measured Drawings were submitted for this Silver Medal under the following mottoes:—

1. Alpha:—Whitby Abbey (6 strainers).
2. Athelstan:—The Percy Shrine, Beverley Minster (5 strainers).
3. Christopher:—The Banqueting Hall, Kensington Palace (5 strainers).
4. Devonia:—Chapter House, Wells Cathedral (4 strainers).
5. Earendel:—Llandaff Cathedral (6 strainers).
6. Lady Margaret:—The Gateway of St. John's College, Cambridge (3 strainers).
7. Device (Halfpenny Stamp):—Church of St. Cuthbert, Darlington (5 strainers).

The Council have awarded the Silver Medal and Ten Guineas to the author of the drawings of the Gateway of St. John's College, Cambridge, being “No. 6. Lady Margaret.” They have also awarded a Medal of Merit

to the author of the drawings of Llandaff Cathedral, being "No. 5. Earendel."

THE TRAVELLING STUDENTSHIPS.

(i.) *The Soane Medallion and One Hundred Pounds.*

Eighteen designs for a "Gallery for the Exhibition of "Pictures and Sculpture" have been received under the following mottoes:—

1. Compass:—7 strainers.
2. English Renaissance:—5 strainer.
3. Device (Four Circles):—8 drawing.*
4. ΔΙΑ ΠΡΙΣΤΟΤ ΕΛΕΦΑΝΤΟΣ:—4 strainer.
5. Device (Lion's Head):—5 strainer.
6. National Renaissance:—7 strainer.
7. Osiris:—8 strainers.
8. Pietra:—4 strainers.
9. Primitiæ:—5 strainers.
10. Pygmalion:—8 strainers.
11. Rathwell:—5 strainers.
12. Scallywag:—5 strainers.
13. Southern Cross:—4 strainer.
14. Sursum Corda:—7 strainers.
15. Westward Ho:—4 strainers.
16. Who builds a tube in some troubled region of the mind:—7 strainer.
17. Device (Bull and Palette):—5 strainer.
18. Device (Kangaroo and T Square):—5 strainer.

* Not mounted on a strainer, therefore not exhibited.

The Council have awarded the Soane Medallion and (subject to the conditions laid down for the award of this Studentship) £100 for foreign travel to the author of the design bearing the motto "Southern Cross"; and Medals of Merit, and £5 with each, to the authors of the designs bearing the device and motto respectively of a "Lion's Head" and "Scallywag."

(ii.) *The Pugin Medal and Forty Pounds.*

Seven applications have been received for the Pugin Studentship from the following gentlemen:—

1. Cecil Claude Brewer.
2. Dean John Bunnitt.
3. Alfred Edward Corbett.
4. Frank Douglas.
5. Alfred John Dunn.
6. John Alexander Russel Inglis [A.].
7. Edwin Alfred Richards.

The Council have awarded the Medal and (subject to the conditions laid down for this Studentship) £40 for home travel to Mr. Alfred John Dunn, and a Medal of Merit and Five Guineas to Mr. John Alexander Russel Inglis [A.]. The Council have further awarded a Certificate of Honourable Mention to Mr. Cecil Claude Brewer.

(iii.) *The Owen Jones Certificate and Forty Pounds.*

Two applications have been received for the Owen Jones Studentship from the following gentlemen:—

1. Hubert Christian Corlette [A.]:—6 strainers.
2. John James Joass, *Pugin Student* 1893:—6 strainers.

The Council have awarded the Certificate and (subject to the conditions laid down for this Studentship) £50 for travel and study of colour as a means of architectural expression to Mr. John James Joass. They have also awarded a Medal of Merit to Mr. Hubert Christian Corlette [A.].

(iv.) *The Godwin Medal and Forty Pounds.*

Only one application has been received for this Studentship, and from the following gentleman:—

1. Albert William Cleaver [A.].

The Council have awarded the Medal and (subject to the conditions laid down for this Studentship) £40 for travel

outside the United Kingdom to Mr. Albert William Cleaver [A.].

(v.) *The Tate Certificate and Thirty Pounds.*

Eleven designs for a "Garden Pavilion" have been received under the following mottoes:—

1. Black Knight:—4 strainers.
2. Firbolg:—4 strainers.
3. Il Groulloiere:—4 strainers.
4. Jubilate:—5 strainers.
5. Jonah:—4 strainers.
6. Kismet:—5 strainers.
7. Lactor:—4 strainers.
8. The Lady of Shalott:—4 strainers.
9. Vicerza:—4 strainers.
10. "Z":—4 strainers.
11. Device (Red "Wren"):—4 strainers.

The Council have awarded the Certificate and (subject to the conditions laid down for this Studentship) £30 for travel in Italy to the author of the design bearing the motto "Lactor." They have also awarded a Medal of Merit to the author of the design bearing the motto "Il Groulloiere," and Certificates of Honourable Mention to the authors of the designs bearing the mottoes "Jonah" and "Kismet" respectively.

PLATE FOR DESIGN AND CONSTRUCTION.

The Crossed Medal and Ten Guineas.

Eight designs for an "Independent Wooden Spiral" "Stair" have been received under the following mottoes:—

1. Christmas:—1 strainer.
2. "Eine Schöne Aufgabe":—2 strainers.
3. He X.:—2 strainers.
4. Gratulation:—2 strainer.
5. Ibis:—2 strainers.
6. Quercus (A):—4 strainers.
7. Quercus (B):—2 strainers.
8. Self-supporting:—2 strainers.

The Council have decided not to award the Medal. They have, however, awarded the sum of Ten Guineas to the author of the design bearing the motto "Quercus (B)."

In witness whereof the Common Seal has been hereunto affixed, this seventh day of January 1895, at a Meeting of the Council.

Dr. John Henry Spence and signatures.

MINUTES. VI.

At the Sixth General Meeting (Ordinary) of the Session, held on Monday, 14th January 1895, at 8 p.m., Mr. F. C. Penrose, F.R.S., *President*, in the Chair, with 32 Fellows (including 14 members of the Council), 52 Associates (including 1 member of the Council), 5 Honorary Associates, and 59 visitors, the Minutes of the Meeting held 7th January 1895 (p. 191) were taken as read and signed as correct.

The following Associate, attending for the first time since his election, was formally admitted, and signed the Register, namely:—John Frederick Fogerty, B.E. (Bournemouth).

The President delivered an ADDRESS TO STUDENTS (p. 161).

Mr. R. Phené Spiers read a Summary of M. Chedanne's Report to the Académie des Beaux-Arts in Paris upon the Drawings made by him of the Pantheon at Rome; whereupon, on the motion of the President, seconded by Mr. E. W. Mountford [F.], President of the Architectural Association, it was

RESOLVED, that the members and students of the Royal Institute respectfully tender their most cordial thanks to the French Government for the loan of

the drawings of the Pantheon prepared by Monsieur Chedanne, during his fourth year's residence in Rome, as Pensionnaire of the Academy of France.

The President having communicated the same to Monsieur Chedanne, he acknowledged it on behalf of the French Government and himself.

Mr. J. M. Brydon [F.] having read a REVIEW OF THE WORK SUBMITTED FOR THE PRIZES AND STUDENTSHIPS 1895, a vote of thanks was passed to him by acclamation.

The President then made the following presentations to the Ashpitel Prizeman and the Travelling Students of last year:—

ASHPITEL PRIZE 1894 (Examination qualifying for Candidature as Associate): Books value £10. 10s. to Mr. WILLIAM EDWARD VERNON CROMPTON, *Probationer* 1891, *Student* 1892, *Qualified as Associate* 1894.

PUGIN STUDENTSHIP 1894: Medal and cheque for £40 to Mr. R. SHEKLETON BALFOUR [A.].

GODWIN BURSARY 1894: Medal and cheque for £20, being second moiety of the £40 for travel, to Mr. HARRY PERCY ADAMS.

The President then proceeded to present the Prizes and introduce the Travelling Students for 1895, in accordance with the Deed of Award [pp. 125, 191], namely:—

ROYAL INSTITUTE SILVER MEDAL AND TWENTY-FIVE GUINEAS (Essays): to Mr. ARTHUR THOMAS BOLTON [A.], for Essay under motto "Bid me Discourse."

Cheque for Ten Guineas to Mr. GEORGE L. SUTCLIFFE [A.], for Essay under motto "Craigsidde."

Certificate of Honourable Mention to Mr. J. HUMPHREYS JONES [A.], B.A. Lond., for Essay under motto "Research."

Certificate of Honourable Mention to Mr. ALFRED C. HOUSON [A.], for Essay under motto "Ye Skeptic."

ROYAL INSTITUTE SILVER MEDAL AND TEN GUINEAS (Drawings): to Mr. W. HENRY WARD [A.], for his drawings of the Gateway of St. John's College, Cambridge, under motto "Lady Margaret."

Medal of Merit to Mr. JOHN H. JAMES (Cardiff) for his drawings of Llandaff Cathedral, under motto "Earendel."

SOANE MEDALLION and, under conditions of foreign Travel, One Hundred Pounds: awarded to Mr. HUBERT S. EAST [A.] (Tasmania), for his design for a Gallery for the Exhibition of Pictures and Sculpture, under motto "Southern Cross."

Medal of Merit and cheque for £5 to Mr. C. H. B. QUENNELL, for his design under the device "Lion's Head."

Medal of Merit and cheque for £5 to Mr. HARRY JEFFERIS [A.] (Sydney), for his design under motto "Scallywag."

PUGIN STUDENTSHIP: awarded to Mr. ALFRED JOHN DUNN (Gloucester).

Medal of Merit and cheque for £5. 5s. to Mr. JOHN ALEXANDER RUSSEL INGLIS [A.].

Certificate of Honourable Mention to Mr. CECIL CLAUDE BREWER.

OWEN JONES STUDENTSHIP: awarded to Mr. JOHN JAMES JOASS.

Medal of Merit to Mr. HUBERT CHRISTIAN CORLETTE [A.] (Sydney).

GODWIN BURSARY: awarded to Mr. ALBERT WILLIAM CLEAVER [A.].

TITE PRIZE of a Certificate and, under conditions of Travel in Italy, Thirty Pounds: awarded to Mr. R. SHEKLETON BALFOUR [A.], for his design for a Garden Pavilion under motto "Luctor."

Medal of Merit to Mr. BANISTER F. FLETCHER [A.], for his design under motto "Il Gondoliere."

Certificate of Honourable Mention to Mr. W. TAIT CONNER [A.] (Glasgow), for his design under motto "Jonah."

Certificate of Honourable Mention to Mr. D. W. KENNEDY [A.], for his design under motto "Kismet."

GRISSELL MEDAL AND TEN GUINEAS: The Medal not awarded, but the sum of £10. 10s. presented to Mr. J. FRED. FOGERTY [A.] (Bournemouth), for his design for an "Independent Wooden Spiral Stair" under motto "Quercus (B)."

A vote of thanks having been passed to the President for his Address and the Presentation of Prizes and Studentships, the proceedings terminated, and the Institute adjourned at 10 p.m.

PROCEEDINGS OF ALLIED SOCIETIES.

LIVERPOOL.

Architecture as a Necessary Element in National Economy. By Alderman P. H. Rathbone.

Read before the Liverpool Architectural Society on 3rd December 1894.

The Report of the Liverpool Commission on the Unemployed has forced into prominence a great peril which threatens the future prosperity of Liverpool, namely, the increasing surplus of unskilled labour which yearly enlarges the ranks of the unemployed. The nominal wage of a dock labourer, 4s. 6d. per diem, or 27s. a week, crowds the town with unskilled labour from the surrounding districts, where weekly wages are much lower. The consequence is that the average labourer gets about three days' work a week, or from 13s. to 15s. a week, so that the employer is dividing 27s. between two men to do the labour of one, and starving both instead of preventing the waste of labour and money by paying the sufficient weekly wage of 21s. for the same amount of work done by one. Nor is this state of things likely to improve. If the trade of the port is not to decline, greater economy will have to be used in the cost of loading and unloading vessels. That economy will be effected by the substitution of machinery for manual labour. The necessity for extra pressure at certain seasons, and the kind of work required at the docks, render the substitution of machinery for manual labour of much greater importance than in other industries. A machine when not working does not consume coal, and the coal that it would have consumed had it been at work is saved; whereas a manual labourer's day's work, if not employed, is lost for ever. It costs as much, or nearly the same, to keep a man alive whether working or not.

There is another difficulty in view. The absolute necessities of life—food, clothing, and lodgment—can now be supplied in greater quantities than they can be paid for. They could be supplied in greater quantities than they could be consumed. Hence the overglut of markets. Even the amount of necessities that ought to be consumed, if every one had enough, cannot be paid for, because those who have had no work to do have nothing to offer in return. The question resolves itself into this: The necessities of life being provided by the labour of a fraction of the population, how are we to provide employment for the remainder, and so enable these latter to remunerate the providers of necessities? The answer is, that man shall not live by bread alone, but by every word of God, and God's words include love of beauty, patriotism, and man's desire for the permanent expression of a nation's highest feelings and desires. A man is not the noble being that he is intended to be if he is compelled to restrict all his faculties to keeping himself alive by eating, drinking, and

keeping himself warm. He only emerges out of barbarism as his desires, wants, and mental conceptions enlarge.

The wealth of a country, really considered, consists in its possession of the means of enlarging those powers and of supplying the wants created by them. In proportion as the wants, desires, and variety of life increase, the nation becomes more civilised; but the character of that civilisation is very different in different countries. It may be either of a transient or of a permanent character.

The first enjoyment beyond that of satisfying mere animal propensities was provided by rivalry, first between one individual and another, then, as civilisation progressed, between communities. Hence the early history of all nations emerging out of savagery is the history of wars undertaken more for the purpose of a certain pre-eminence than for any other object. By-and-by, however, as human nature enlarged, man began to find out that he was much greater as a part of a gigantic whole, than as a mere atom compared with the force around. Then the tendency to combine developed. First, this would comprise the family; and those nations which have begun by making the family the basis of their national life have had the most permanent civilisation. During the normal period of a nation's history, civilisation does not very much advance, a combination is limited to the family. When, however, the nation settles down into cities, family ties develop into municipal loyalty, working to obtain all objects that shall tend to the glory and pre-eminence of the city and its inhabitants. Wealth begins to accumulate, and one city becomes wealthier than another by fortunate accident, such as the fertility of the land around it, or that its situation makes it need as a convenient centre for the surrounding nations to exchange their products.

Such, briefly, is the origin of a city's prosperity; the permanence of that prosperity depends upon the use it makes of the wealth it thus accumulates. If the nation spends it in transient means of civilisation, its civilisation is not permanent. Carthage was once apparently as wealthy as Rome; it expended its wealth in unprofitable ways, and in the costliest modes of satisfying the animal appetite. The consequence was, that when its factitious advantages disappeared, the city also disappeared for ever. Athens expended fifty years of its extra command of labour in building a Parthenon, and the Parthenon has crumbled. Athens, after being centuries submerged by misfortune, to rise again. Venice at one time, through her position, became the centre of trade to the East, and employed her wealth in raising a city of glorious palaces. By the discovery of the Cape passage to India she lost that advantage; her trade disappeared, but St. Mark's and her position remained. She was conquered, but she rose again, and still remained one of the great cities of Europe. Tyre had once the opportunities of Venice, and now her site is almost forgotten. She was capable, we are told, of the most luxurious and extravagant living; she wasted her wealth, and disappeared for ever.

The reason is simple enough. You cannot get a sense of citizenship by any amount of meanly built and ignoble streets; but you can create a warm and living affection by the erection of noble public buildings, remarkable not only for their size, but for that beauty of decoration which formulates the nobler and finer feelings and ideas of the citizens, and stand day by day as living witnesses that the life lived in that city by its inhabitants has been one not unworthy of the highest and most developed form of humanity. This is true of architecture, as it is of no other form of art or literature. The Church of Or San Michele in Florence was paid for by the different guilds of merchants, stockbrokers, traders, and craftsmen. It was worked out by the skilled artisans of the city. The consequence is, that in no city is there so strong a sense of municipal loyalty as in Florence. Depend upon it the future greatness of cities will be in proportion to the skill

of their artisans. In proof of this we have to look no further than to Paris. Where would Chester, that once important city, be now if it were not for its buildings?

Therefore I do not think I am going too far in saying that the future of Liverpool, as a city containing a large and intelligent body of men fitted to be leaders of civilisation, will depend upon our success in educating and employing a large body of skilled artisans, and in giving to Liverpool monuments and buildings which will create a society, spreading from top to bottom, to which the best of all classes will be proud to belong; otherwise, Liverpool may gradually sink into a mere port through which will pass the wealth of the world into cities which will know how to appropriate and employ it; and no one will live here, who is not forced to do so in order to supply the merest necessities of life. We trust, therefore, the new School of Architecture and its Applied Arts will receive the fullest recognition and assistance from our municipal authorities and the public; for, small as the beginning is, it may attain to dimensions which may save Liverpool from being a mere poverty-stricken asylum for unemployed unskilled labour; for carrying out, so to speak, the portage of the country and exercising other menial employments, and will in time make her a centre of the highest and best aspirations of humanity, as formulated in buildings which will render the respect and admiration of mankind for centuries.

The magnificent steamers of which Liverpool is now so proud will not last fifty years, and a diversion of trade may at any time transfer them from Liverpool to another port. Some of these cost half-a-million, and half-a-million judiciously employed might construct a building which would be celebrated throughout the civilised world, and be a centre of attraction to travellers from all parts.

The work which we have done in sewerage and paving and providing water for the town is admirable, but it is not a visible source of attraction, and I fear that a dull and unintellectual town, however healthy, would have a tendency to sink down toward the lower and more animal plane of life, while all that contributes to the charm, variety, and depth of a higher form of life and civilisation will be gradually drawn away to those cities which know how to cherish and value the blessings.

Owing to the telephone and telegraph, people can transact business at a distance, and the great master minds will settle themselves where there is most intellectual life and enjoyment going on, and leave to the mere hewers of wood and drawers of water to occupy the backyards and outbuildings of civilisation, there to pursue their dreary round of daily labour for a bare subsistence; and while the money is made in Liverpool, it will be spent in more intellectual centres.

If it well understood that architecture is almost the only means of enforcing a visible and unmistakable impression of the greatness and intellectual superiority of a town. Other evidences there are, but they do not force themselves on the attention, and have to be sought for; and Oxford herself, with her libraries and her colleges, would not have half the hold upon English affections and honour which she enjoys if it were not for the noble buildings in which those colleges are enshrined. The cities of Holland—wealthy, intellectual, with a history of which any nation might be proud—nearly dropped out of the consideration of the civilised world because, having no very remarkable buildings, they ceased to attract the attention of travellers; and had it not been for their picture galleries this would have been even more the case.

With all its enormous wealth fifty years ago, no one would have thought of comparing London as a centre of civilisation with Paris; but the rapid strides it has made in buildings of a really first-class character have placed it in an entirely new position amongst the capitals of Europe. During the fifty years we in Liverpool have not completed a single building that can be reckoned amongst the chief

buildings of Europe, nor throughout England has there been constructed a single cathedral which can in the least take rank with the glorious buildings of the Middle Ages, and which give to such towns as Rouen, Rheims, &c., an undisputed place amongst the centres of civilisation in Europe. Nothing is wanting but will to enable us to do this; we have the wealth in abundance, and we use it in building docks for Buenos Ayres; we have men quite capable of conceiving the idea, and we have a population which, with instruction, might become the finest body of skilled artisans in the world. It is mere childishness to neglect the necessary means of keeping Liverpool in the van of civilisation. In a few years it may be too late, because other countries and cities in England are doing work which will place them so far in advance of us that we shall wake up to find ourselves hopelessly behind in the race of civilisation.

THE YORK SOCIETY: ANNUAL DINNER.

On the 5th January the annual dinner of the York Architectural Society was held at the White Swan Hotel, York, the President, Mr. H. Perkin [F.], in the chair, the vice-chairs being filled by Mr. J. Lane and Mr. A. W. Turner. There were also present: The Rev. G. H. Hewison, Messrs. G. Bailey, J. B. Sampson, T. P. Bulmer, G. B. Bulmer [F.] (Leeds), F. W. Bedford [A.] (Leeds), A. Pollard (Past President), E. Pollard, A. Hirst, Watson Hirst, W. Hepper (ex-President), A. P. Skeat, J. S. Addenbrooke [A.], G. W. Milburn, W. T. Whincup, H. H. Humphries, A. H. Claypoole, T. Sawyer, F. W. Cull, R. C. Laurence, Fred. Taylor, J. T. Pegge, J. Duck, S. R. Kirby, F. Curry, A. J. Penty, G. Benson, A. B. Burrell (Hon. Sec.), N. R. Yeomans (Hon. Treasurer), W. E. Walker, W. Bennett, G. H. Stott, J. R. Masterman, W. H. Dawson, A. Sample, J. Loftus, and R. A. Parkin.

The Chairman gave the loyal toasts, which were heartily responded to.

Mr. A. Pollard proposed "The Royal Institute of British Architects and Kindred Societies." He said that changes had taken place in almost everything during the present century. Having regard to the fact that the Royal Institute had been in existence for so long a period, it was to him a matter of surprise that those associated in the past with that noble Society had been so reticent as to the provincial members of the profession. They had failed in a great measure to fully realise the influence the provincial architect must have on the country. Undoubtedly in London, where the best of everything could be found, it was only reasonable to expect that there they had the pick; but in recent years it had been clearly proved that they should have some regard to other centres which were of moment and should be considered. If it had not been for the energy displayed in commercial centres away from London, the advantages to be derived by the present generation would not have been attained. The head centre could command the support of men of high intellectual attainments, and could also draw on the many learned Societies around them. He thought that if it were possible they might extend a little of their knowledge to provincial architects by arranging a series of lectures, so that they might acquire information of such great value without incurring the expense of going to London. The alliance of provincial Societies had put them on the most favourable footing, for it had enabled them to send representatives to the Royal Institute.

Mr. G. B. Bulmer [F.] responded for the Institute. He said that he had the honour of sitting at the Board of the Institute, and he would ask the York Society to continue the support that they had so nobly given to the Institute already. He said that when the York Society was first formed there was a little jealousy felt at Leeds; but when they took account of the spirited manner in which the York Society had conducted its affairs, all feeling of jealousy was expelled, and it gave them at Leeds the

greatest pleasure to offer the hand of good-fellowship. The object of the provincial Societies was to push forward the interests they had at heart, and those interests were the consolidation of the architectural profession, with the view of getting it recognised by the public in a way in which it had not hitherto been recognised. They desired to consolidate their profession, and maintain centres which would enable them to disseminate something for their benefit. There was no provincial Society which was not aiming at providing means for young men to learn the details of their profession, which it was most essential for them to learn. There were gentlemen who did not agree with them, as they said they could not make an architect by education; they could not make an artist by education—it must be inborn. That was true, but they stopped there. The Societies went further, and said that a man who is an artist would be all the better for having a thorough education and a thorough grounding in the details of his profession which could be mastered by any well-balanced mind; and the object of the Royal Institute and the provincial Societies was to see that those opportunities were offered to architects which they had been prevented from attaining in the past. Why men should try and balk such an object, and one fraught with so much good, passed his comprehension. He looked forward to seeing the provincial Societies in a strong position, and trusted that they would show great power of growth. There was an enthusiasm amongst them which in the future would bear fruit, and that was not more strongly shown in any Society than it was in the York Society. It was, he said, the desire of the Institute to bring the provincial Societies as closely into touch with themselves as possible, and they would welcome any communication or inquiry from the provincial Societies with the view of helping them as far as they were able to do so. The suggestion made by Mr. Pollard was, he said, met to a large extent by the publication by the Institute of the JOURNAL in its present form.

Mr. F. W. Bedford [A.] replied for the "Kindred Societies."

The Rev. G. H. Hewison proposed "The York Architectural Society." He said the architect's profession was a most difficult one; he did not think that there was any other profession in which such a variety of knowledge could be brought to bear. He lamented the action of the York School Board, that it had not thrown open its architectural work to competition. From first to last he had always advocated that it should be done. There had been great improvement in domestic architecture during recent years, and they were very much indebted to the architects for the beauty of the streets and the health and comfort of their houses.

The President, in reply, congratulated the Society upon the fact that its alliance with the Royal Institute had been accomplished, and he thought that, as York was the centre of a very large architectural district, each architect within the boundary allotted by the Institute should be invited to join their ranks, for his own individual advantage and for the purpose of strengthening the Society. He regretted that there were architects in good practice in York who had hitherto held themselves aloof. He did not know if it was possible to induce them to become associated with it. He urged students to go in and win the prizes that were offered. There should be no lack of opportunity for study in a city like York. He alluded to the specimens of stained glass in the Minster, and said that there was no other glass that could compare with it. He of course excepted the modern glass which had been inserted in later years, in the north and south transepts. That in the north transept was of the worst possible description, and the figures in the windows in the east aisle of the south transept had a very distorted appearance, which suggested to his mind that they should have been placed at a very much higher elevation. Why did the authorities permit such glass to spoil the Cathedral? Could it be possible

that they appreciated the fact that the modern work acted as a foil to the ancient glass? As to the repairs that were constantly needed to the exterior of the Minster, it would appear from the decay into which it was falling that the funds were quite inadequate for efficient renovation. He asked if it was not competent for that Society to make a representation to the Dean and Chapter suggesting that they should make a supreme effort to obtain the necessary sums required for the next twenty years or so. If a further appeal were made, some large-hearted Churchman would respond with substantial help, as in the recent case of Peterborough Cathedral. The drainage scheme when completed should have the tendency to dry the subsoil and render the ground more suitable for the development of building estates. He had heard that it was contemplated to enlarge the railway station. He suggested that, in order to develop building estates in the vicinity of Hob Moor and Bootham Stray, suburban stations be placed there. Was it possible that in the future the river would have its complement of passenger steamers, as in London and Paris? He spoke of the unsatisfactory way in which building estates were developed, by property of inferior value being dovetailed in between high-class properties, which must have a tendency to reduce the value of the latter. He went on to remark on the lack of artistic design in the erection of small-class houses. Surely it was possible to impart some artistic feeling and colour effect at moderate cost. He spoke of the work which had been carried out in the city and neighbourhood, and what was in contemplation, and said that business should be brisk for some time to come.

The toast of the "Sister Arts and Science" was proposed by Mr. Lane, and responded to by Mr. A. W. Turner; and the toast of "The Visitors," by Mr. William Hepper, and responded to by Mr. John Sampson.

THE LONDON COUNTY COUNCIL.

FREE TECHNICAL EDUCATION IN LONDON.

On Monday, 17th December 1894, the Lord Chancellor presented certificates to the Junior County Scholars appointed in June and November last, the Intermediate County Scholars appointed last June, the Senior County Scholars appointed in October, and to the Art Scholars and Exhibitioners and the Domestic Economy Scholars. There were 5 Senior, 50 Intermediate, and 517 Junior County Scholarship Certificates, 78 Certificates to Art Scholars and Exhibitioners, and 51 Domestic Economy Certificates. The Chair was taken at 8 p.m. by Sir John Hutton, the Chairman of the Council, but the recipients of the certificates and the members of the audience were in their places by 7.30 p.m., and were entertained by an organ recital by Mr. Josiah Booth until 8 o'clock, though the recital was interrupted for a few minutes in order to arrange for the presentation by the Misses Hutton of about 270 bouquets, the gift of the Chairman, to the girls who were about to receive certificates. Nearly all the girls were provided with seats in the orchestra, and, when the Chairman entered, accompanied by the Lord Chancellor, they rose and waved their bouquets, producing a very pretty effect. In introducing the Lord Chancellor the Chairman said:—

My Lord Chancellor, Ladies and Gentlemen.—This evening the Technical Education Board is taking one further step towards the realisation of its immediate hope that the time will not be far distant when the scholarships will amount to the value of £30,000 per annum. In considering the constitution of the Board it would be impossible not to refer to one whose services upon that Board have been of great distinction, and who seems to live for the purpose of promoting technical education—I refer, of

course, to Mr. Sidney Webb. I shall be neglecting a duty, however, if I omit to mention the name of our admirable and zealous secretary, Dr. Garnett. The source of the income of the Technical Education Board is, in my opinion, a very questionable source. It comes from the beer and spirit duties, and I hope that the day may some time come when the Bill for drink will change places with the Bill for education. A sign that we might look for assistance from healthier channels is given in the offer of the Trustees of the Norwood Institute to transfer, subject to certain conditions, the valuable lease with forty-three years unexpired at the nominal ground rent of £23 per annum. I trust that these gifts may be more numerous. For the Senior County Scholarships, of the estimated value of £100 per annum for three years, there were 61 competitors. Five survived the ordeal. There were 348 candidates for the Intermediate County Scholarships, and 50 were appointed. The school fees and money value of these scholarships are £40 a year. One satisfactory feature is the steady growth in the number of candidates for the Junior Scholarships. In November 1893, 960 candidates presented themselves. In May of the present year there were 1,133 candidates, but in October there were 1,307 representatives from no less than 346 elementary schools in the county. Those who have passed the examination are 179 girls and 1,338 boys, making a total of 517. These scholarships represent the money value of £20 and two years free schooling. From forty-six schools of art there were 78 successful competitors for Art Scholarships; 51 girls have passed in domestic economy, and will obtain free education for six months. This produces a grand total of 704 successful students, and I am sure that those who to-night will receive the certificates as a result of their arduous labour will find added greatly to it the honour of receiving them at your Lordship's hands.

The Lord Chancellor then presented the certificates, and afterwards addressed the meeting.

In rising to propose a vote of thanks to the Lord Chancellor, Mr. Sidney Webb, the Chairman of the Technical Education Board, said:—

Ladies and Gentlemen.—Let me ask you to express your thanks to Lord Herschell for so kindly giving away our certificates. I do not forget that he comes here in a double capacity. He is, as Lord Chancellor, a member of Her Majesty's Government, and we value his having come among us, in the midst of great pressure of work, as some testimony that Her Majesty's Government do not overlook the work done by the London County Council and the Technical Education Board, a body which is endeavouring to do in a humble sphere what the Government are doing in a higher sphere. He is also the head of our great University. He stands here to-night as the leader of the chief educational system of London, if we may call it a system. Who knows but that among those who are here to-night there is to be found the future Lord Chancellor, if that office exists for so long a time? We may assure him that we are preparing the students for the Teaching University of London which we look to him to give us at no distant date. I cannot close without expressing the hope that this is only an earnest of what he will do for us in the future. I have much pleasure in proposing a vote of thanks to Lord Herschell.

The Hon. E. Lyulph Stanley, Sir Henry Longley, K.C.B., Chief Charity Commissioner, and Sir Owen Roberts, M.A., D.C.L., of the Clothworkers' Company and the Technical Education Board, also addressed the Meeting.

Erratum.—In the report of the case of *The Vestry of St. Mary, Battersea, v. Hudson* [Legal, p. 160], which was taken from the *Law Journal*, the names of the counsel for the plaintiff and defendant respectively were accidentally transposed. Mr. Young was for the summons, and Mr. Gover for the defence.



THE LEGAL POSITION OF ARCHITECTS IN RELATION TO CERTIFICATES AND AWARDS.

By JAMES ANDREW STRAHAN, M.A., LL.B.,

OF THE MIDDLE TEMPLE AND MIDLAND CIRCUIT, BARRISTER-AT-LAW.

Read at the General Meeting, Monday, 28th January 1895, and registered at Stationers' Hall as the property of the Royal Institute.

As has often been remarked, a tendency has shown itself of recent times, and has grown more noticeable year after year, to decide disputes arising in commercial, and more particularly in industrial, undertakings without recourse to the Queen's Courts. At one time any such tendency was severely repressed by the law. It was then a legal maxim that any agreement the object of which was to oust the jurisdiction of the Court was void. Some light may be thrown on the origin of this maxim, and on the rigidity with which it was formerly enforced, by the fact that at that time the Judges were paid by fees levied on the suitors in their Courts. Anything which would diminish the number of those suitors, and consequently the gross amount of fees, Judges, being subject to human infirmities of vision, like other mortals, might naturally enough regard as bad in law and worse in morals. At any rate, when the system of payment by salaries had superseded that of payment by fees, the maxim, though still talked of as law, was rapidly retired from business. The Legislature reflected the change of view on the Bench, and in numerous statutes, of which the Common Law Procedure Act 1854 and the Arbitration Act 1889 are the most remarkable examples, encouraged and assisted the public to adopt an extra-curial mode of settling their disputes.

In contracts for works which are especially liable to give rise to many petty differences between the parties to them, the need of a mode of settling or preventing disputes certainly and without litigation was early felt. Two such modes suggested themselves. The first consisted in making it a condition of the contract that before the contractor had any legal claim for payment against the employer, he must carry out the contract to the satisfaction of some given person. The second consisted in making all differences between the contractor and employer referable for consideration and settlement to a third person. The first mode may be called shortly settlement by certificate; the second, settlement by arbitration. One or other of them is now inserted as a matter of course in nearly all contracts for works; and not unfrequently both are inserted, either as alternative modes of settlement, or the right to an arbitration may be given as a check on the more arbitrary method of settlement by certificate. The object of this Paper is to consider shortly these two modes of settlement in contracts for works, and more especially to consider the position from a legal point of view of the architect whose duty it may be to certify or arbitrate.

In referring to settlement by certificate it must be remembered that, speaking broadly, in order that a certificate may settle anything, the granting of it must be made by the contract a

condition precedent to any right of action for payment on the part of the contractor. And even when a certificate is made a condition precedent, certificates given during the execution of the works—that is, progress certificates—settle nothing but the legal right of the contractor to claim the amount certified in them (*Tharsis Sulphur and Copper Company v. McElroy*, *L.R.* 3 *App. Cas.*, at p. 1045 [1878]). They do not constitute an approval of the work done (*Cooper v. Uttoreter Burial Board*, 11 *L.T.* 565 [1865]), nor do they prevent a subsequent revision of the payments made under them. For instance, if extras are improperly ordered—say, not in writing when contract provides that they shall be in writing—the fact that they are measured up and paid for under a progress certificate will not prevent their being disallowed on the final adjustment (*Lamprell v. Guardians of Ballerica Union*, 18 *L.J. Ex.* 282 [1849]), though if more has been paid on progress certificates than the whole amount payable on completion of the original contract, a new contract may be inferred by the Court in any case where the employer is not a corporation. There can be no new contract to bind a corporation except under the corporate seal (*idem*). On the other hand, when a certificate is a condition precedent to any right of action on the part of the contractor, the grant of a final certificate is conclusive, not merely against him, but in favour of him (*Scott v. Liverpool Corporation*, 3 *De G. & J.* 334 [1858]; *Goodyear v. Mayor of Weymouth*, 35 *L.J., C.P.* 12 [1865]). Unless expressly limited in its operation by the words of the contract, it is final as to extras improperly ordered (*idem*), and as to the materials and workmanship (*Harvey v. Lawrence*, 15 *L.T.* 571 [1867]). And if by the terms of the contract the employer can go behind the certificate, it seems it will not be binding on the contractor (see judgment of Mathew, J., in *Holzollern Actien-Gesellschaft für Locomotivbahn v. City of London Contract Corporation, Ltd.*, 54 *L.T.* 596 [1886]).

An arbitration may be, and frequently is, made a condition precedent to any right of action on the part of the contractor; but to make an arbitration an effective settlement of a dispute it is not necessary that it should be made a condition precedent to a right of action. The award of an arbitrator duly appointed is equally conclusive of the matters referred to him, whether it was or was not a condition precedent that there should be an arbitration before any action would lie against the employer. The chief difference is this: Where the arbitration is a condition precedent, the parties have practically no alternative but to arbitrate, except there is a mutual agreement to waive arbitration, and the Court apparently has no jurisdiction in the matter until an award has been made. Where, however, the arbitration is not a condition precedent, then either party can bring his action, and it will depend on the decision of the Court whether the action will be allowed to proceed, or whether he shall be compelled to carry out his agreement to refer (*Loc. relating to Civil Engineers, Architects, and Contractors*, by Macassey & Strahan, p. 188).

In contracts for works the certifier is almost invariably the architect in charge of the works, though this is not legally a necessity: If the contract provided that the employer himself should be the certifier in point of law there would be no objection to the proviso (*Stadhard v. Lee & Others*, 32 *L.J., Q.B.* 75 [1863]). Usually the arbitrator—if the contract contain a reference clause, and the reference is to a single arbitrator—is an architect too, either one specified or one to be appointed by a third person; as, for instance, by the President of the Royal Institute of British Architects. Of late it has become more or less common to specify as arbitrator, not an outside or independent architect, but the architect in charge of the works. At first this practice was regarded as of doubtful legality, as to a certain extent making the architect a judge in his own cause. Recent decisions, however, have dissipated this doubt, and now that the legality of the condition is indisputable we may expect to find it more largely adopted in the interests of the employer.

The prevention and settlement of disputes arising out of building contracts having

become one of the commonest and most responsible duties of an architect, it is of the utmost importance that he should clearly realise his legal position and liabilities in the matter. It is with the object of assisting him to do this that this Paper has been written.

Now, as the position of the architect varies enormously, as we shall presently see, accordingly as he acts as a certifier or as an arbitrator, his first business on being called on to act is to make certain in which capacity he is to act. Very often this is not such a simple matter as it at first sight appears. The occurrence in the clause in question of the contract of such words as "certify," "refer," "award" is not always in itself conclusive, and occasionally in carelessly drawn contracts such distinctive words are omitted (*Dunabeg Railway Company v. Hopkins, Gilbes & Co.*, 36 *L.T.* 733 [1877]). To ascertain what his position really is, the architect should examine the clause as to two points—(1) As to its object: Is it to prevent disputes arising between employer and contractor, or is it to decide disputes already arisen? If the former, he is probably a certifier; if the latter, he is probably an arbitrator. (2) As to the material on which he is to form his opinion: Is he to rely on his own observations, investigation, and skill; or is he to hear both the employer and the contractor's evidence on the point in issue? In the former case he is certainly a certifier, and in the latter as certainly an arbitrator.

This is the view laid down by the Master of the Rolls, Lord Esher, in the case of *In re Carus-Wilson & Greene* (18 *Q.B.D.* 7 [1886]). In that case the Master of the Rolls says:—

If it appears from the terms of the agreement by which a matter is submitted to a person's decision that the intention of the parties was that he should hold an inquiry in the nature of a judicial inquiry and hear the respective cases of the parties, and decide upon evidence laid before him, then the case is one of arbitration. The intention in such cases is that there shall be a judicial inquiry worked out in a judicial manner. On the other hand, there are cases in which a person is appointed to ascertain some matter for the purpose of preventing differences from arising, not of settling them when they have arisen, and where the case is not one of arbitration but of a mere valuation. There may be cases of an intermediate kind, where though a person is appointed to settle disputes that have arisen, still it is not intended that he shall be bound to hear evidence or arguments. In such cases it may be often difficult to say whether he is intended to be an arbitrator, or to exercise some function other than that of an arbitrator. Such cases must be determined each according to its peculiar circumstances.

The cardinal distinction, then, between arbitration on the one hand and certification or valuation on the other is, that the former is a judicial inquiry, while the latter is simply work done by the architect under his contract with the employer. Accordingly, an architect acting as an arbitrator is a quasi-judge, and as such his legal duty is towards the public generally; while an architect acting as a certifier is merely the skilled servant of the employer, and as such his legal duty is towards his employer. This difference is clearly recognised by the law in the powers which it gives the Court. Those powers practically enable the Court to deal with an arbitrator as if he were an officer of the Court; but it has no such authority over a certifier. Thus it can remove an arbitrator from his office, but it cannot remove a certifier from his. It can, under certain circumstances, appoint a new arbitrator (*Arbitration Act 1889*, sect. 5); it cannot under any circumstances appoint a new certifier (*Vickers v. Vickers*, *L.R.* 4 *Eq.* 529 [1867]). It can direct an arbitrator how he shall proceed in the arbitration; it has no such power over a certifier (*Arbitration Act*, sect. 19). Manufacturing evidence with the object of misleading an arbitrator, whether it actually misleads him or not, is a misdemeanour at common law, on the ground that it constitutes an attempt to pervert the administration of justice (*Reg. v. Vreones*, 1891, 1 *Q.B.* 360); while manufacturing evidence to mislead a certifier could not be an offence at all, unless it actually misled him, in which case it would not constitute a perversion of the administration of justice, but a fraud upon the other party to the agreement to certify (*idem*).

The architect, then, in granting certificates acts as the skilled servant of the employer ; in conducting an arbitration he acts as a quasi-judge. All the other differences in his legal position in these respective capacities result from this initial one, and will be best understood by continual reference to it.

Thus, take the method of procedure proper in granting certificates and in conducting arbitrations. In granting certificates the architect is entitled to proceed in whatever manner he pleases. He is not bound to hear both or either of the parties (*Sharpe v. San Paulo Railway Company*, *L.R. 8 Ch. App.* at p. 609 [1873]). He is not bound to look into the work or matter personally, but is entitled to act on the reports of his assistant, or on any other evidence he thinks proper (*Clemence v. Clarke*, *Roscoe's Digest* [1880]). Subject to his personal liability, the extent of which we will presently discuss, he can grant his certificate on whatever grounds he pleases ; and whether granted on sufficient or on insufficient grounds, it is binding on all parties provided it is not fraudulent.

In conducting arbitrations, on the other hand, the architect must proceed in judicial method. That is, he must give both parties to the arbitration fair notice of the date and place of meeting, and he must hear the parties or their counsel in a reasonable manner and to a reasonable extent ; he must listen to all the evidence placed before him by either party, provided that evidence is relevant and admissible according to the rules and customs of the Courts (*Re Haigh's Estate*, *3 De G. F. & J.* 157 [1862]).

Again, as to impartiality. In granting certificates the architect is no doubt bound to be impartial in the sense of being not consciously unfair to one or other of the parties. Conscious unfairness to a party would amount to a fraud upon that party ; and if proved it would, as a matter of course, vitiate the certificate. But he is not bound to be impartial in the sense of not having any settled view upon the matter in question before it actually comes before him for decision, or in the sense of being free from all influences, such as personal interest in the decision, which are likely to pervert his judgment (*Stadhard v. Lee and others*, *32 L.J., Q.B.*, at p. 78 [1863]). He may from the first entertain the most mistaken or perverse views as to how the works should be carried out, or as to the materials to be used ; he may have expressed from the first his intention of insisting on those views being followed by the contractor ; and he may refuse to listen to argument on the matter ; yet his decision, if honest, will be perfectly valid. Again, he may have deep personal or pecuniary interests in the decision. His professional credit may be at stake, or he may have every possible reason to keep on good terms with one of the parties ; or he himself may be one of the parties, as in the case where he is architect to houses which are being built for himself. None of these is in itself a sufficient ground to vitiate his certificate. Of course, if he has a personal interest in the decision, which was deliberately concealed from one of the parties at the time he was appointed certifier, that would be a different thing (*Kimberley v. Dick*, *L.R. 13 Eq. 1* [1871]). Nor will other facts besides personal interest, likely to pervert his judgment—such as subsequent ill-feeling over the contract, or over some other matter between him and the employer or the contractor—disqualify him in any way to certify. Speaking broadly, the Court will examine into nothing save the *bona fides* of the architect in certifying or in refusing his certificate.

In conducting an arbitration, as in granting a certificate, an architect must, of course, be impartial in the sense of not being consciously unfair ; but he must, as a general rule, be impartial also in the sense of not having any settled view upon the matter in dispute before it comes to be decided by him, and in the additional sense of being free from all influences likely to pervert his judgment (*Eckersley v. Mersey Docks and Harbour Board*, 1894, *2 Q.B.* 667).

This rule, however, is considerably modified in cases where the decision of all disputes by the award of an arbitrator, not to be subsequently appointed but there and then specified, is

one of the conditions of the contract between the employer and the contractor. In such a case the specified arbitrator, while bound not to entertain any concluded view on the matter in dispute until he has heard both sides, is not rendered unfit to be an arbitrator by the fact that he is not free from certain influences likely to pervert his judgment, provided such influences are only those which the parties at the time of contracting knew, or might reasonably have anticipated, would exist in his case.

This modification applies chiefly, but not exclusively, to cases where the person appointed by the contract to be referee in all disputes arising out of the contract is the architect or engineer of the employer. Such references were, as has already been said, formerly regarded with dislike by the Court as making the architect in a way judge in his own cause; but of late the leaning of the Court has been in the opposite direction. It holds now that such a reference is good, and must be enforced against the contractor, provided that the latter knew at the time he agreed to it that the architect in question was the architect of the employer, that nothing likely to pervert the arbitrator's judgment which might not reasonably have been anticipated by the parties has happened since the appointment, and that there is no evidence that before the parties have been heard the arbitrator has formed a fixed and unshakable opinion on the merits of the dispute (*Jackson v. Barry Railway Company*, 1893, 1 Ch. 238).

This doctrine was first authoritatively and explicitly laid down in the leading case of *Jackson v. Barry Railway Company*; and as it is of the greatest importance that architects and engineers should clearly understand it, a short *précis* of the case may be appreciated.

In *Jackson v. Barry Railway Company* the facts were these:—The plaintiff was contractor for certain works in connection with the construction of a railway for the defendants. Under the contract any dispute or question arising between the defendants and the plaintiffs as to the meaning of any part of the specification or drawings, or as to the materials or workmanship, was to be referred to Mr. J. Wolfe Barry, or other the engineer for the time being appointed by the company, whose decision was to be final.

In the course of carrying out the works a dispute did arise as to the material to be used for hearting a pier. This dispute, though nominally between the contractor and the company, was really of course between the contractor and the company's engineer, Mr. Wolfe Barry, who, under the contract, was the referee to decide all disputes. A correspondence ensued between the contractor and Mr. Barry, in which the former insisted strongly that all the contract required was that the hearting should be of rocky marl; while Mr. Barry as strongly maintained that on the true construction of the contract it should be of stone. After the controversy had gone on some time the company's solicitors, on 28th July, gave notice to the contractor that they would apply forthwith to Mr. Barry as referee to fix a day for hearing and determining the dispute. On the same day they applied to Mr. Barry, who fixed 2nd August for the hearing, on which day there was a meeting at which Mr. Barry appointed a lawyer to be legal assessor. On 28th July, the day he received the intimation as to the arbitration from the company's solicitors, the contractor wrote to Mr. Barry setting out his view as to the true meaning of the contract. On 1st August he commenced an action against the company to have the construction of the contract determined by the Court, and for an injunction to restrain the company from proceeding with the arbitration. On 2nd August—that is, after the commencement both of the arbitration and of the action—Mr. Barry replied to the contractor's letter of the 28th July, in which, while declining to discuss the matter generally on the ground that it had reached the stage of arbitration, he declared that he could in no way agree with a statement in the contractor's letter to the effect that the contractor himself was the first person to suggest stone hearting for the pier, and added that he (Mr. Barry) himself had always intended that the pier should have stone hearting.

On 10th August the contractor moved for an injunction to restrain the company from proceeding with the arbitration, on the ground that Mr. Barry's competence as an engineer being in question, and his letter of 2nd August showing he held a strong view on the merits of the matter in dispute, he was an unfit person to conduct the arbitration.

Mr. Justice Kekewich upheld this contention and granted the injunction. This decision was reversed in the Court of Appeal, Lord Justice Smith dissenting. Lord Justice Bowen, in delivering judgment, said:—

It was an essential feature in the contract between the plaintiff and the railway company that a dispute such as that which has arisen between the plaintiff and the company's engineer should be finally decided, not by a stranger or wholly unbiassed person, but by the company's engineer himself. Technically the controversy is one between the plaintiff and the railway company; but virtually the engineer, on such an occasion, must be the judge, so to speak, in his own quarrel. . . . It is no part of our duty to approach such curiously-coloured contracts with a desire to upset them, or to emancipate the contractor from the burden of a stipulation which, however onerous, it was worth his while to agree to. . . . To an adjudication in such a peculiar reference the engineer cannot be expected, nor was it intended, that he should come with a mind free from the human weakness of a preconceived opinion. The perfectly open judgment, the absence of all previously formed or pronounced views, which in an ordinary arbitrator are natural and to be looked for, neither party to the contract proposed to exact from the arbitrator of their choice. They knew well that he possibly or probably must be committed to a prior view of his own, and that he might not be impartial in the ordinary sense of the word. What they relied on was his professional honour, his position, his intelligence; and the contractor certainly had a right to demand that, whatever views the engineer might have formed, he would be ready to listen to argument, and at the last moment to determine as fairly as he could after all had been said and heard. The question in the present appeal is, whether the engineer of the company has done anything to unfit himself to act, or render himself incapable of acting, not as an arbitrator without previously formed or even strong views, but as an honest judge of this very special and exceptional kind. . . . That the letter of the 2nd August shows Mr. Barry to have had, and retained up to the opening of the arbitration, a rooted view that the contractor was wrong is obvious. This Mr. Barry may not have been able to avoid. Has he, then, disqualified himself from pursuing the function of such an arbitrator as the contract contemplates by informing the contractor, in answer to the contractor's controversial letter, of what the contractor, I am convinced, well knew already, namely, that Mr. Barry wholly disagreed with him? I do not see that the letter of the 2nd August warrants the inference that Mr. Barry would not or could no longer do his best, when the matter formally came before him and his legal assessor, to decide honestly between his own distinct view and that of the contractor. . . . I would agree with my brother Kekewich's judgment if I thought the letter of the 2nd August amounted to an intimation that the contractor would not be patiently listened to, and receive at the last an honest decision.

The principle of *Jackson v. The Barry Railway Company*—namely, that the fact that the arbitrator appointed by a building contract is the architect in charge of the works, or that being such he entertains a strong view on the merits of the dispute before he has heard the evidence, is not sufficient to render him unfit to arbitrate—has been affirmed since on several occasions in the Court of Appeal. See *Ires & Barber v. Willans* (1894, 2 Ch. 478) and *Eckersley v. Mersey Docks and Harbour Board* (1894, 2 Q.B. 667). In the latter case the contractors sought to prove the arbitrator's unfitness by showing that, besides his being the engineer in charge of the works, the proceedings at the arbitration would involve the question of the competence or incompetence of his son, who had acted as assistant engineer over the works. The Court of Appeal held that if the fact that the engineer's own competence was in question in the proceedings—which it usually was in such cases—was not enough to render him unfit to arbitrate, then *a fortiori* the fact that his son's competence was in question could not be enough.

It must, however, be remembered that the principle of *Jackson v. The Barry Railway Company* applies only to matters which were known, or which might reasonably have been anticipated, by the parties at the time the building contract was entered into. If other matters likely to pervert the arbitrator's judgment arise, or are discovered after the contract has been entered into, these, if of any importance, will be held by the Court to render him unfit. Thus, in the case of *In re Baring Brothers & Co. v. Doulton & Co.* (8 *T.L.R.* 701 [1892]), it was agreed that in any disputes arising out of certain contracts for the supply of materials by Doulton & Co. to Messrs. Baring Brothers & Co. or their principal—a Mr. Hales, a railway contractor—a certain specified engineer should be the referee. After this agreement had been entered into, disputes on other matters arose between this engineer and Baring Brothers and Hales, and the engineer began actions against these persons on these disputes. On the application of Baring Brothers it was held that the engineer was not a proper person, under these circumstances, to arbitrate on matters arising out of the contracts for materials between them and Doulton & Co. And the case of *Nuttall v. The Manchester Corporation* (8 *T.L.R.* 512 [1892]) shows that even without anything actually new arising after the agreement is entered upon, still, if the relations between the architect and one of the parties become violently strained, the Court will hold that to be a sufficient reason for refusing to send the matter to his decision. That is the ground on which the Master of the Rolls justifies the judgment in *Nuttall v. The Manchester Corporation*. (See *Eckersley v. The Mersey Docks and Harbour Board* [1894], 2 *Q.B.*, at p. 671.)

On no point is the difference in the status of the architect, according as he is granting certificates or conducting a reference, more marked or important than in the matter of personal liability. In granting certificates, except in those rare cases where he is retained not by the employer but by some one else, he acts, as we have seen, as the skilled servant of the employer, and accordingly he is liable to the employer for any damage to the employer which may arise from his negligence or want of skill in granting them. It is true no amount of negligence and no want of skill will render the certificate, once granted, the less binding on the employer. In the words of Mr. Justice Willes in *Goodyear v. Mayor of Weymouth*, 35 *L.J.*, *C.P.*, 12 [1865], "If you employ an architect who does not know his business, and who certifies that 'he is satisfied when he ought not to express satisfaction, you must be bound by his mistake.' But while negligence and want of skill will not shake the conclusiveness of the certificate between the employer and the contractor, they will, as between the employer and the architect, constitute a breach of duty on the part of the architect, and for any injury resulting to the employer from that breach of duty the employer will have an action against the architect.

To the contractor, on the other hand, the architect, in granting certificates or in refusing them, as in his other duties as the servant of the employer, owes no duty whatever save that general one of common honesty. No want of skill and no amount of negligence on his part, however disastrous this may prove to the contractor, will render the architect liable in damages to the contractor. A decision of Mr. Justice Chitty's in the case of *Cann v. Wilson* (39 *Ch. D.* 39 [1888]) seemed to overthrow this principle; but it is needless now to discuss that case, since it has been expressly overruled by the Court of Appeal in the recent and most important case of *Le Lievre & Dennes v. Gould* (1893, 1 *Q.B.* 491).

As *Le Lievre & Dennes v. Gould* is a case of much interest and importance to architects, I may perhaps give a short summary of the facts and judgment in it. Hunt let some land to Lovering for building, one of the conditions of the lease being that Lovering should within a certain time build houses on it to the value of £1,000. To enable Lovering to build these houses, Hunt subsequently undertook to obtain for him a loan on mortgage of £850, to be advanced in instalments according to a schedule of advances. By the schedule of advances the last instal-

ment was not to be paid until the houses were "complete with paper, paint, fittings, taps, "ground laid out, and the whole finished and in proper order." Hunt then retained the defendant Gould as architect, and later he arranged that the plaintiff Dennes should advance the money on a mortgage in the terms of the agreement between Hunt and Lovering. Gould was not informed of this mortgage, and throughout he addressed his certificates to Hunt. Dennes, however, acted on these certificates, and paid the instalments as certified. On 31st May, Gould certified that the final instalment was due "according to the schedule of advances." At that time, as it was afterwards admitted, the houses were not papered, though Gould denied he was aware of that. Subsequently Dennes and Miss Le Lievre, to whom the mortgage had been transferred, sued Gould for negligence and want of skill in certifying. The case was referred to an official referee, who found that Gould had not been guilty of fraud, and that as there was no contractual relation between him and the plaintiffs he was not liable to them for negligence and want of skill. The plaintiffs appealed. The official referee's award was upheld by the Divisional Court, and afterwards by the Court of Appeal. Lord Esher in delivering judgment in the latter Court said:—

It is said that a relation by contract existed between the plaintiff Dennes and the defendant, and that one of the implied terms of that contract was that the defendant in giving certificates should use reasonable care to ascertain the truth of the facts to which he certified. There can be no doubt that if there was a contract, there was such a term implied in it. But there is really no evidence of any contract between the plaintiff Dennes and the defendant, and in truth there was no such contract. . . . Then it is said that, even if there was no contract between the plaintiff Dennes and the defendant, nevertheless the defendant is liable to the plaintiffs for having given certificates which contained untrue statements; for, it is said, the defendant owed a duty to the plaintiffs to exercise care in giving the certificates, because he knew the plaintiffs would or might act upon them by advancing money to Lovering. No doubt the defendant did give untrue certificates; it was negligent on his part to do so, and it may even be called gross negligence. But can the plaintiffs rely upon negligence in the absence of fraud? . . . No doubt if *Cann v. Willson* stood as good law, it would cover the present case. But I do not hesitate to say that *Cann v. Willson* is not now law. Chitty, J., in deciding that case, acted upon an erroneous proposition of law, which has been since overruled by the House of Lords in *Derry v. Peck* (11 App. Cas. 337), when they re-stated the old law that in the absence of contract an action for negligence cannot be maintained when there is no fraud. . . . A charge of fraud is such a terrible thing to bring against a man that it cannot be maintained in any Court unless it is shown that he had a wicked mind. What is meant by a wicked mind? If a man tells a wilful falsehood with the intention that it shall be acted upon by the person to whom he tells it, his mind is plainly wicked, and he must be said to be acting fraudulently. Again, a man must also be said to have a fraudulent mind if he recklessly makes a statement, intending it to be acted upon, and not caring whether it be true or false. . . . But negligence, however great, does not of itself constitute fraud.

In granting certificates, then, the architect is liable for want of skill, negligence, or fraud in respect to the employer, and for fraud only in respect to the contractor. In conducting arbitrations, on the other hand, the architect, whether he is acting as sole arbitrator by agreement between the parties, or under the direction of the Court, or whether he is acting as a joint arbitrator, the nominee, and in a way the representative of one of the parties to the arbitration, is a quasi-judge, and as such he is not the servant of anyone, and is not liable to anyone for negligence or want of skill, however gross. His award is not as binding on the parties as a certificate. It may be set aside for other things than fraud—for mistakes in law or fact appearing on its face for instance, for want of finality, for misconduct in conducting the arbitration, or because further evidence has arisen since the close of the proceedings. But in conducting the proceedings and in making the award the architect acts in a judicial capacity, and accordingly, like other judges, he is personally liable, not for negligence or want of skill,

but for fraud and for fraud alone (*Tharsis Sulphur and Copper Company v. Loftus*, L.R. 8 C.P. 1 [1872]).

Having stated as fully as time will permit the legal position of architects in the matters of certifying and making awards, I may perhaps be permitted to say a word or two in conclusion on the advantages and disadvantages of certifying and referring clauses respectively in building contracts. Now these advantages and disadvantages are very different according as they are looked at from the point of view of the architect, the contractor, and the employer.

From the point of view of the architect, settlement by certificate has this enormous advantage—it leaves him master of the situation. He is entitled to decide every dispute finally and conclusively by his mere *ipse dixit*, without consulting or even hearing either contractor or employer. Moreover, it enables him to redress oversights of his own during the progress of the works—such, for instance, as ordering verbally extras which, by the contract, could only be ordered in writing. If he certifies for these the employer must pay for them (*Brunsdon v. Local Board of Staines*, 1 Ca. & El. 272 [1884]).

On the other hand, settlement by certificate has, from the architect's point of view, the disadvantage that if he negligently certifies for what he should not certify, he may find himself mulcted by his employer in an action for heavy damages. Architects, however, as a rule, have no fear of this responsibility, and the Courts are very much disinclined to encourage actions against them, except in instances where there is gross negligence, or gross incapacity, or absolute fraud—instances which, to the honour of the profession be it said, do not often occur.

Settlement by award, on the other hand, from the architect's point of view varies very greatly according as the arbitrator to decide disputes is the architect himself or a third person specified or to be specified. If the architect is himself to be the arbitrator, he remains nearly as much master of the situation as in the case of settlement by certificate; and he has two further advantages—he is not personally liable for any mistaken decision, even though it be due to negligence, and he is usually paid extra for the work of deciding the dispute. If the arbitrator, however, is a third person, the only advantage accruing to the architect in charge of the works is that he is relieved of the somewhat invidious duty of deciding on what is virtually his own dispute. Of course, besides this, he is not liable for the decision of the arbitrator, except that decision arises through his misconduct. These, however, are poor compensations for the worry and anxiety of what is practically a long-drawn-out lawsuit, in which the architect is often at once chief witness and chief defendant, and the result of which may prove ruinous both to his reputation and to his pocket.

From the contractor's point of view, settlement by certificate has, beyond its certainty and cheapness, little but disadvantage. It places the contractor absolutely at the mercy of the architect, whose decision on disputes between him and the employer the contractor may reasonably be disinclined, for two reasons, to regard as unbiassed. In the first place, the architect is the paid servant of the employer in making the decision. In the second place, for a mistake to the disadvantage of the employer the architect may be responsible in damages, while for a mistake to the disadvantage of the contractor he cannot be held personally liable. Considering these facts, it is again to the credit of the profession that contractors are so ready to confide the decision of disputes to the honour and honesty of the architect supervising the works.

The advantages of settlement by award from the contractor's point of view depend almost entirely on who the arbitrator is. If the arbitrator under the contract is the architect in charge of the works, then the contractor's position is practically the same as under settlement by certificate, except that before the dispute is decided he is entitled to be heard by the

architect—a privilege which usually costs him as much as it is worth. If, however, the arbitrator is a third person, and more especially if he be not an experienced person, and the extent of the reference is wide, the contractor's position is a very pleasant one. In the first place, he can harass the employer by opening up everything arising or done under the contract, and by making all sorts of allegations as to the conduct of the architect and the employer himself. By insisting on having all these investigated, he can give great trouble and cause enormous expense. Very often the mere threat of doing so is sufficient to induce the employer to come to an arrangement all to the advantage of the contractor. In the next place, if the matters in dispute do come before the arbitrator, the contractor, however bad his case may be, is—especially, as I have said, if the arbitrator or umpire is not a very experienced person—pretty certain to get something. Too many arbitrators think that the justest way—as it certainly is the easiest way—of settling every dispute is “to split the difference.”

From the point of view of the employer, settlement by certificate is unquestionably the most advantageous mode of settlement. The employer here gets the disputes between himself and the contractor settled by his own agent, without expense and without appeal, while any gross blunder to his disadvantage in deciding the matter must be paid for by the architect himself. Settlement by award when the arbitrator is the employer's architect is, from the employer's point of view, much the same as settlement by certificate, except that it is more expensive, scarcely so conclusive, and the architect is not personally liable for mistakes. Settlement by the award of a third person, however, is as disadvantageous to the employer as it is advantageous to the contractor. It is harassing, it is extremely expensive, and it is very liable to be unjust to him in its result. It is on all these points more objectionable than settlement by an action at law. Indeed, almost its only advantage over an action at law is that as a rule the award finally concludes the dispute.

These, then, are the advantages and disadvantages of the different modes of settlement from the point of view of each of the three parties interested in building contracts. Which mode, or what adaptation of both modes, is, on the whole, the fairest all round is a different matter. My experience is that that depends very largely on the nature of the contract. In the case of small contracts settlement by certificate seems the fairest even to the contractor. It is quick, inexpensive, and final. I have never known an arbitration in a small contract in which the costs have not proved larger than the whole amount in dispute. In such contracts, accordingly, when the parties desire that disputes arising under them shall be decided without recourse to the Law Courts, I always advise a clause to be inserted making the architect's final certificate a condition precedent to any right of action whatever on the part of the contractor against the employer. I have seldom found the contractors raise any serious objection to this, save in cases where the employer's architect was one with a reputation for harshness. In large contracts, on the other hand, where, if disputes arise, their subject matter will probably be of considerable moment, settlement by certificate seems hardly fair to the contractor. The saving of expense is not the chief thing to be looked to here, and accordingly it is well to proceed less arbitrarily and more judicially, and give all parties a fair chance of, at any rate, stating their case. In such contracts I usually advise that a clause be inserted making the architect's decision on all disputes and matters arising during the progress of the works final and conclusive until the completion of the works. This is necessary to prevent delay through the reference of disputes to arbitration during the progress of the works—delay which is sure to give rise to further disputes as to penalties, time of completion, and other matters. A second clause is then inserted, making the certificate of the architect on the completion of the works, if accepted by the contractor, final and conclusive,

subject, of course, to a reasonable period of maintenance, as to all matters and disputes under the contract, whether arising during the progress of the works or on their completion. If, however, this certificate is not accepted, the architect's decision is to be final and conclusive as to all matters save such as are specified in the reference clause. The reference clause is then inserted, giving the contractor the right to appeal from the decision of the architect to an arbitrator specified or to be specified in the manner set out in the contract, on certain points which have to be very strictly defined. These points are most usually payment for extra works, extension of time for completion, and construction of contract; but of course they vary to a certain extent according to the nature of the works to be carried out under the contract. In every case where the contractor has a right to an arbitration, however limited may be the extent of the reference, I advise that the arbitrator should be, not the architect supervising the works, but a third person named in the clause or to be named by some independent person. To give a right to arbitration, and at the same time to insist that the judge in the arbitration shall be one of the parties, or the agent of one of the parties, to the dispute has always seemed to me little better than a mockery. If the employer insists that his architect must be the judge of all disputes under the contract, it is more straightforward plainly to say so, and make his final certificate the final decision of the matter beyond question and without appeal.

DISCUSSION OF MR. STRAHAN'S PAPER.

Mr. ASTON WEBB, F.S.A., Vice-President, in the Chair.

PROFESSOR KERR [*F.*] proposed a most cordial vote of thanks to the learned author of the Paper, but thought that some of his statements would create among them a good deal of alarm. It was true they were accused, and rightly accused frequently, of not understanding the law they had to deal with; but he could not think that they misunderstood the law so far as the learned lecturer would seem to imply. One point that he had made from their point of view was that the Courts, as at present constituted—one could not answer for what might occur before long, the Courts were always changing their minds upon practical matters that they did not understand—drew a very marked distinction between the “arbitrator” and the “valuer.” That would be new to a good many architects. When the valuer, who in practice was generally the surveyor, delivered his decision after being properly appointed, that decision was better not disturbed, unless fraud could be suggested. But it was quite a different thing with the architect who was giving a decision upon points of valuation as between the employer—he did not say the architect's employer for the moment—and the employed. He used the phrase which the learned lecturer had used, and said that, to the honour of the profession to which they belonged, it must be admitted that the decisions of architects were almost as a universal rule loyally given and loyally accepted. As he had said before now, but for the loyalty of the architects it was scarcely easy to understand how many building contracts would be able to pull through at all. He thought that every architect who was a member of the Institute,

and had heard previous discussions upon such matters, did accept for himself the situation of an absolutely impartial judge between his own employers and the contractor—a very unusual condition of things, but still a condition of things which did exist, and to their very great honour. He would not dwell at any length upon the question which the learned lecturer had so ably discussed—namely, the difference between the valuer and the arbitrator—but would point out to him the admirable mode adopted for deciding building disputes under the Building Act with regard to party-walls. The plan was this: there were no valuers, there were no arbitrators, but each party to the dispute appointed his own agent—his own surveyor as he was called; the two surveyors appointed a third, and any two of the three delivered the award. Speaking from his own experience of such matters, which had been considerable, there was no mode of settling a building dispute comparable in the slightest degree with that for fair and satisfactory administration. The great characteristic of that mode of settlement in building matters was that they got rid of what he would call that non-courageous mode of delivering an award, where the arbitrator accepted the rule of a certain cynical Judge, and took care not to let his reasons escape. A man who gave a decision and retained his reasons was not a courageous man. No Judge on the Bench ever gave his decision except subject to appeal, unless, of course, in the House of Lords, the final Court. But when an arbitrator or surveyor delivered an award and gave no explanation, and declined as a matter

of rule to give an explanation, that, he thought, was a great evil. That was got rid of altogether by the Building Act mode of reference, because the *modus operandi* was this. The two surveyors, who held diametrically opposite views—and it was their duty to do so, each doing his best for his client—and by diametrically opposite views he did not mean that they were nonsensically extravagant in their opposition, but that they necessarily held views corresponding with the rival interests of the parties—when they met with the third, the whole matter was discussed, and the third surveyor stated his opinion from time to time to the others when stating theirs—the consequence being that there was an opening for that most necessary thing in all building disputes—compromise. Now in litigation there was no possibility of compromise. One man was declared to be altogether right and the other to be altogether wrong, although the difference between them might not be the breadth of one's finger-nail. But it was not so with the tribunal of three surveyors; they discussed the matter quietly together, and the third surveyor, if he happened to conceive a peculiar view of the matter, was always open to argument. That was a great advantage. The consequence was, that when they had argued the matter out and could not settle it among them, the third surveyor had to say: Well, gentlemen, I think we have discussed it sufficiently; my opinion is unshaken, or my opinion is modified only to such and such an extent, and I think we had better settle it so-and-so, and it must be settled so. And both the parties to the dispute were informed of what had taken place, and the result was generally that both parties were satisfied; whereas by the system which prevailed under the more legal form the probability was that both parties were dissatisfied. As regarded the position and capacity in which the lecturer had told them the architect might find himself acting, the lecturer must excuse him for saying, not that he presented his subject in a complicated manner, but that his subject was so complicated as regarded the various views that might be taken of it that it was almost impossible for a layman to discuss it from the precise ground from which he discussed it. They considered it unfair for the architect to be the absolute judge without appeal between his own employer and the builder. The lawyers might consider it fair, but architects did not so consider it. Therefore they had the Arbitration Clause, which he had always understood worked exceedingly well, and would, he thought, work a little better if the arbitrator were like the third surveyor in the case of the party-wall.

MR. EDWIN T. HALL [*F.*] seconded the Vote of Thanks, and said that no more important subject could possibly be considered by them, because it related to the very delicate execution of a duty

between the man on the one side who stood in the relation of the employer, and the man on the other side who was the employee. The tone and attitude the Institute had always taken, and had always taught its members to take, was that the architect should take upon himself a judicial position—should, the moment his contract was signed, forget, for the purposes of judging between the employer and the employed, that he was the servant of one, and should act always as a judge of first instance to determine matters in dispute as they arose; and if he had the requisite amount of common sense and judicial fairness, there would result generally, and he believed did result very generally, a most satisfactory settlement of all disputes as they went along. It must not be forgotten that for one case of dispute that was heard of, there were probably nine hundred and ninety-nine others which were concluded without any dispute whatever. That, therefore, spoke very strongly for what the lecturer had been kind enough to say of the honour of architects and the readiness with which their decisions were accepted. The two designations given by Mr. Strahan were very useful in enabling them to discuss the subject. He spoke of the architect acting in one capacity as the certifier, and in another capacity as the referee, or, as he put it, "settlement by certificate" or "settlement by award"; and he laid down in a very clear way, which would always be valuable to them, the essential differences between those two positions. Professor Kerr had drawn attention to the fact that very generally there was a third person, the valuer; and that rendered architects' duties often simpler when they were acting as judges, whether by certificate or by award. Now the position of a judge of first instance was a very important one, and it had some bearing on the subject. The view generally held by the Institute was that the architect must of necessity occupy that position, even though he were not the final referee. There must be somebody to give a decision, which could be appealed against, if it had to be appealed against; and therefore an architect must not be afraid of expressing his opinion on a subject definitely and saying that was his decision, just as a Judge did in Court. Let them go afterwards, if there were any reason for it, to a referee to get that decision reversed. Professor Kerr had recommended, as the best of all tribunals, the court which was prescribed by the Metropolitan Building Act for party-wall disputes—and a very admirable court it was for the purposes it had to serve under that Act. He (the speaker) would, however, point out to him that there was this difference—that as a rule the questions settled there were simple in this way, that there were not many points; whereas in an arbitration on a large contract there might be a hundred points of dispute. If that court were constituted as a court

of three—namely, an independent person, and the representative of the employer on the one side, and of the contractor on the other side—it would be almost impossible that two of them could agree on an award; because it might be that in fifty of the points the independent arbitrator might agree with the employer, but on the other fifty he might agree with the contractor, and therefore the award would never be made at all. Because the award must be a complete document, and it must be by two of the three. However, in effect, their practice really gave the result that Professor Kerr desired, but it was arrived at in a somewhat different way. The architect on the one side and the contractor on the other stated his case, the threads were gathered up by the independent arbitrator—who might agree with fifty on that side and fifty on the other—and then the award was a conclusive one; so that they did in effect get three persons, but the decision was by the one. With regard to the question of a final certificate, it was a very important one indeed; the learned lecturer had referred on several occasions to it. He believed, however, that the sounder thing to do was not to give a final certificate at all, but only to give the last certificate for money payment. For this was the position if they did: if a final certificate were given, that is to say a certificate of completion, and something was discovered afterwards, which was very improper, the architect had probably taken upon himself the responsibility of relieving the contractor from his liability by giving his final certificate, and he would be liable, he thought, for an action by the employer for *laches*. That was not his (the speaker's) opinion, but it was the opinion given by two eminent lawyers, afterwards distinguished Judges, Lord Bowen and Mr. Justice Manisty. Their opinion was taken on the subject by the Institute many years ago, and they strongly advised the Institute that the architect was liable for such *laches* to his employer. Therefore the view that they had held, and the view that they would, he hoped, very shortly submit to the Institute, was that there should be no final certificate of completion, but that the contractor should be left to the Statute of Limitations; and then there would be no liability on the part of the architect to the employer, and the builder would rightly take that responsibility for any impropriety which attached to him. He was pleased to say that the Builders' Institute had agreed to that view, and therefore in the new Conditions of Contract it was one of the points that would be laid before the Institute. He was sure that every one present would agree that the arbitrator should be an independent person in most contracts, but it must not be overlooked that that was not the practice of any of the big Corporations; at least, the practice of large Corporations as a rule was that the architect of the building should be the final referee. That

was the case, he believed, with the Corporation of London, with Government works, with the Asylums Board, and other large bodies; so that in those cases, at all events, it was thought that the architect should be the final referee; and he believed as a rule—of course there were exceptions—it worked very well indeed. Still, for ordinary contracts it was not a view which the Institute had taken; it was not a view which they, as individual architects, would usually take. It must be fairer that an independent person should settle matters that were in dispute, because those matters were almost always in dispute between the architect and the contractor.

MR. WILLIAM WOODWARD [4.] said he was much surprised at the tenor of Mr. Hall's observations. He should have thought that at some period of an architect's history in connection with building he would have the courage, he would have the honesty, to relieve the contractor from his responsibilities in connection with the building. In the Heads of Conditions of Builders' Contracts issued by the Institute, in Clause 17, occurred these words:

Provided always that no final or other certificate is to cover or relieve the contractors from their liability under the provisions of Clause No. 11, whether or not the same be notified by the architect at the time or subsequently to granting any such certificate.

Clause 11 was the clause dealing with the liability of the contractor to make good any damage arising from defects in materials or in workmanship. [MR. EDWIN T. HALL.—Within a very limited time. Six months as a rule.] The time was not stated. With that proviso and those conditions it appeared to him in the last degree unwise, and unfair to the contractor, to endeavour to impose in the new Conditions of Contract the rescission of that final certificate on the part of the architect. The architect, as a rule, always allowed sufficient time—sometimes too long a time—to elapse between granting that final certificate and the conclusion of the work. If he were a wise man he allowed at least twelve months—probably twelve months was the time inserted in each Condition of Contract; and even then he was not compelled to grant his final certificate if he had any doubt whatever that some defective workmanship or material existed. Therefore, to his mind, it would be very unwise indeed, and would create the impression that architects were afraid of carrying out their obligations to the builders, because, after all, their obligations were not confined to their employers; as Mr. Hall had said, as Professor Kerr had said, and as they had all said time after time, they endeavoured to act as arbitrators fairly between the contractor and the employer. He sincerely trusted that no such intention in any way whatever would appear in the new Conditions of Contract. With regard to the tribunal, there was a great deal in

what Professor Kerr had said, and Mr. Hall had pointed out some little difficulties that might arise in the multitudinous matters which occurred in carrying out a building contract. The learned lecturer said [page 198]:

On the other hand, when a certificate is a condition precedent to any right of action on the part of the contractor, the grant of a final certificate is conclusive, not merely against him, but in favour of him.

This brought him (the speaker) to a point upon which he should like the opinion of gentlemen present. There were two methods of closing a contract after having ascertained the amount of variations, if there were any. One was to issue a final certificate without any reference whatever to the client or the builder, and the other was to go to the client and say: "Now, Sir, there are so many hundred pounds of extras, would you like to know before I issue my final certificate what they consist of, and why they have arisen?" He (the speaker) had adopted both courses, and his opinion was that the architect, having carefully ascertained the amount of extras due to the contractor, and having carefully listened to all that the surveyor and builder had to say upon the subject, was far wiser in issuing that final certificate than in giving the client the opportunity to raise all sorts of questions on subjects of which he must be only imperfectly informed, and so give rise to very considerable trouble in the conclusion of the work. Then the learned lecturer said:

Of late it has become more or less common to specify as arbitrator, not an outside or independent architect, but the architect in charge of the works. At first, this practice was regarded as of doubtful legality, as, to a certain extent, making the architect a judge in his own cause. Recent decisions, however, have dissipated this doubt, and now that the legality of the condition is indisputable, we may expect to find it more largely adopted in the interests of the employer.

He (the speaker) should have expected, recent decisions having made it legal, that they would have found it less largely adopted by the profession. Of course that might be all very well in the interest of the employer; but to allow the architect to be judge, and in his own cause, appeared to be a condition which it should be the endeavour of everybody to upset rather than to support. The builder, he thought, should have every facility afforded to him of opening up points of dispute which might arise within the contract; he should be protected from any oppression on the part of the architect, and from negligence, or even, if he might say so, from the results of ignorance which sometimes appeared on the part of the architect in conducting his building works. The Conditions of Contract seemed to him to meet the case very fairly indeed. Clause 20 said, as regards the arbitration clause:

as to what additions, if any, ought in fairness to be made to the amount of the contract by reason of the works being delayed through no fault of the contractors, or by

reason or on account of any directions or requisitions of the architect, involving increased cost to the contractors beyond the cost properly attending the carrying out the contract according to the true intent and meaning of the signed drawings and specification, or as to the works having been duly completed, or as to the construction of these presents, or as to any other matter or thing arising under or out of this contract.

That was a very full description of the points in dispute which were likely to arise during the progress of the contract, and those were the points which were referable to the arbitrator who was specifically named in that Condition. There was just a doubt as to the words "or as to any other matter or thing arising under or out of this contract." That certainly was a very large order; and he would just give one little case that was at that moment occurring in his own practice, as to which, also, he should like to have the opinion of gentlemen present. A contract was entered into and the building completed, and a very large number of variations occurred; the quantity surveyor acted for the employer; and the builder employed a surveyor to act for him. The amount of extras had been arrived at, and he (Mr. Woodward) had agreed with the figures of the surveyor and the builder, and had issued his certificate. Before issuing the certificate the contractor asked him to allow some £60 for the expenses of his (the contractor's) surveyor in measuring up the works. He told the contractor that he was no party to the employment of such surveyor; the surveyor acted entirely in the contractor's interest to get as much as possible out of the pocket of the architect's employer, that the architect's surveyor would be paid by his employer, and he declined to add a farthing to the amount of the certificate. The contractor had consequently suggested that an arbitration should take place under this clause; and they would observe that the words "Or as to any other matter or thing arising under or out of this contract" were very broad. Now to a certain extent that had arisen out of the contract, but to his mind it was not a matter contemplated in that clause, and he declined to have it referred to arbitration. That was just one of the points that might be considered, and he should be very much obliged to his professional brethren if they would say what their opinion was on that particular point. Then on page 199 the learned lecturer said, speaking of the architect: "Is he to rely on his own observations, investigation, and skill; or is he to hear both the employer's and the contractor's evidence on the point in issue?" That had been touched upon by Professor Kerr and Mr. Hall, and he thought it was distinctly agreed by the Institute that the architect should act as arbitrator throughout the whole proceeding fairly between the employer and the client, neither leaning to the one side nor to the other. On page 200 was an observation which reminded

him of a case which was decided by the late Lord Chief Justice. It was an action for extras where the surveyors on both sides agreed the amount at £600, and the architect was sole arbitrator. The late Lord Chief Justice told the builder that, having signed the contract making the architect sole arbitrator, the architect had acted in that capacity, and therefore he was quite entitled to say that the contractor was entitled to nothing; and the contractor lost the £600 and the action. That showed the misfortune of allowing the architect to be sole arbitrator in such a case as that. The learned lecturer throughout the Paper gave, he thought, very good grounds indeed for caution to the contractor in allowing it in any case. Human nature was human nature, and, knowing the weakness of human nature, he should advise the contractor not to allow the architect of the job to be the sole arbitrator. He thought the Conditions of Contract as they stood—those sanctioned by the Institute—were quite sufficient for the protection of the architect, and, if they were fairly carried out by a fair-minded architect, there would be no necessity for the clause that Mr. Hall, he thought unfortunately, shadowed forth, and which he (the speaker) should do his humble best to set aside.

PROFESSOR BANISTER FLETCHER [*F.*] said that, with regard to the question Mr. Woodward had raised, he certainly should say that the question fairly arose out of the contract—he meant the question of a reference. There could be no doubt that that would be the decision arrived at by a Court of Law, as to whether the surveyor for the builder was necessary. If the contractor's surveyor had pointed out serious errors on the one side, and diminished the bill, certainly the charge would be justified. But with regard to the issue of a final certificate not being final, to which Mr. Hall had alluded, he remembered two cases in which he was engaged, in connection with the School Board for London, where a final certificate was issued, and there was a clause in the contract that, notwithstanding the issuing of the final certificate, the School Board had the right to withhold the money for four years, and at the end of that time to investigate the building. In each of those cases, one of four schools and the other of five schools, the whole of the schools were taken almost to pieces to investigate their state after four years at an enormous loss, as might be imagined, and with the result that one builder of four schools gained the day, and the other lost the day, and incurred enormous expense. That illustration would show Mr. Hall that someone must take the responsibility off the builder's shoulders at a reasonable time, and that it was not reasonable that the builder year after year should have that responsibility hanging over him. What was the use of the architect if he was to take no responsibility whatever? On those

grounds, he thought, Mr. Hall would see the wisdom, certainly, of the architect taking his proper position. With regard to the architect being the judge, he would point out to the learned lecturer—and he quarrelled not at all with his law, but he did think that lawyers did not appreciate the position that an architect occupied. They all knew how wrong the late Lord Chief Justice was with regard to architects' fees, and the position they held in this very matter. No profession had ever suffered so much as theirs had done from the want of understanding of their position by the legal profession. He would point out to the learned lecturer that he appeared to forget that architects held a fiduciary position. He spoke of architects as third parties to a dispute; he spoke of them as though they were judges of their own cause. Nothing of the kind. The position of the architect was not at all of that character. He was simply appointed to see a particular contract carried out. One of the three parties to the dispute—using the words of the learned lecturer—was a silent member who never did, or ought never to do, and usually never did, anything. The sole object of the architect was to get a particular specification performed. And where would the difficulty be? With an honest, straightforward contractor there could be none; and usually he had found that the builder was equally anxious with the architect that his reputation should not be lowered by a bad building being erected; that was the case with the general run of builders, or architects could not get on at all with the same pleasantness that they did. Of course, things did not always go smoothly, but when did this happen? Usually when a scamping builder desired to get an additional profit and to give bad material. Where was the necessity for a long arbitration then? There were the materials, good or bad; and certainly they all knew in their experience that usually the clerk of the works was the first to inform them that bad materials were being employed, and they would take steps to prevent it. It would be a great advantage, he thought, if the Institute would endeavour to show lawyers the exact position he was faintly indicating, and would show them what would aid that position—that is to say, the doing away with the responsibility now put upon the architect by the employer, or rather by the lawyers, for it was never intended to have been by the original employer. And for the following reason: architects, as they had been correctly told, were liable for negligence to their employer, and were not liable to the builder. Now, taking the position that architects did as certifiers—to use the learned lecturer's term—they should be equally liable to the contractor as to the employer, or they should have no liability to either. Now if they could get that removed that was a practical matter, and that would put the architect upon a

higher ground. It would get rid of the great difficulty that they had an additional liability, which, to give an illustration which would be understood in that room, occurred in quantities, and where they found at times that the quantity surveyor was sometimes paid (he would deal with the point of payment by-and-by) by the employer, and afterwards had passed over his liability to the builder. Whether paid by the employer or the contractor, the quantity surveyor had a liability to the contractor. But the payment of money was not a proof of liability, and he mentioned that for this reason, the learned lecturer had laid much stress upon architects being the paid servants of their employers. A more mistaken expression there could not be. Looking at it from the legal point of view, he was perfectly right; but they knew that that never was and never had been the position that architects took. They took a far higher ground; they were judges of the contract rather than of the parties. They had to perform the duty of simply seeing that a particular work was carried out, that extras should be paid for and measured up, usually by the quantity surveyor; and, therefore, to some extent they were relieved of part of that duty. What, then, were the great difficulties in that work? The great difficulties were really very small. They got rid of one of the parties absolutely; they got rid of the judge of his own cause, because he was simply a judge of good or bad building of the quantity of the work he could hardly be said to be the judge. To look further. What advantage was there in having an architect and paying him when he was to do nothing, because immediately he objected to work an arbitrator was called in? And the arbitrator was to be called in to do what? To do what the architect should do—say “that is bad work—remove it.” Then followed the difficulty the learned lecturer had placed himself in with regard to letting all the work proceed till the end, and then calling the arbitrator in, giving, as he did, extremely good reasons—the non-delay of the work, and so on. But how were they to do that? Assuming the brickwork was bad, they must stop it and call in the arbitrator. He remembered a case of one of the large warehouses on the Thames when he was called in, and the builder said, “Don’t. Let me go on, and let it be a money compensation,” which should be fixed at the end of the time. He (the speaker) said: “Decidedly; I much prefer one visit to two.” But the employer would not, and the result was that on two occasions he (the speaker) had to go over the whole of that building and mark every timber that had to be removed. And then there was an arbitration at the finish. Men are driven away from the professional system if things are made so dreadfully complicated. He ventured to press this upon the Institute: They represented the profession, and it was sometimes thought that they lagged behind;

but they should not lag behind in this matter. Let them take up the status of the architect as one of their leading points; and he would humbly venture to suggest that architects should either be relieved of their responsibility to their employer, or have it increased by being liable to the other side—to the contractor. They should be equally weighted; then the world would appreciate that the architect was an independent man. One other illustration, in conclusion, as to payment. In mortgages the man who borrowed the money usually paid the fee. Where was the liability attached? Not to the man who paid the money, but to the man who lent the lump sum. He mentioned that to distinguish it from fees. He laid stress upon that because it showed the lawyers and the Courts that the payment of money had the peculiarity that it did not constitute the architect the paid agent of his employer. And here, where they had in the same profession two other illustrations of money not having that effect, they should be enabled to immediately get those alterations which he, and he believed every one present, would desire, and which would give to the architect the status and the power of being the arbitrator, and of getting rapid conclusions at small cost to his employer, to the advantage, he believed, of the architect, to the advantage of his client undoubtedly, and, in the speaker’s opinion, to the advantage of the contractor.

Mr. WILLIAM WHITE [F.], F.S.A., said that in treating of the matter before them they ought to take into account the varied character of the builders. There was no doubt that provision must be made against a bad builder as against a good one, and against a good builder as against a bad one. He had had very considerable experience of those matters, and he was happy to say that he had had very few disputes indeed that had created any difficulty; but, where he had had those disputes, he could not say that they had been with the high class of builders which had been spoken of, and which it had been said they found in ninety-nine cases out of a hundred. It could not be reckoned at quite as much as that, either for the satisfactory builder or for the satisfactory carrying out of the contract. In his contracts he had gone as far as possible upon this principle: he had a clause in the contract that, if there be any extra at all, the builder should give notice of it if he considered it to be an extra—that he should give the price that it should be, and that by negotiation they should settle it as the work went on, so that they had merely the items at the end to add up. He had found the carrying out of that simplify the matter wonderfully, although it had caused in some cases rather a considerable amount of additional labour to get it done. Nevertheless, he considered always that he was in that fiduciary position which had been referred to, and he had always found the builders

most ready to enter into it, if the builders were of good character, and not people who had made up their minds to get what they could out of the contract by scamping or by illegitimate charges. One other point he wanted to refer to—namely, the clearing, the certifying of the satisfactory mode in which the work had been done. It was very well to certify the work satisfactory, but there were occasions when it was simply impossible to see certain things behind, which, even in spite of clerks of the works, had been carried out in an unsatisfactory way; and still more so when there had not been a clerk of the works. Some thirty years ago he had a small work in Buckinghamshire, which was being done by a local builder, and too small a job to require a clerk of the works at all. The work was apparently carried out satisfactorily, and in that case the contract did not contain the clause that the builder should be responsible for any defective work which might appear after or before the signing of the final certificate. He found that in the course of two and a half or three years there was a very serious defect. It was a rebuilding of the east wall and portions of the two side walls. The east wall began to settle away from the building, and on examination he found that half the thickness of the wall was built upon the old foundation, and half of it extended beyond. They could certify everything that was palpably satisfactory; but he did not think, in such accounts as that, there ought to be the absolute relief which had been pleaded for the builder.

MR. T. M. RICKMAN [A.], F.S.A., said that he was rather shocked to find in the earlier part of the Paper certain statements on which he rather differed as matters of fact from the learned lecturer. One was as to the increasing habit of appointing the architect as the arbitrator of the works. He doubted, from such experience as he had had, whether that was the case. Again, there were one or two cases in which he thought it would be desirable that the younger members of the profession should take opinion—he did not say counsel's opinion—before they acted upon everything said in the Paper. It was rather dangerous to younger men to point out to them that under certain circumstances no want of skill and no amount of negligence on their part, however disastrous the effect to the contractor, would render the architect himself liable in certain cases. He thought it desirable that the young men should have no doubt that they should exercise all the skill that was possible to be exercised. But when he read to the end of his discourse, he was perfectly satisfied that the lecturer had drawn a very fair conclusion from the various advantages and disadvantages of the two courses which he had discussed, and he thanked him for laying those advantages and disadvantages before them. He hoped they would all carefully consider what the disadvantages

of each of the courses were, and what the dangers were, for the disadvantages were practically dangers into which all were liable to fall if they did not exercise the fullest care and the fullest skill that they were capable of in matters of certificate and in matters of arbitration. Coming to matters of arbitration, he must admit that he looked upon dividing the difference between two disputed accounts as the most ignominious thing that anyone could be driven to. He was driven to it sometimes—not on principle, but as a matter of practice; but he found that there were comparatively few cases where one was able to take absolutely one side—absolutely to agree with the arguments and the facts adduced by one or the other side. He had great pleasure in agreeing with what had fallen from Mr. Hall on the subject of the final certificate. He believed that as a matter of fact the final certificate was very seldom given. He had also great pleasure in agreeing with him (and he might say that he always pressed the argument in favour of this course), that during the course of the contract the architect should have certain powers. As regarded materials, as regarded the mode of working, the order in which the works were to be carried out, and a variety of other matters during the progress of the works, he should have power to decide what should be done. All those matters must be the subject of arbitration if there were disputes, if there were one side or the other which had not acted perfectly straightforwardly and fairly. In the Conditions of Contract which he had himself used—he could hardly say “used,” but he had written them out for architects, and they had been used by architects to a very large extent—it had been most fully stated that during the progress of the works the architect should have certain powers. But his mode of expressing the occurrence of the arbitration was, that if, after the works were completed, or were alleged by the contractor to be completed, disputes arose, then the matter should be referred to arbitration. That introduced the very important question whether the arbitrator was to be brought in in the earlier stages of the work. Almost the only arbitration in which he had had to appear and take a part was one which was absolutely necessary, and it was in the early stages of the work. When the work was about half or five-eighths through, questions arose as to certificates which were most difficult to settle; the certificate to be granted, the amount reserved, the value of the works executed, or unfinished, the materials, and all the rest of it. Those, when the building was from half to two-thirds completed, were exceedingly difficult questions; and, in the particular instance he alluded to, had the builder taken advantage of the award, and made use of the knowledge which he gained from that award in the middle of the works, he would have been

saved some of the consequences of bankruptcy, and the work would have been completed much sooner. That was an instance in which, in a building of a large size, it was necessary that there should be an opportunity of having an arbitration in the course of the works. As the learned lecturer had said, it was of great importance, in getting a contract made up, in settling the matters, and getting the work done, that the architect should have strong powers in order to complete the works. After they were completed, if it was thought worth while, subject to the expense, which was just as likely to fall on the builder as it was on the employer, then the arbitration must come, and it must be full. He should be very glad if they all took note of the importance of the objections which had been drawn to each of the courses of proceeding which were proposed in the ordinary building contract.

Mr. C. H. BRODIE I. said that the architect had to appear in two relations to the contract. He was in a sense the servant of the employer, his client, inasmuch as he was employed to do a certain thing, namely, to prepare a design and to arrange for the execution of that design. But directly the contract was signed his capacity in that state ceased, because he then had simply to see a certain thing, which was definitely formulated, carried out; and he could not, if he were a just man, be any longer the servant of the employer, because the employer, as they knew, was just as likely as the builder to wish to be unfair; and that was very often overlooked. Why their legal friends seemed so fond of the phrase about the architect being the servant of the employer he did not know, and it did not seem quite just. They were no more the servants of the employer than their legal friends were. They were professional advisers. A man could not design for himself, and when the design was made, he did not know how to set about carrying it out, and he went to the architect to advise him. As to the question of awards. There was another case in which members of the Institute were frequently called in to give an award. That was in the case of competitions; and he strongly endorsed Professor Kerr's opinion that they should not be afraid in giving their decision to give their reasons for it. They would then be able to show whether they knew anything about the class of building upon which they were adjudicating or whether they did not.

THE CHAIRMAN said he thought that in all Conditions of Contract the architect was always made absolute during the progress of the work in regard to the question of materials, and in regard to the manner in which the work was to be executed. If it were not so, he did not see how the work would ever get finished. Another point Mr. Strahan made in his Paper struck him as being a very valuable one, especially to young men. He said that the general experience had been that when a work of

moderate size went to arbitration, it always resulted in the arbitration costing more than the work itself. If that were so, he certainly thought that young men who had moderate works would be wise in endeavouring, both on behalf of their employer and the builder and all concerned, to settle the matter in a fair and judicial spirit, and to avoid, as far as possible, all litigation.

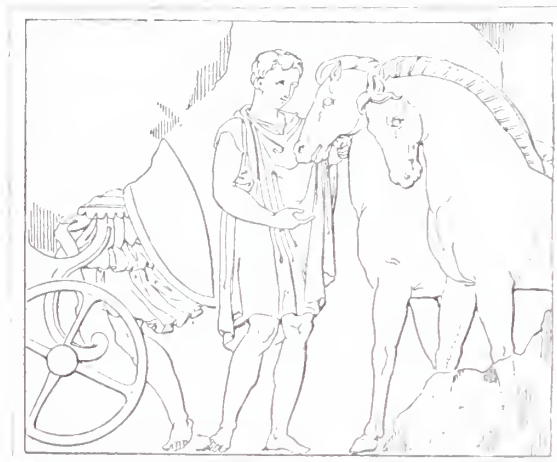
Mr. J. A. STRAHAN, M.A., LL.B., said that after the very interesting discussion there seemed but little left for him to reply to. He might say that every criticism, or practically every criticism made by one member present, was answered by the following speaker. For example, Professor Kerr instanced the practice under the Building Act as the perfect practice in the matter of deciding points in dispute under building contracts; but Mr. Hall pointed out conclusively that that was not a very judicious method. He (the speaker) adopted entirely what Mr. Hall had said upon that point. Again, with regard to Mr. Hall's criticism, he objected very strongly to certificates of completion, and said that in his opinion they never should be given by an architect. Well, as a matter of fact, he (the speaker) did not discuss the different kinds of final certificates—of course there were half a dozen different kinds; but, if he were to reply to Mr. Hall, he should certainly adopt what Mr. Woodward said. He said that, after all, there should be an end to the builder's liability some time or other, and that it seemed to him very unfair that the builder should be left for six years afterwards open to actions. At the same time, a certificate of completion did not necessarily mean that there should not be a period of maintenance afterwards: but he thought that that period of maintenance should be reasonable, and that the architect was shirking a most difficult and onerous part of his duties if, when he had the power to do so, he refused to give a certificate of completion of any kind. He thought he should give a reasonable period, according to the nature of the work—say, from six to twelve months: but it would be very unfair to leave the builder open to an action for negligence, which was easy to bring and hard to meet, for six years after the completion of the work. He might add, also—though he would not, of course, put his opinion against that of Lord Bowen and Mr. Justice Manisty—that, after all, the architect really took very little personal responsibility in granting a final certificate. He was liable only for negligence; and for any hidden defect which a competent man would not discover by a reasonable examination of the building he was not liable, although it might be subsequently discovered. For instance, if there was a settlement, he thought no Court would hold any architect liable for granting a certificate if the settlement took place four years afterwards, because that would not be proof of such negligence as any Court would hold the

architect responsible for. The architect in granting a certificate was only responsible for negligence, and the Courts were very reluctant indeed, in his experience, to hold the architect responsible for anything except what was an obvious neglect of duty upon his part; and if an architect granted a certificate carelessly, it was only reasonable that he should be held responsible for his act. With regard to what Professor Banister Fletcher had said, he would like to point out that his object had not been to argue out what the law should be, as the Professor appeared to think, but simply to explain what the law is. Now, for that state of the law lawyers were not principally responsible; they did not make the law. Apparently a good many laymen were under the contrary impression. Judges might, to a certain extent, make the law, but he had always been taught that the lawyer's function was merely to apply the law; and what he had done was to try and explain the law, and how lawyers applied it to architects. Professor Banister Fletcher had stated that an architect when he was deciding a point in dispute under a contract was not a judge in his own cause. Well, morally he might not be—he might be so high-minded that he did not consider his own interests; but lawyers were practical persons in that respect, and when they found that an architect's reputation depended upon his decision on a certain point they were inclined to think that he was a judge in his own cause. And they were supported in that view by Professor Kerr, who stated that he did not consider the architect a fair judge in such cases at all. Perhaps Professor Kerr was speaking from practical experience in such matters, while Professor Banister Fletcher was speaking from a much higher standpoint than mere experience. With regard to making the architect equally liable to employer and to contractor, perhaps that would be a desirable state of affairs. It was the position that the architect was in when he acted as arbitrator; but, for what appeared to be good reasons, the law had decided that the architect when he certified and was not an arbitrator—and that was one of the points that he had especially dwelt upon—but was the paid servant of the employer, and was liable as such. It might be desirable that the law should be changed on that point; but that was not the question before them. In reply to the last speaker, Mr. Brodie, he might say that when this law grew up, the profession of architect, he was afraid, was not very noticeably before the world. It applied to them not because they were architects or anything else; but on the broad general principles of contract. If they made a contract with any man, whether an architect, a solicitor, or anybody else, that man was liable to do his duty—to discharge it skilfully if he professed to be a skilled servant, and in any case to discharge it carefully. Now,

whether the architect chose to regard himself in that light or not, the law undoubtedly did regard him as the paid servant of his employer, and it held him, as it held everyone else who was engaged and paid for his duties, responsible for want of skill and want of care. That was merely what he wanted to point out. Whether it would be desirable that the position of an architect when he was certifying should be made the same as when he was acting as arbitrator was quite another question. The law, as it stood at present, undoubtedly drew a very broad distinction between the position of an architect when he acted as a certifier, and his position when he acted as an arbitrator. He was merely the paid servant in the one case, liable for want of skill and care; in the other case he was a quasi-judge, and was liable only for fraud. Professor Banister Fletcher referred to arbitration during the course of the works, but he thought that what the Chairman had said disposed of that completely. He had always felt that, whatever rights they might give him at the conclusion of the work, it was absolutely necessary, in order to get the work carried out at all, to make the architect master of the situation until the work was completed. If he was not that—if he was not able to decide every point as it arose (subject, if necessary, to subsequent reconsideration of the points before an arbitrator)—they might at any time have their work stopped for three, four, or six months, with the result that the whole contract was thrown into inextricable confusion, and no one knew what his legal rights were at the end. He wished to thank the Meeting very sincerely for the way in which they had received his Paper, and for their criticisms, which would be of great use to him, coming as they did from practical men constantly dealing with such subjects.

MR. WILLIAM WOODWARD [A.] said that before Mr. Hall or Mr. Rickman left the room he should like to ask a question. Mr. Hall, referring to the desire in his mind that architects should relieve themselves of their legitimate responsibility, said that that had been *agreed to* by the Institute of Builders. Now, for six years he (Mr. Woodward) had called attention to the Conditions of Contract sanctioned by the Institute, and time after time he had said that no Condition should be agreed to with the Builders until it had been sent to every member of the Institute. He wanted to ask Mr. Hall and Mr. Rickman whether they had pledged the Institute in the slightest degree to the Conditions that they had been formulating for a period of six years.

MR. E. T. HALL [F.] said he could answer that very satisfactorily to Mr. Woodward. Of course they had not. The Builders had agreed that they should recommend that particular clause to the Institute for adoption.



9, CONDUIT STREET, LONDON, W., 31 January 1895.

CHRONICLE.

The Examinations for Candidature as Associate.

The next Examinations for admission to candidature are fixed in the following order:—A *Preliminary* Examination of gentlemen intending to follow the profession of Architecture will be held by the Institute and some of the Allied Societies on Tuesday the 19th and Wednesday the 20th March; an Examination (*Intermediate*) of Probationers R.I.B.A. will be held by the Institute on the same dates, and the oral portion of that Examination will be taken on the 21st March; an Examination (*Final*) of Students R.I.B.A. will commence on Friday, 29th March, and continue during the whole of the subsequent week. The "Testimonies of Study" required from Probationers who desire to be admitted to the *Intermediate* Examination must be sent in not later than the 16th prox., and Students who desire to be admitted to the *Final* Examination must send in their "Testimonies of Study" on or before the 23rd prox.

Architects in practice, not less than 25 years of age, and chief assistants over 30 years of age, who desire to be admitted to candidature as Associates (subject necessarily to Section 16 of the Charter) can be exempted by special resolution of the Council from passing the *Preliminary* and *Intermediate* Examinations and from submitting the "Testimonies of Study" required from Probationers and Students. When so exempted they will be admitted at once to the *Final* of the three Examinations abovementioned, a concession which will endure for a certain time. Such applicants, however, will be required to submit "Probationary Work"; and they will not be eligible for the Ashpitel Prize.

The late W. G. Coward [F.] [p. 145].

The Council of the Institute of Architects of New South Wales have forwarded to Mrs. Coward

a letter expressing their profound sorrow on the death of her husband, Mr. W. G. Coward, who was one of the victims of the late railway accident in the Colony. As stated in the obituary notice at p. 145, Mr. Coward was a Fellow, and, at the time of his unhappy death, a Member of Council of the Institute of New South Wales.

The South African Association.

More than ordinary interest attaches to the record of the first two years' work of the South African Association of Engineers and Architects, which is to be read in the very creditable volume of *Proceedings* recently issued by that body, and a copy of which is in the Institute Library. The Association was started in June 1892, "for the general advancement of engineering science and architecture." The by-laws provide that members must be not less than twenty-five years of age, must have received a regular training as engineers or as architects, have subsequently practised as such for at least five years, and be actually engaged at the time of their application for election in some responsible work of engineering or architecture. To assist in carrying out the aims of the Association, as explained in the inaugural address of Mr. Hennen Jennings, its first President, endeavour was made to associate together the best talent throughout South Africa, recognising that a high degree of excellence in the two professions was frequently attained, not merely as the result of advanced scholastic tuition, but as the natural outcome of extensive practical experience coupled with natural talent. The Association is comfortably quartered at Johannesburg, in the Witwatersrand territory of South Africa, which may fairly claim to be the richest gold-producing region in the world.

Africa is proverbially the land of surprises, but perhaps nothing is more remarkable in the history of what till yesterday was known as the Dark Continent than the extraordinary rise and growth of the town of Johannesburg, which bids fair to become at no distant date one of the finest and foremost cities of the South African Republic. Eight years since, its site was nothing but open veldt and bleak plateau, situate some 5,600 feet above the level of the sea, the only habitations being a few miserable tents and shanties. The place was held in such light esteem that acres and acres might have been bought for a few span of oxen. In 1886 the rumoured existence of gold in the district proved so well founded that in September of that year *The Times* devoted a leading article to a description of the new Eldorado. The sequel is now ancient history. From a condition of abject poverty the country suddenly leapt into the possession of untold wealth. The value of the gold won from three mines alone in the immediate vicinity of Johannesburg—the Robinson, the Langlaate, and the Crown Reef—amounts, roughly,

to a million and a half sterling per annum; and the yield for the whole district for 1894 was estimated at over seven millions sterling. The existence of extensive seams of coal in the neighbourhood has of course facilitated enormously the development of the gold-mining industry. Unlike the beginnings of most settlements of such mushroom growth, whose early dwellers are content to run up for themselves houses of wood and corrugated iron, settlers in Johannesburg, confident in the prospect of a permanent industry, took pains to provide themselves at the outset with substantial, well-built houses, which are furnished with all the comforts incidental to well-to-do civilisation. Streets are being macadamised and lighted with gas and electricity, and tramways extend from one end of the town to the other—a distance of three miles. Shops, stocked with the most modern wares and latest fashions, compare favourably with any in the oldest cities of South Africa. There are fourteen or fifteen different suburbs, and numbers of rising townships, some connected with Johannesburg by railway. Six years ago hardly a tree was to be seen, but extensive plantations are now springing up in every direction, which promise in a few years to become valuable forests of timber for mining and other purposes.

In regard to the architectural outlook of the country, a very good idea may be formed from the admirable Address delivered by Mr. A. H. Reid [F.] when vacating the presidential chair of the Association last June. The difficulty has been for builders to keep pace with the demand for dwelling and other accommodation. The architect is handicapped in the matter of time; and though producing really creditable work, it plainly lacks the result of that placid thought which leisure and freedom from worry alone can provide. There were built in 1893 798 dwelling-houses, 24 business premises, 96 shops, 5 public halls, 81 stores, 1 school, 71 stables, 11 workshops, 3 churches, 4 magazines, amounting, with additions and alterations to other buildings, to over 1,200 works. To quote Mr. Reid:—

The town is provided with suitable law courts, hospital, market, police, and gaol accommodation, and will shortly have new post and telegraph offices; but we still dream of a town-hall, public offices, fire-brigade station, public baths and washhouses, slaughter-houses, library, churches, schools, a proper water supply, drainage system, garbage destructors, improved town lighting, and last, but not least, a town clock!

The Papers read before the South African Association, and printed in the volume of *Proceedings* beforementioned, are of an eminently practical nature, dealing principally with engineering and mining matters. Mr. Reid, however, contributes an important architectural Paper on "Dangerous Structures,"* and one giving a detailed descrip-

tion of Johannesburg Hospital, carried out by him for the local Hospital Board at a cost of £56,000. An interesting Paper on Domestic Architecture is by Mr. G. A. H. Dickson [A.], who was a pupil of the late George Edmund Street. The volume of *Proceedings* is edited by Mr. G. S. Burt Andrews, the Hon. Secretary, and he is to be congratulated upon having accomplished an arduous task with signal success. Mr. Charles Aburrow, Assoc.-M.Inst.C.E., is the new President of the Association.

A Teaching University for London.

On the 22nd inst. Lord Rosebery received at Downing Street three deputations, one in favour of, and two against, the Gresham Commission scheme for the establishment of a Teaching University for London. The first deputation, introduced by Professor Huxley, consisted, among others, of representatives of the Senate and the Annual Committee of Convocation, a committee of Graduates of the University, the principal London colleges, medical corporations and schools, and many important educational institutions. Professor Huxley said that the various bodies represented accepted, in principle, the recommendations of the Commission, and asked that they might be carried into effect with as little delay as possible. Two things were desired: first, the formation of a University for London, by the voluntary co-operation of the various institutions for learning, teaching, and examining which at present independently co-existed in London; secondly, the appointment of a statutory authority as the indispensable instrument for effecting the desired organisation. Several other members of the deputation spoke in support of these views. Lord Rosebery said he was not able at present to make any definite announcement as to the intentions of the Government. They attached, however, great importance to the report of the Commission, and the present time seemed a favourable opportunity, which ought not to be postponed, to appoint the Statutory Commission desired. The decision of the Government, he said, would be announced in a few days.

The two deputations subsequently received against the scheme opposed it on different grounds. Mr. Moulton, Q.C., in introducing one representing 900 graduates of London University, urged the desirability of doing nothing to weaken the position of the existing London University as a unique non-resident examining Board. Mr. Bompas, Q.C., as spokesman for this deputation, said that most of those whom he represented were strongly in favour of establishing a teaching University for London, and hoped a charter would be granted; but the Gresham scheme would be fatal to the interests of the present University. There were many members of Parliament who would not allow the University of London to be interfered with,

* JOURNAL, Vol. I. p. 77.

and they would strive by every lawful means and at every stage and in every way to prevent the destruction of that institution.

Dr. Collins presented the case of the second deputation, which represented the Gresham Scheme Amendment Committee. He asked for such substantial modifications of the scheme as would secure the impartial character of the examinations, and not give an advantage to the collegiate over the non-collegiate students. The proposed institution, if carried into effect, might be popular in London, but it would be intensely unpopular in the country at large.

Lord Rosebery, replying to Dr. Collins's deputation, said that there was nothing in the report of the Commissioners which prevented the Statutory Commission, should it ever exist, from founding an examination of a separate kind for those students who were not under the teaching University. He conceived the possibility of there being some such separate examination framed on the present system for external applicants for degrees to the University of London which should fully maintain, even if the new University did not itself maintain, the standard of examination on which so much value was set. With regard to Mr. Bompas's deputation, they based their objection on the essential incompatibility between a teaching and an examining university. That doctrine he could not accept. By obtaining some standard of examination which would not lower the standard as hitherto known, and which at the same time would provide a teaching university for London, the Government would be doing their best for London and the Empire. The convictions of the Government were in favour of the appointment of a Statutory Commission for framing such a scheme.

At a meeting of the Convocation of London University, held the same day, resolutions generally in favour of the scheme, but asking that power should be given to the Statutory Commission to vary the details, were carried by majorities of 31 and 29 out of 381 and 290 votes respectively.

The Condition of London Railway Stations.

At the meeting of the London County Council on the 29th inst. the Highways Committee reported that, from the results of inspection of the various railway stations in the County of London, it appeared evident that many of them required considerable alteration to meet the requirements of the public. The Committee also expressed the opinion that the Council should have some efficient control over the construction and reconstruction of railway stations, with power to inspect existing stations, and that railway companies should be required to give proper facilities for such inspection. They thought that an effort should be made in the Session of 1896 to seek those powers,

which could only be obtained by means of a public Bill. They recommended —

That it be referred to the Parliamentary Committee to take the necessary measures for the introduction of a public Bill in the Session of 1896, for the following purposes:— (a) To give the Council, for the purpose of enabling it to make representations under the Railway and Canal Traffic Act 1888, power to inspect from time to time the stations of every railway company in the County of London; (b) to require each railway company, before constructing a new station or reconstructing or altering an existing station in the County of London, to submit plans of the proposed works to the Council for its approval; and (c) to prohibit the erection or alteration of any station otherwise than in accordance with plans approved by the Council.

Mr. Beresford Hope, in moving that the report be referred back to the committee, said that this was an indirect way of bringing railway stations under the control of the Building Act, which was absolutely unsuitable for buildings like the big termini in London. The recommendation of the committee, however, was ultimately adopted.

Proposed Overhead Electric Tramways.

The Highways Committee at the same meeting reported that they had considered the application made by a company called the London United Tramways (Limited), which had acquired the undertaking of the West Metropolitan Tramways Company, for the Council's consent under the latter company's order of 1887 to the use of electricity by means of overhead wires as the motive power for working so much of the tramway in Uxbridge Road between Shepherd's Bush Green and Acton as was within the County of London. The system involved the placing in the centre of the thoroughfares of columns with brackets with bare copper wires stretched between them; and bearing in mind the very decided opinion expressed by the Council some time since against the proposal to adopt the road, the company was, the committee thought, not likely to find favour with the Council. Having regard to the policy which the Council had always adopted with respect to overhead wires, the committee thought it most inadvisable that it should consent to the adoption in any part of London of a system involving the use of overhead electric wires for working tramways. Should the Council consent to the adoption of such a system for tramway purpose there would probably arise immediately a demand on the part of electric lighting companies to be allowed to place their wires overhead also, especially as no reason could be alleged against the adoption of that course which would not apply with equal force to the tramway wires. They recommended against the request.

The Prize Drawings at Allied Centres.

The following drawings, being a selection from those which gained the Prizes and Studentships

for the current year, are now being exhibited at Exeter :—

ROYAL INSTITUTE SILVER MEDAL (Drawings).

- Mr. W. H. Ward [A.] (The Medal), Elevation of Gateway of St. John's College, Cambridge.
Mr. J. H. James (Medal of Merit), Elevations, &c., of Llandaff Cathedral.

SOANE MEDALLION (Design for a Picture Gallery).

- Mr. H. S. East [A.] (The Medallion), First and Ground Floor Plans; Elevations and Sections; Detail, &c.
Mr. C. H. B. Quennell (Medal of Merit), Perspective View.
Mr. H. Jefferis [A.] (Medal of Merit), Perspective View.

TITE PRIZE (Design for a Lake Pavilion).

- Mr. R. S. Balfour [A.] (The Prize), Perspective View.
Mr. B. F. Fletcher [A.] (Medal of Merit), Elevation.
Mr. W. T. Conner [A.] (Hon. Mention), Perspective View.
Mr. D. W. Kennedy [A.] (Hon. Mention), Perspective View.

PUGN STUDENTSHIP.

- Mr. A. J. Dunn (The Studentship), a selection of drawings, sketches, &c.
Mr. J. A. R. Inglis [A.] (Medal of Merit), ditto.
Mr. C. C. Brewer (Hon. Mention), ditto.

OWEN JONES STUDENTSHIP.

- Mr. J. J. Joass (The Studentship), a selection of drawings, sketches, &c.

These drawings will, it is hoped, be in Bristol for exhibition during the week commencing 4th prox., arriving in Cardiff on the 11th, Birmingham on the 18th, and Leicester on the 25th prox. After that they will be on view at Sheffield, Manchester, York, and Leeds; and reach Newcastle on the 1st April, Dundee on the 8th, Glasgow on the 15th, Liverpool on the 22nd, and Nottingham on the 29th, of that month.

Pierre Manguin, 1815-1869.

La Construction Moderne of the 26th inst. has an article upon a charming house still standing in the Champs Élysées, and a reference therein to the Pompeian Villa of the late Prince Napoleon—the work of M. Alfred Normand [*Hon. Corr. M.*]—which no longer graces the Avenue Montaigne. The first, known as the Hôtel de Mme. de Paiva—was it not known also as the Hôtel des quatre nations?—is now in the hands of a “master of the culinary art,” who has made of it, so it is stated, an incomparable restaurant. All the world, therefore, may now dine and *déjeuner* beneath a roof which in Imperial days was permitted to harbour only a world of fashion. But the intention of “Un Architecte,” in sending his contribution to what is now the principal professional journal of Paris, has not been to glorify the great Chief Cubat—“*maître de l'art culinaire*” as aforesaid—but to render tardy justice to the architect and decorator of a beautiful building, completed thirty years ago, and at that time a notable landmark in the most attractive part of the gay Capital. Now, indeed, the knowledge that a *bifteck à la Voltaire*, previously tempered, perhaps, by a soup *Royale* and followed by some delicate morsel on toast *à la République*, may be

obtained for a few francs within the walls of Pierre Manguin's *chef-d'œuvre* will serve to keep his memory green, and tabulate, so to speak, a perennial record of his genius—even beyond the confines of Architecture and the arts. Manguin, says his French critic, gave himself up, in the full maturity of his talent, during five years, to this unique work, making it the type of a rich Parisian dwelling under the Second Empire. He died in 1869.

Parento Cathedral and its Mosaics.

Cav. Giacomo Boni, whose elaborate monograph of Parento Cathedral was reviewed in the *JOURNAL** on its appearance, has recently published a reply to an article by the Rev. Paolo Deperis defending the treatment of the mosaics at Parento Cathedral, which was so vigorously assailed by Cav. Boni as destructive of the authenticity as well as of the artistic value of these interesting remains of the sixth century. † “If,” says Cav. Boni in a striking passage, “instead of removing on cloth and re-arranging the figures discovered on the face of the chancel arch; if, instead of calumniating the sixth-century artists by a new gold background in which the noble characteristics of the old work have been replaced by something which appears to have been done at so much a square yard; if, instead of mutilating the gold background of the mosaics of the apse in order to replace such of the ancient tessera as were displeasing to the restorers, they had set out by respecting so much of the old work as remains to us, the church would have been the gainer, and I should not have had occasion, when I found myself on the scaffold, to express my regret, nor the accomplished architect who accompanied me, and who appeared grieved at what had taken place, have had occasion to beg me not to injure the mosaic-workers, who had promised to do better in the future.” It is to be remembered that this is not the criticism of a foreigner, or of a man unacquainted with the repair of mosaics, but of a Venetian who in many parts of Italy has given signal instances of his ability to deal with this description of decoration.

Prices of Materials in 1775.

Mr. Thomas Harris [F.] has presented a little book, printed 120 years ago for I. Taylor, at the Bible and Crown, near Chancery Lane, Holborn, and entitled *The Builder's Price-Book, containing a correct list of the Prices allowed by the most eminent Surveyors in London, to the several artificers concerned in Building*. Those were days when the general contractor, as he is understood to-day, was unknown; and when, therefore, archi-

* Vol. I. Third Series, p. 650.

† *Il Duomo di Parento ed i suoi mosaici. Estratto dall' Archivio Storico dell' Arte. Anno vii. fasc. v. Rome 1894.*

pects were in more direct communication with the workmen than they are at present. Not the least curious of the items which go to make up this little work is a list of books printed for and sold by I. Taylor. Among them are *The Practical Builder*, by W. Pain, architect and joiner; *A Book of Ornaments in the Palmyrene Taste*, by N. Wallis, architect; *The Modern Joiner* and *The Carpenter's Treasure*, two books by the same N. Wallis; and an essay entitled *Nature, Philosophy, and Art in Friendship*, demonstrating the necessity and practicability of building all manner of houses proof against fire and vermin, &c., by W. Cauty, cabinet maker. These works are not in the Institute Library, and a copy of each, if still to be found, would be extremely welcome.

Additions to the Library.

Essays on the Art of Pheidias, by C. Waldstein [Cambridge University Press]; *Ancient Rome and its Neighbourhood*, by R. Burn [London: G. Bell & Sons]; *Architectural Perspective*, second edition, revised, with additional illustrations (explaining the whole course and operations of the draughtsman in drawing a large house in linear perspective, and illustrated by numerous progressive diagrams, bird's-eye and other views of a house, views of interiors, &c.), by F. O. Ferguson [London: Crosby, Lockwood & Son]; *Cusack's Model Drawing*, a text-book for elementary art students, by Charles Armstrong [City of London Book Depôt]; and *Cusack's Shading*, also a text-book for elementary art students, by Charles Armstrong [City of London Book Depôt], have been received from the publishers. Mr. J. Starkie Gardner has presented his *Ironwork to the End of the Medieval Period*, with fifty-seven illustrations [London: Chapman & Hall]. The Borough Surveyor of Stockport (Mr. John Atkinson) has forwarded his *Fourth Annual Report of the Borough of Stockport*. Three parts of the publication of the *Association pour la Restauration de Saint-Pierre*, Geneva Cathedral, have been received from M. Viollier.

The *Memoirs and Proceedings* of the Manchester Literary and Philosophical Society (vol. ix. No. 1); *Transactions* of the Essex Archæological Society (vol. v. part ii.); *Journal* of the Sanitary Institute (vol. xv. part iv.), containing Papers and Discussions in Section II.—Engineering and Architecture—of the Sanitary Congress held at Liverpool last year; and the *Transactions* of the Surveyors' Institution (vol. xxvii. part iv.) have been received from their respective Societies.

The *Progress Report* of the Archæological Survey of Western India for the months May 1893 to April 1894 has been received from the Superintendent of the Survey.

The following pamphlets have been received from their respective authors: *St. Paul's Cathedral*: How it is being and how it might be

adorned, by Wm. Woodward [A.]; *St. Mary's Church, Hitchin*, by W. Millard [A.]; and *The Hastings Water Supply*, by Thomas Elworthy [F.].

REVIEWS. XX.

(59.)

CLASSICAL ANTIQUITIES.

A Dictionary of Classical Antiquities, Mythology, Religion, Literature, and Art. From the German of Dr. Oskar Seyffert. Revised and edited, with additions, by Henry Nettleship, M.A., and J. E. Sandys, Litt.D. With more than 450 illustrations. Third edition. Large 8o. Lond. 1895. Price 10s. 6d. Presentation copies, 4s. 21s. [Messrs. Swan Sonnenschein & Co., 6 White Hart Street, Paternoster Square, London; Messrs. Macmillan & Co., New York.]

This book owes much to its English editors, not only for the numerous additions they have inserted within brackets, but specially for the new articles contributed by Dr. Sandys, such as that on the Greek vases. If so wide a subject as that of the Greek vases must be confined to a few pages, one could not wish the work better done. He is less successful in his "Toreutic art." The different periods are too much mixed up; nor are the references always correct. The Castellani cista on p. 646 is not in the British Museum as stated, but in the Museum of the Conservatori on the Capitol in Rome. An arrangement of the Bronze Room in the British Museum took place several years ago, but Dr. Sandys sticks to the old order. His "Olympieum" is an admirable summary and statement of the case. His additions to "Theatre" set a vexed question in its newest light. From inscriptions found within recent years he adds the latest information concerning the Edict of Diocletian and Greek Music. "Mosaics" is also a new article by him, but the size of the illustrations has left a quite inadequate space for the text.

As the briefest possible statements on subjects of wide importance, these additions of Dr. Sandys deserve recognition; but they are few in comparison with the large number of articles in this volume, which are about as bad as they could well be. The article on "Gems" is allowed a page and a half of fairly large print, and of this at least a third is occupied by illustrations. How is it possible to give any idea of such a subject in that space? A gem engraver should not be called a "jeweller," nor intaglios "cut" stones. "Architecture," including several large illustrations, extends to nine and a half pages, supplemented by about two and a half pages under "House." That is far too small a space. On p. 57 we are told that the Doric column was "surrounded with semicircular flutings meeting each other at a sharp angle. These were chiselled with a cedar-wood tool after the separate drums had been put together." The effect, if any, which a cedar-wood tool would make on marble could hardly be

called "chiselling." The column of Trajan rises on a quadrangular base, not on a "pediment," this latter word being reserved for a different purpose in architecture. On p. 52 the reference to the temples of Athene at Priene and of Apollo at Miletus read as if these places were in the Greek islands instead of on the mainland of Asia Minor. The description of the Ionic Order is very unsatisfactory, though not all so bad as the last sentence, which runs: "Finally, the cornice is composed of "different parts."

"Sculpture," on the whole, fares somewhat better, and if this is due to the careful revision of Dr. Sandys we must thank him for it. All the same, the space is absurdly inadequate. Why shorten it by introducing, as an illustration of colouring statues, the well-known cut of a Pompeian fresco, where we see a girl copying a marble Term of Bacchus on a panel which rests at her feet? There is not the smallest reason for supposing that she is "engaged in embellishing with paint a terminal "statue of Hermes." For one thing, it is a Bacchus, easily recognisable by the cantharus in his right hand. We are told: "The original sketch in colours lies on the ground, "and she is pausing to examine her work, which "is also watched with interest by two bystanders." But this is pure imagination. She is simply painting a copy of the sculpture. But what shall we say when we are shown a figure of the famous Theseus of the Parthenon (p. 565, fig. 7), and are told that it is from the *west* pediment, and is "also identified as either an Athenian river god " (Ilissus or Cephissus) or Olympus"? That is a jumble between the Theseus of the east pediment such as almost passes comprehension. On p. 566 "Bryacus" should read "Bryaxis."

A. S. MURRAY.

(60.)

THOMAS AND PAUL SANDBY.

Thomas and Paul Sandby, Royal Academicians. Some Account of their Lives and Works. By William Sandby. 8o. Lond. 1892. Price 7s. 6d. [Messrs. Seeley & Co., Limited, Essex Street, Strand, London.]

It must be something like five-and-twenty years since Mr. Sandby published his standard work on the Royal Academy, in which the biographical notices of the members form so marked a feature. These, however, were necessarily so much condensed that a further recognition of the subjects of the present work by their descendant was only natural.

To have claimed anything like pre-eminence for either of the brothers would have been a mistake, and Mr. Sandby has had the good sense to avoid it; but both careers are interesting, not only in themselves, but also as bearing witness once more to the surprising results which our ancestors were able to obtain by means which a properly drilled and educated generation must regard as quite illegiti-

mate. Where did Vanbrugh pick up his architectural knowledge? is a question which has been often put and as often left unanswered; and, as we follow Thomas Sandby's early days, when he accompanied the Duke of Cumberland as "private "secretary and draughtsman" through his Flemish and Scotch campaigns, we find ourselves confronted with a similar difficulty.

Born in 1721, Thomas, who, on his own showing, was quite untaught, seems to have devoted his early years after leaving school to making quasi-architectural sketches of the neighbourhood of Nottingham, his native town; but in 1741, accompanied by his brother, who was four or five years his junior, he moved up to London, where both of them found employment in the old "Map" or "Survey" Office. This was followed in the case of Thomas by the secretaryship already referred to, while Paul, who was then just twenty, was employed after the suppression of the '45 rebellion to assist in the military survey of the new line of road to Fort George.

After Culloden, of which, in humble anticipation of the modern war correspondent, he made a sketch, Thomas Sandby followed his patron to the Continent, and remained there till the Peace of Aix-la-Chapelle in 1748. His work during these stirring years consisted mainly of general views of town and country, as well as of encampments, fortifications, floating bridges, and the furniture of military architecture at large.

Paul meanwhile had been appointed draughtsman to the Survey of the Highlands, and up to 1751 was continuously employed. A large number of sketches, landscape and figure, attest to his industry during this period, but his training, no less than that of his brother, was of that very general kind which needs a large admixture of native talent, intellectual pepsine, so to speak, to ensure its assimilation.

When the Duke of Cumberland succeeded to the Rangership of Windsor Park in 1746, Thomas Sandby stepped into the post of Deputy almost as a matter of course; and, from landscape gardening, which included among other things the laying out of Virginia Water, the designing of the ruined temples, and so forth, passed almost at once to his first genuinely architectural work in the rebuilding of the Great Lodge.

A comfortable practice was now assured, and when, in December 1768, the "Royal Academy of "Arts in London" was founded, he and his brother figured among the forty original members. Two years later also he received the first appointment to the Chair of Architecture, from which he delivered a series of lectures, which, besides evidencing care and thoroughness, were agreeably diversified by fragments of original verse.

Capable rather than brilliant, a friend rather than a comrade, Thomas suffers by contrast with the engaging personality of the younger man.

In Paul the more solid qualities of the elder were allied to a versatility of talent and a sunniness of disposition, which the dusts of a century have not obscured.

That so kindly a man should have been the predecessor, if not the master, of Gillray in the field of caricature is perhaps odd, but then he was something of a partisan, and his duel to the pencil point with Hogarth ended abruptly when the latter exhibited his "Mariage à la Mode." "Such a man," observed his generous antagonist, "should not be made the subject of ridicule or burlesque," and thereupon he withdrew from circulation all the prints of his caricatures. This is a characteristic touch.

But his chief title to fame is his water-colour work. Here he was a veritable pioneer, and the gratitude of nations is his due as having done something towards forming Turner. His activities were multifarious—oils, water-colours, aquatint engraving; and in every case he experimented with all the hardihood of his President, and with fewer calamities. The portraits of the brothers in this volume bear every mark of being true to life; at least they are typical of their characters, more so, perhaps, than their heads as they appear in Zoffany's picture of the "Life School at the Royal Academy," hanging at this moment in the large room at Burlington House.

This little book makes no pretensions. It does not take a strictly biographical form, because the materials were insufficient, but it serves the pious purpose of its writer fully and satisfactorily.

Might I, in conclusion, call Mr. Sandby's attention to the dates on page 177? When James Smith wrote—

My brother Jack was nine in May,
And I was eight on New Year's Day!

the critics held up their hands aghast. What would have been their feelings in the present instance?

ARTHUR EDMUND STREET.

(61.)

MURRAY'S HANDBOOK OF ROME.

A Handbook of Rome and its Environs. Fifteenth Edition. Carefully revised on the spot. With more than Fifty Plans and Maps of the City and Environs. Classical Antiquities, edited by Prof. Rodolfo Lanciani, D.C.L. Univ. of Oxford. Sculpture Galleries, edited by A. S. Murray, LL.D., D.C.L., Keeper of Greek and Roman Antiquities in the British Museum. Picture Galleries, edited by the late Rt. Hon. Sir Austen Henry Layard, G.C.B., D.C.L., Trustee of the National Gallery, &c. Mediæval Antiquities, edited by the Rev. H. W. Pullen. General Editor, the Rev. H. W. Pullen. 8o. Lond. 1894. Price 10s. [Mr. John Murray, Albemarle Street, London.]

The new edition of Murray's *Handbook of Rome* will be found a valuable companion to the ordinary traveller or student. It is a volume of 596 pages, but printed, as it is, on specially thin paper it is by no means bulky. A careful perusal

of its contents proves it to contain what is most required of such a book, minute historical or technical information, of course, being outside its province. For the ordinary traveller, whose time is limited, it is of the utmost importance that he have what help is possible arranged in the most convenient form. In this latest edition of the *Handbook*, which is the outcome of all previous editions, and perhaps of other similar publications, we have an excellent cicerone, useful alike to the ignorant and to the enlightened traveller. It contains quotations from Professor Middleton's book upon Roman construction, and is revised by Professor Lanciani, Dr. A. S. Murray, the late Sir Henry Layard, and the Rev. Mr. Pullen.

Perhaps nowhere is a well-arranged guide more needed than in Rome, which, although it possesses magnificent examples of architecture, painting, and sculpture, contains thousands of worthless examples which have a reputation of their own in spite of their worthlessness. The student has rarely time enough to find out for himself what is best worth seeing, and if he has to see all the treasures of Rome in six weeks, or, worse still, in six days (and this is not a rare case), it behoves him not only to prepare himself before his visit, but when there to possess the very best guide-book obtainable. A large mass of important information is here collected and well arranged. The index, however, so important in such works, contains under letter L no mention of the Lateran, but we find it by turning to letter C under churches, and remembering that San Giovanni in Laterano is its correct name. Of course everyone who has travelled at all knows the Italian name of this church, and that St. Peter's is San Pietro in Vaticano: but since the work aims at being a popular guide, it might have been well to include such familiar English names as these, and even repeat them under their own letters. Experience proves that an index cannot be too ample. With the same consideration for the comfort and convenience of travellers, it would have saved disappointment to some if, under the description of San Lorenzo, when mentioning the cloisters, which are described as beautiful and very interesting, it were added that ladies can only visit them by a special *permesso* from the Pope.

The book appears to be carefully revised, and, in fact, is largely re-written, recent discoveries at the Pantheon being noted. It is only by frequent revision that a guide-book can remain of service, as all know who find that the numbers in a picture gallery have just been re-arranged (a frequent occurrence in Italy), or that recent excavations have upset former theories.

Some objects of minor interest have given place to more worthy topics in the new edition, and another important feature is the introduction of a glossary, which cannot but prove of value to the tourist who is not well acquainted with the arts

or church history. The architectural portion of it, however, is very scanty, and some of the meanings are ambiguous or incorrect. For example, "archi-trave" is said to be "literally an arch-beam, *i.e.* a beam fulfilling the purposes of an arch"—an imperfect derivation; and "entablature" is described as "a triple horizontal line above a row of columns," &c. The glossary is scarcely worthy of the very excellent work to which it is attached.

ALFRED H. HART.

NOTES, QUERIES, AND REPLIES.

THE LOGIC OF LINES [p. 147].

Meyer's "Handbook of Ornament": English Translation revised by Mr. Stannus.

An unfortunate mistake occurred in the Review, printed at p. 147, of *A Handbook of Ornament* by Franz Sales Meyer, an English translation of which was published by Mr. Batsford in 1893, and a second edition of which translation, revised by Mr. H. Stannus [*F.*], was issued by the same publisher last year. The reviewer, who possessed the first English edition and knew it well, was unaware that the copy presented to the Institute was a second and revised edition; while the Editor of the JOURNAL believed that the reviewer's copy was of the same edition as that in the Editor's hands. Hence the discrepancy between the review by Mr. Paul Waterhouse of the *first* edition of Herr Meyer's book and the descriptive title of the *second* edition which headed it, and which was inserted independently of the reviewer. The matter, perhaps, will be more clearly understood by a perusal of the following communications:—

From HUGH STANNUS [*F.*]—

I have read the notice of what is stated to be the second edition of Meyer's *Handbook of Ornament*. Everything that Mr. Paul Waterhouse writes is interesting; and, if it had been given on the work he mentions, his criticism would have been useful. His remarks, however—so far as they have any reference to Herr Meyer's book—are based on the *first* edition (which was translated in Germany), and not on my revision. This may be seen from the Terms, with which he finds fault, which were all, *without exception*, corrected by me in the second (revised) edition with my name, the title of which was placed at the commencement of his article.

From PAUL WATERHOUSE [*A.*], M.A.Oxon.—

Since writing the review of Meyer's *Handbook of Ornament* which was printed in the JOURNAL of the 3rd Jan., my attention has been drawn to the fact that the copy from which I wrote the review was an impression of the first English edition, and that my remarks were therefore in a great measure inapplicable to the volume set forth in the title at the head of my review. I should

be glad to have this acknowledgment printed; first and especially because, in my ignorance of the new edition, I ignored also Mr. Stannus and his connection with the work; and secondly, because I find, on looking through the new issue of the work, that Mr. Stannus has himself observed and corrected those faults of nomenclature upon which I had laid my finger. In his own language he has undertaken "to revise the terminology," and the result is a clear gain in lucidity and in propriety of classification.

The new title of Division II., "Ornament applied to Features," is certainly a great improvement, and removes the logical blemish implied in the previous heading.

May I be allowed, while offering Mr. Stannus my congratulations on his successful improvements, to tender him my personal apology for the inadvertence?

THOMAS SANDBY, R.A.

His Lectures on Architecture, 1770-1794.

Among the curiosities of the Institute Library, and there are many, is the original MS. of six lectures delivered annually for a period of twenty-four years at the Royal Academy by Thomas Sandby, the first occupant of its Chair of Architecture. He was also one of the Academicians nominated by George III. in December 1768, on the 10th of which month had been founded the "Royal Academy of Arts in London, for the purpose of cultivating and improving the Arts of Painting, Sculpture, and Architecture." This was done in accordance with the terms of an "Instrument" prepared by Sir William Chambers and approved by the King, who wrote at the foot: "I approve of this plan; let it be put into execution." But Mr. William Sandby, a descendant of the Professor, and author of the work reviewed by Mr. A. E. Street [*F.*] [page 221], shall continue the tale in his own words:—

Besides the President and officers, there were to be certain professors, each to deliver six lectures annually (receiving thirty pounds a year), and to continue in office during the King's pleasure. Thomas Sandby was elected by ballot, when thirty members were present, to fill the Chair of Architecture, a post which he retained until his death. The six lectures were, as laid down in the Instrument, to be "calculated to form the taste of the students, and to instruct them in the laws and principles of composition, to point out to them the beauties or faults of celebrated productions, to fit them for an unprejudiced study of books, and for a critical examination of structures."

In his first lecture, delivered on Monday, 8th October 1770, he gave a brief general history of the rise and progress of architecture, and enumerated its attendant sciences, together with instructions for their study and practice. In the second, he treated of the different Orders, and explained their component parts; next, he turned from the Grecian Orders to those extraneous modes of building adopted by other nations at different periods in India and China, and the mixed architecture of the fifteenth and sixteenth centuries. In the fifth and sixth lectures he referred to the modern uses of the art, offering suggestions as to

the choice of the situation in building both town and country houses, the precautions to be observed in laying the foundations, the distribution of plans, and the application of decorations, illustrating his suggestions by plans of Lord Burlington's house at Chiswick and of Holkham, and by others of his own design. In his last lecture he dwelt chiefly on the value of symmetry in a building—the succession and uniformity of parts—of character, or expression suited to its destination, and the qualities which are calculated to impress the mind with a sense of grandeur or infinity in large public buildings of great magnificence. The lecture was illustrated by some forty drawings of ancient and modern mansions, temples, theatres, and public buildings, and he introduced towards its close, when speaking of bridges, those designs for “a bridge of magnificence” which attracted so much attention at the time for their novelty and beauty, but which, he stated, were “not made with any idea of being carried into execution, “having been composed expressly to illustrate his lecture.”

He continued to deliver these lectures annually, varying and enlarging them from time to time as occasion required, and copiously illustrating them by his own drawings. They were never published, but the original manuscript was presented by John Britton, F.S.A., to the Library of the Royal Institute of British Architects.

John Britton, in his letter, dated 6th November 1849, to J. J. Scoles, then Hon. Secretary, states that he thinks the Sandby Lectures were given to him “by John Saunders, architect, more than “twenty years ago. . . . They are curious of (*sic*) “shewing the crude and illiterate manner of the “writer—I heard him lecture, as I did Edwards, “on Perspective.” Accompanying Britton's letter is the following MS. account of the Professor's career:—

Mr. Thomas Sandby, the writer of the preceding lectures, was born in the year 1721, and received the rudiments of his education as an artist at the Drawing School in the Tower. He was afterwards private secretary and draughtsman to William, Duke of Cumberland, and in that capacity was present at the battle of Culloden, of which he made several plans. On his return to England, in 1746, His Royal Highness was appointed Ranger of Windsor Great Park, and nominated Mr. Thomas Sandby to the office of Deputy Ranger, an appointment which he held for upwards of fifty-two years. In 1768, on the institution of the Royal Academy, he was elected one of the first members, and also Professor of Architecture, the duties of which office he continued to discharge till his death in 1798.

He exhibited some few of his drawings at the Royal Academy, but was principally occupied as architect to the Woods and Forests, in planning the works undertaken by George the Third at Windsor. His designs for the construction of the Virginia Water were much more extensive and elaborate than those carried into execution. He published a series of eight views of the alterations actually made, which were dedicated to the Duke of Cumberland—also six views in London, and some others. He was the architect of Freemasons' Hall in Lincoln's Inn Fields and several noblemen's mansions, but can scarcely be said to have entered actively into the common duties of his profession, having lived a quiet and retired life at his lodge at Windsor, where he was greatly beloved by the inhabitants, and much noticed by the King.

Perhaps a quotation or two from the peroration of Thomas Sandby's six quarter-of-a-century lectures may not be uninteresting even at the present time, especially as the opinion and advice tendered

emanate from one whom a famous antiquary who sat at his feet has dubbed “illiterate.” Take the following, for instance:—Nature must give genius. She must give a clear and strong judgment; a fertile, expanded, and inventive imagination. She must give the elements of an accurate, delicate, and manly taste. But all these natural endowments must be improved; they must be brought to maturity, to their utmost energy and splendour, by our unremitting attention and indefatigable exertion. . . . Proficiency in any art is not to be obtained, or expected, from the hand of indolence; nor can it be intuitively acquired. Yet we sometimes meet with those who have the vanity to think that they are to shine by inspiration!

Here, indeed, is a refutation anticipated of the almost classical utterance of a great Cook—*On nait rôtisseur*. According to the dictum of Thomas Sandby, pronounced a hundred years ago, it is not enough to be born an artist. That is an undoubted advantage to its owner or inheritor, but one likely to be of little use to him without hard study and diligent application, carefully tested by progressive examination.

French Architectural Education [p. 185].

FROM EDWARD FALKENER—

I have read the account of M. Chedanne's drawings in the *JOURNAL* with the greatest interest, and I confess with considerable astonishment. It is no wonder, indeed, that the French possess such architects when one reads afterwards the article on French architectural education; for this explains how they produce not only M. Chedanne, but a host of other men equally skilful. Indeed, the account of their scientific and practical education fills me with greater wonder than the evidences of it which are shown by the skill and labour of one of their artists. Here we see cause and effect. What a difference it would have made had an architect of such training been sent out to Halicarnassus, Xanthus, the Temple of Diana at Ephesus, and other places! But we are fortunate in having had a Penrose for Athens. Something might be done, perhaps, by the Institute consulting with the Royal Academy on the subject. I received the gold medal myself for a *plan*, but I got no training as an architect.

South Shields and the Roman Wall.

FROM JOSEPH OSWALD [*F.*]—

May I point out an error in the Note by Mr. Wm. Simpson on “The Classical Influence in the “Architecture of the Indus Region,” on p. 190 of the *JOURNAL*? The title under the illustration bears the misleading statement that South Shields is on the line of the Roman wall. South Shields is situated on the coast at the mouth of the Tyne and on the south side of the river. The Roman wall is on the north side of the river, and its eastern end is at Wallsend, four to five miles inland.



MINUTES. VII.

At the Seventh General Meeting (Ordinary) of the Session, held on Monday, 28th January 1895, at 8 p.m., Mr. Aston Webb, F.S.A., *Vice-President*, in the Chair, with 18 Fellows (including 7 members of the Council), 15 Associates (including 1 member of the Council), and 8 visitors, the Minutes of the Meeting held 14th January 1895 [p. 192] were taken as read and signed as correct.

The Secretary announced the decease of Edward Graham Paley, of Lancaster, *Fellow*.

The Chairman announced that, by a resolution of the Council passed on the 14th inst., William Edward Jones, *Fellow*, of Liverpool Chambers, Corn Street, Bristol, was expelled from membership of the Institute.

A Paper by Mr. J. A. Strahan, M.A., LL.B., Barrister-at-Law, entitled THE LEGAL POSITION OF ARCHITECTS IN RELATION TO CERTIFICATES AND AWARDS, having been read by the Author and discussed, a Vote of Thanks was passed to him by acclamation; and the Meeting separated at 10 p.m.

PROCEEDINGS OF ALLIED SOCIETIES.

BIRMINGHAM.

Architectural Education. By Edward R. Taylor, Head Master of the Birmingham Municipal School of Art.

Read before the Birmingham Architectural Association, 11th Jan. 1895.

As bearing somewhat on the subject I have been asked to introduce, I would first refer to two or three points in Mr. Henman's Presidential Address [p. 34]. He has suggested a means for the art education of our citizens which it would be wise to adopt in the future—whether the near or distant future depends on the present generation of architects; but not at present, as the "style of the period" does not as yet appear with sufficient clearness and distinctness in English architecture, though I venture to think there are signs of this desirable evolution in some American architecture. When this "style of the period" has been evolved, our students would receive a most valuable course of lessons by being conducted over the city on each occasion by "a man of taste" (another name, of course, for an architect), "and taught to appreciate the "good in architecture." At present I am afraid that these lessons by different men of taste would not be harmonised even by a concordance, and that they might be agreed in their verdict as to two buildings only—the old and new Post Offices. It is proposed to substitute these most agreeable out-of-door lessons for others which are already ancient history. Time was when any dirty, unventilated rooms were considered good enough for a school of art, and when art studies were too formal and mechanical; and pride in the means was substituted for the end, just as architectural drawings often take the place of architec-

ture. But these times have long passed away; and, further, "the puerile productions" which, by the cruel kindness of the directors of our picture exhibitions, are allowed to be displayed are mostly the work of those who are too weak to endure the discipline of an art training, and seek a royal road, instead of being the productions of schools of art.

The work and thought given by architects in successful practice to this and similar Associations throughout the country are most convincing proofs of the disinterested desire on their part to further the education of the young architect, and, by giving to him advantages they did not possess, thus raise the status of their craft. Such efforts should meet with unanimous response. The recognition of these advantages has of late increased largely, but is still not universal, and it has occurred to me, looking as an outsider, or rather privileged honorary member only of this Association, that possibly some little things may be in the way. A small stone may stop powerful and well-designed machinery. That the recent discussion "Is Architecture an Art or a Profession?" should have been possible shows that there are even larger impediments in the way of unity of purpose and aim. Our President disposes of this discussion by saying that "to some it is an art; to others it is a profession." With all humility I cannot accept this. Architecture to be a profession must be an art—nay, more, an art craft. Some have tried dividing the architect by means of a joint partnership in which one is the professor doing the planning, and the other is the artist doing the elevation. King Solomon did not purpose to divide the child between the two women who each claimed to be its mother; and you cannot so divide your work except by killing the architecture. The mind which conceives the planning must design the elevation. He may be helped as to what is to be provided for in the planning by a specialist and others, but the evolution of the design cannot be divided. Architects have to grapple with another separation question, which will task all their powers, namely, iron interiors and stone or brick fronts.

If in dealing with the training of an architect—a subject selected for me by your Honorary Secretary—I am too dogmatic and inquisitive, I must plead that, while accepting an ideal pupilage as the best system of training, if the actual falls far short of the ideal it endangers its continuance. First, as to the admission to pupilage. The candidate, as defined by The Royal Institute of British Architects, should possess good powers of observation, facility of composition, lucidity in the expression of ideas, a knowledge of arithmetic, algebra and Euclid, and their application to mechanics and physics; be conversant with the geography of Europe and the history of England, including its architecture; have a knowledge of French, geometry, and perspective, and be able to draw with rapidity and precision from the cast (of ornament, I presume) and the antique, and to sketch rapidly. All this is the *minimum* qualification; and "proficiency should be attained by the applicant before entering an architect's office." All this I am quoting. In other words, the architect is required to see that the intending pupil has good general capacity, and some special training, before he is bound to his master's service and the premium paid. Is this standard required generally? If not, a danger to the profession is created and a cruelty is inflicted, for many enter who can never hope to grasp its work, who find after a little time that the struggle is hopeless to them, and to whom striving then becomes impossible. Their life's prospects are blighted, or they become charlatans. Such cases are most melancholy, for one feels that if they had been honestly dealt with, they might have succeeded in a less exacting profession or occupation. To raise the quality of the material is surely an effort worthy the attention of your Society, for these cases are numerous.

The training received in the office during pupilage appears to be most unequal. We know how religiously this duty is performed by some, extending, as we think it should, to the supervision of the studies which have to be undertaken out of office hours; but many pupils are not so fortunate. Years ago it was the custom, and it may still survive in a few instances, for the pupil to live with his master, the latter taking the parent's place for the time; and this seems the ideal condition. The apprentice system can be made most full and complete in an architect's office, if anywhere, for it is not hindered by the minute subdivision of labour which too generally prevails. I have known a pupil in an important office who has been mainly employed in tracing and taking out quantities, and who, at the end of his apprenticeship, had not the slightest knowledge of geometry or perspective, could not draw as well as the average child of twelve years of age, and as to design or an acquaintance with historic styles, his mind was a perfect blank. Nor was this for lack of natural ability. This is an extreme case; but there are too many cases in which pupils are not, in the words of their indenture, "instructed in the art, business, or profession of an architect by the best means in their power" by the principals. I venture to think that every opportunity should be given, as return for the premium and free service, for learning all that can be taught in the office; and, further, that the principal is responsible to the guardian for the pupil's due progress in that far too large group of studies which have to be pursued out of office hours. The Examinations of the Institute are declared to be the minimum qualification for an architect, and the principal, equally with the pupil, should feel himself responsible that this standard should be more generally reached.

This Association is nobly doing all it can; but this should not lessen the individual responsibility of every architect who takes pupils. Touching this point, I venture to think that too much importance is attached to the making of architectural drawings, and even of picturesque sketches—the former with marvellous mechanical skill, and the latter possessing little more than clever, but almost useless, sketchiness; and that in attaining this kind of proficiency, and especially this mechanical skill, is occupied the time which should be devoted to more educational work. These things are only the means to the end—the making of architecture; but they are too often elevated to the end; and the doing of them is made the main craft taught to the pupil.

In common with most other professions, much difficulty is experienced by the young architect in making his powers known to clients and to the older members of the profession. I should have thought that some use would have been made of the exhibitions of the Royal Birmingham Society of Artists—not for the display of designs for cathedrals or municipal halls, for ever, perhaps, to remain as dreams, nor even principally of designs for buildings, but of designs for those minor subjects, the enrichments of architecture, the study of which, according to THE R.I.B.A. CALENDAR, should precede the designing of buildings. The improvements of late years in the arts allied to, or rather dependent upon, architecture have been largely effected by architects, who have thus shown to the pupil the nature and standard of this work, and the possibilities of individual personal style. Are we to conclude that the architect's pupil practises none of these things—has nothing to show?

An alternative method for securing this publicity was explained in one Presidential Address, a large portion being occupied by advocating the cultivation of the Mammon of unrighteousness, the nursing of social influence so as to secure the work dispensed, considerations of fitness taking, at least, a second place. Merchants and manufacturers have been known to whisper that it is best to tender for Government contracts on gilt-edged paper; a

certain class of portrait painters have, I am told, to adopt measures most repugnant to secure commissions, and some portrait sculptors have to sink lower still; but it is left to architects to raise these things to an art by openly advocating their necessity.

Since last I had the honour of addressing you, the Examinations of the Institute have been made more thorough and comprehensive; and, as they are now graded into Preliminary, Intermediate, and Final, covering the whole of the student's career, they more than ever shape his studies, and *practically limit them*. If, therefore, any essentials are not included in these examinations, they will generally be neglected by the student for want of time, or because they are considered unimportant.

1. The Preliminary Examination is in too many cases allowed to be omitted. 2. There is no examination in the drawing or modelling from nature of plants animals, or the human figure. Thus the only inspiration at first hand for all design, as shown in the history of all ages, is neglected. 3. The examination in design only appears in the Final, when the student has passed through his pupilage; and this consists of one design for a building. The effect of this omission of any examination in real art study, and of any in design during his pupilage, is that the student neglects these primary essentials, and fails to gain the power to gather materials, and to develop his faculty of assimilation. He suddenly, and without any real preparation, begins to design buildings which can, therefore, only be the second-hand serving up of old styles, and on which he is powerless to impress the individual art expression and unity necessary to make his buildings architecture. These things are of the spirit; all the rest is as the grammar. The learning of the grammar, also, is made almost, if not quite, impossible through lack of these primary studies. Great importance is rightly given to the study of historic style, especially so when the knowledge can be acquired by means of the incisive teaching of Mr. Bidlake in his lectures at the School of Art, and also by careful (not sketchy) drawing directly from architectural examples; but I venture to think that these lectures and studies are wasted, so far as concerns their special use in architecture, unless these primary powers are in a healthy state of development; for otherwise there is no common language between you and your teacher. When he is describing unity, proportion, and beauty of line, mass, and colour in his lectures on composition, the sound *only* reaches you, but his meaning is not felt; and, for the same reason, when he is describing the beauty of old work, its fitness, its growth, its harmony, and the quiet play of human fancy, all these are hidden from you, and his labour is in vain. Even to see men as trees walking, you must retrace your steps, and learn to see and express the beauty of simpler forms before you can grasp the more complex beauties which go to make architecture.

In my early experience of architectural pupils, they were the best types of art students. Beginning with these essentials in their first years, they continued adding to their strength. Too often now the architectural pupil never comes from behind the armour of his T-square, set square and large drawing-board; and it was much worse a few years ago. When last I had the honour of addressing you, an improvement was perceptible; but, still, most of the pupils remained outside the pale of the real work of the school, and were mere engineers' draughtsmen without the practical insight of the engineer. At the present time a fair number, especially among the younger pupils, thanks largely to the co-operation of your Society, are taking seriously to the school curriculum, and are learning the elements of drawing and design (including modelling), so that they may be prepared to understand and benefit by Mr. Bidlake's lectures and practice. But these are still in the minority of arted pupils.

I have brought some examples of one portion of this

elementary work. They are exercises in design on a given theme, the subject being announced and each design completed within two hours. Some are by very elementary students, who lack much of the technical training possessed by most of our architectural students, but who are attending a course of lectures on the elements of design common to all art, before taking up each one his own speciality.

In conclusion, I would ask, on behalf of the pupils, that some approximation be made to the minimum standard fixed by the Institute for the admission of articulated pupils, and that a small portion of each week in office hours be devoted to elementary art studies either in the School of Art or in the office; while from the pupils I would ask that they satisfy their conscience that no week passes without the adding to their grasp of these primary essentials. This Association might perhaps also consider the question of the inclusion of these subjects in the Examinations of the Institute.

The Preparation of Drawings for the R.I.B.A. Prizes and Studentships. By Horace R. Appelbee.

Read before the Birmingham Architectural Association, 25th Jan. 1895.

The object of this Paper to-night is to call your attention to the very valuable series of prizes offered every year by the Institute, consisting of a number of gold and silver medals and certificates and over £300 in money, most of this latter, however, being in the form of Travelling Studentships; and, further, to try and give some idea of the kind and amount of work that is required from competitors in order to ensure success. The prizes that may be looked forward to year after year are eight in number, and more are sometimes added. Two, the SOANE MEDALLION and TITE PRIZE, are for designs, the subjects being fixed by the Institute. These two, perhaps, draw the bulk of the competitors. Two others, THE MEASURED DRAWINGS MEDAL and the PUGIN TRAVELLING STUDENTSHIP, are to encourage the careful study of old work. Another, the GODWIN BURSARY, is to promote the study of modern work abroad. Those much interested in the study of ornament and colour decoration (and who is not?) should enter for the OWEN JONES STUDENTSHIP, while the GRISSELL GOLD MEDAL is given to encourage the study of construction. Last, but by no means least, the Institute gives a silver medal and 25 guineas for an essay on a specified subject, and thus encourages those of a literary turn.

All these medals and certificates are accompanied by sums of money, varying from Ten Guineas with the silver medal for measured drawings, to £100 (subject to the conditions of travel) with the Soane Medallion.

Every architectural student should, sooner or later, enter for one or more of these competitions. Everyone has a chance, often better than he supposes. The provincial man has quite as good a chance as the Londoner. For instance, in London the Royal Academy draws many of the clever men, whose time there is so taken up in competing for the splendid prizes offered that they have not time to enter for these as well. This, of course, gives to the others more chance. Even if not successful, the information gained during the preparation of the drawings, if they have been thoroughly well done, is ample reward for the trouble taken. This is not said because it is a proper and encouraging remark to make, but because I am convinced of its truth from my own personal experience. I have several times entered the competitions, and always unsuccessfully; yet I can assure you I regard the time spent on them as of the greatest possible benefit. On each of these occasions there was much information to be looked up with regard to the requirements and best form of plan for the particular building, and specimens of the style of architecture selected to be studied, either from books or from actual examples.

It may be interesting if I relate how a friend of mine

set to work to prepare a set of drawings for the SOANE. The subject was a "Gentleman's Country House." First, he studied various authorities on house planning, a subject on which, of course, he had some knowledge, but on which he discovered he had still much to learn. Then the general character of the house began to force itself on his mind. Was it to be picturesqueness pure and simple—such as might be obtained by varied outline, stone mullioned windows, timber framing, or the like—or the heavy Georgian work with its great classic columns two or three storeys high? Even more, he wanted the house to express itself as essentially modern—plate-glass and sash windows, and all the other conveniences modern ingenuity has devised. The style of Francis the First of France suggested itself as a good basis to work on—not to be slavishly followed, but as a basis of modern work. The detail is rich and refined, the outline picturesque, with its big steep roofs, and yet a certain amount of symmetrical planning was required, in the main part at all events, which gave the whole the dignity that was wanted.

In order to study the style better our friend spent his summer holiday on the banks of the Loire, where such *châteaux* abound. On the return many sketches were made, and friends asked to criticise. Soon the final drawings were started. Plans of two floors only were required, two sections and one elevation, all to $\frac{1}{2}$ -in. scale. Of course, for such a subject as this, studies would be made of all the fronts; one other, indeed, in addition to that drawn out carefully would be required for the perspective view, which was required to a good large size. And, in addition to the above, a sheet of $\frac{3}{4}$ -in. scale details was wanted. These drawings did not win, in spite of all this trouble; but it is only fair to add, in order not to discourage you, that the competitor never finished his drawings, and actually did not send in either detail or perspective, and by this put himself outside the conditions of the competition. He does not, I know, regret the trouble taken; for the information gained has stood him in good stead many a time since.

Many of the drawings have a further history after they have competed for these prizes. Many of them (perspectives at all events) appear at the following year's Royal Academy. The elevation of the house just mentioned is a case in point. For the SOANE it was a black and white outline drawing. For two years it hung on a wall unprotected in any way, when it occurred to its author to clean and colour it. It was sent in and hung. Many will be of use as evidences of study in the different stages of the Institute Examinations. This further use made of drawings brings me to another suggestion, viz. that there is nothing to prevent any given student winning several, if not all, of the prizes in succession, provided he takes them in a suitable order, when the information gained one year will serve to assist next year's work. One way might be as follows: By the time a man is two or three and twenty he should have accumulated a good store of sketches and measured drawings of old work. These, or at least the pick of them, may be submitted to the Royal Institute of British Architects in competition for the PUGIN STUDENTSHIP. For this purpose they should be mounted on strainers, not more than six in number, each sketch signed or initialed and delivered about 23rd December. It is possible they will not score. If they do not the student will have learned that *quality* rather than quantity is desired. If he be wise he will try again next year. During the interval he will add some careful, painstaking work, perhaps a screen or some part of a church, fully measured and drawn to a large scale, with mouldings and other similar details full size; and this, together with the best part of his former work, will probably bring him better luck—most likely the STUDENTSHIP itself, together with £40, on condition that he takes a holiday for eight weeks and studies the mediæval architecture of some dis-

trict of the United Kingdom. It is hardly necessary to point out that the £40—i.e. £5 a week—ought to pay all the student's expenses and leave a little sum for photographs and the like. On his return he must deliver to the Council a paper, illustrated by sketches, descriptive of his tour, and his measured drawings and sketches. When the same are approved by them he will receive the £40 and silver medal.

In the particulars issued by the Institute with regard to this competition, the Council state that "they attach special importance to untouched perspective sketches "done on the spot; and in regard to measured drawings "to those subjects which require some freehand drawing," and that "the attention of candidates should be directed "to mediæval rather than classic subjects."

Our imaginary student in his next year may try his hand in the SOANE MEDALLION COMPETITION, the largest and most useful of all. The subject of the design is announced in a little pamphlet published about the end of February or beginning of March. The work required of the student is very considerable, and he cannot begin the preliminary work too soon, or he may have to give up either his chance of being first, or his berth in his office for some weeks at the end. In March, next Christmas seems a long way off, but with a "big job" like this to occupy one's leisure it comes all too soon.

If the subject should happen to be a church or college, or a building for which the Gothic style is suitable, work done as Pugin Student will be of immense value. If he considers a Renaissance style more suitable, he must work that up if he has not it already at his fingers' ends. Let him study it whenever opportunity arises from books, or, better still, the actual buildings. It would be well to devote the annual summer holiday, or, at least, part of it, to the purpose. Probably during the year he would have done, in any case almost, if not quite, as much sketching and study on various subjects, but by competing for the prizes the study will be more systematic, and more likely to achieve a definite result.

The geometrical drawings have to be in outline, the openings and sectional parts alone tinted in monochrome or hatched. Usually they are drawn in Indian ink, which is undoubtedly best, but occasionally one sees a sensational set in blood-red or the like. One word as to the ink used. Let it be the good old-fashioned stick ink of the best quality; nothing that I know equals it for our work. The prepared liquid ink is useful when in a hurry, but these drawings should not be hurried. Again, strained paper is not a luxury. As the scheme has been well threshed out, and the elevations carefully studied before the final drawings are commenced, it will be found that not many boards are required. The perspective may be finished as the competitor pleases. Bear in mind that it is one of the drawings you intend to send to next year's Royal Academy.

If our student is first he will at once receive the Medallion, and will have to make satisfactory arrangements for going abroad for not less than six months to pursue his architectural studies. £50 will be paid him when he leaves England, and the other £50 after his return, on submitting satisfactory evidence of his studies abroad in the shape of measured drawings and sketches. As to the design, if you really desire to obtain the prize, and not merely exhibit your skill as a designer, be practical. By this I do not mean you are to consider the cost, and details like that, but let the building be such that if anyone chose to erect it in this country he would get something suitable for his purpose. For example, suppose a principal part of the scheme to be picture galleries on the upper floor of a public building. For these galleries, the first essential is their proper lighting; do not, therefore, have a great tower, however beautiful it may be in itself, or other high architectural features, to cast shadows, or throw varied reflected lights all over your picture walls.

With regard to the elevations, let the architecture be appropriate to the subject. Take, for instance, the garden pavilion set for the TITE this year. It suggests to me something long and low, a cosy lounging-place rather than anything monumental. In fact, a mere adjunct to the house. One is tempted to ask on what sort of a scale the house could be designed that would not be overpowered by some of the designs sent in. It must have been a royal palace at the least. But perhaps that is what was intended. The student having gained the SOANE is not compelled to start on his tour immediately. Often this would be very inconvenient. He has two years allowed in which to make his arrangements. Let him wait a year, and, if possible, win the TITE as well. If he fail he can start on his SOANE tour after. If he win, he can combine the two tours, and save himself the cost of the journey to and from Italy. This alone would pay for his staying there two or three extra weeks, and make his tour about eight months.

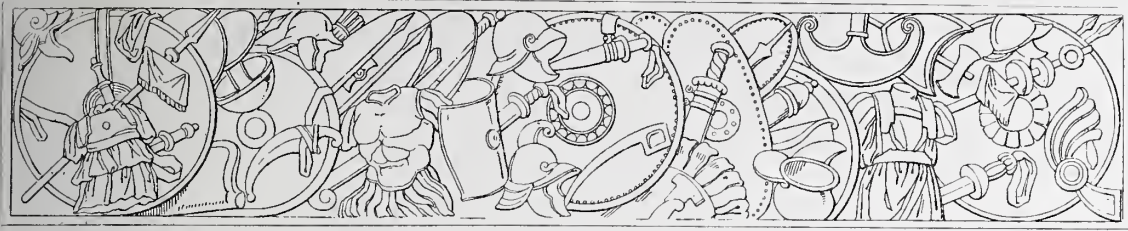
The work for the TITE demands careful study of a special phase of Renaissance work, English or Italian, and full knowledge of the style counts for much more, therefore, than with the SOANE, where the style is at the candidate's option; and in order to go into it thoroughly there can be no better way than to go and sketch and measure up some suitable old example of the work of Wren or Inigo Jones.

For time the summer holiday might serve (take it early on purpose), or if the example selected be near at home many opportunities may be found.

This part of the work may even win its own reward from the Institute if it is very well done. Measure it thoroughly and draw it out very carefully, and send it in for the MEASURED DRAWINGS medal the same year that you go in for the TITE, if you can find time; if not, keep it till the one following, which will give time to properly complete it.

This suggests another light on the work for the SOANE. If in the student's opinion the Gothic work studied as Pugin Student was not suitable as the basis of a Soane design, let him at once, as a matter of policy, study the works of Wren or Jones, and by thus working systematically he stands the very best chance of carrying off the three prizes (SOANE, TITE, and MEASURED DRAWINGS) in two years. With the total proceeds he can extend his grand tour to about nine months; and, moreover, by so working he does not cut up his daily office work, which most could not afford to do. The travelling costs of his tour are minimised, and thus he could remain away longer at the same total expense. On his return he may publish his sketches, as Mr. Prentice (*Soane Medallist*) has recently done, or Mr. Norman Shaw and others in times past. Or it may be that the glowing colour of foreign lands, both in architecture and in nature, may have captivated him, and on his return he may submit specimens of his studies of ornament and colour decoration in competition for the OWEN JONES STUDENTSHIP. But rather let us hope that, having won so much already, he may "leave the others a "chance."

I shall not keep you longer for further details of the Institute prizes, but shall refer you to the little pamphlet beforementioned, in which you will find all the general conditions relating to date of sending in work, limits of age of competitors, mottoes, strainers, and the like, and also full particulars of each of the competitions individually; and under each of these a list of all the successful competitors since they were founded. Many of these are now very well-known men; but this fact should not discourage you, but the contrary. Their first appearance as "well-known men" probably began with many in the places they won in the Students' Competitions conducted by the Royal Institute of British Architects. May similar success await many of you here to-night!



THE VALUE OF SIMPLICITY IN ARCHITECTURE.

I. By HALSEY R. RICARDO.

Read at the General Meeting, Monday, 11th February 1895; and, with the illustrations, registered at Stationers' Hall as the property of the Royal Institute.

IN the words of Mr. Ruskin, "Architecture is the art which so disposes and adorns the edifices raised by man, for whatsoever uses, that the sight of them may contribute to his mental health, power, and pleasure," and in his fourth aphorism it is further stated that "all architecture proposes an effect on the human mind, not merely a service to the human frame." And we know that these words are true. This effect may be the expression of the individuality of the architect, or the owner of the building, or a fusion of their associated individualities. There is a fourth product which is the outcome of the want of individuality in both parties, where the result is an acceptance of the current mode of the day, and the building is reared as a tribute to the ephemeris of our art. Mainly it is the architect who speaks through his work; the building-owner sets him the conditions, but their resolution is his occupation. "By their works shall ye know them." There is an idle saying that no man is a hero to his valet, meaning that a man who is not a hero cannot impose himself as one on another so near his person; a sham hero may hoodwink and blind his followers a thousand times in a day in the security of deceit; but let him once put hand to brush, chisel, or lyre, and his secret is out, abroad, clamant, for those who can see and hear.

The butcher Pollajuolo, the penitent Botticelli, peacock Crivelli, the curious and masterful Tintoretto—their brush paints them naked, with their passions playing in flames of fire over them. Take music: the evidence is equally glaring. There is Bach—a mass of passion held in magnificent restraint—innocent-hearted Haydn, profuse Mozart, mystical Schumann. In sculpture there is Verrocchio, knight-errant in soul, sturdy, and something aggressive; the clear-minded Donatello; passionate Michael Angelo, burning to wrest the stars from their courses, that they may bind and illuminate the emotions he is striving to portray. One might multiply instances that would take days to enumerate, and still not touch on the realm of literature.

In architecture, man's individuality is swiftly discernible. The Zeitgeist is upon him, and him more than other artists, since his products have to serve material needs more instantly and definitely than a picture or a symphony. In his building one may see his tastes, his learning, his humours, and, more especially and more importantly, his aspirations. In past work, these latter are not so clear. Time has rolled up, wrung out, and thrown aside into the limbo of dead facts the difficulties and obstructions of the period in which the building rose, and one can only in part conjecture how the architect burnt his way upward through the crowd of vexations and restrictions that clogged his every step; but of our contemporaries it is more easy to estimate the difficulties. We are making the same fight ourselves; their dragons are our dragons; not quite so clawed and poisonous as ours, perhaps, but certainly of

the same breed ; and our chiefs' armour grows stouter and firmer from the attacks upon it. Let not a man think to conceal his identity : a moulding betrays him ; the preparation for a cornice or the stopping of a string-course proclaims him. His windows slam upon him ; the ribald chimney-pots dance upon his chimney-stacks in riotous denunciation. I have said the spirit of the age is upon him, but in part he is the creator of it. The master minds construct the future modifications of that effigy, which, like the cloud on a mountain side, is thought to be motionless because it does not change its place, but which, on observation, we perceive to be in ceaseless change as the wind drives the heated vapour across the cold current from the thawing snow. Nevertheless, the bulk of requirements laid on his shoulders are of the central form of the effigy.

Living architecture is that which answers the requirements of the day. The requirements may be modest and sensible, and then the architecture will be beautiful and strong ; they may be affected and individual, and then the architecture will be so far paralysed, its beauty so far pathetic, and in time perhaps denied ; they may be extravagant and vulgar, and the architecture will be violent and vulgar in response. One hears this age called a practical age—an age of inventions, of progress ; steam and electricity have changed the face of the globe for us—an age of hard matter-of-fact reality. And yet, in our profession, how we have been playing and pretending !

Early in the century we threw off the weight of 300 years, and, masquerading as perpendicular Goths, went about our business of the day. Then some very superior people shook off a couple more centuries, and attempted to play at being knights out of armour. But the small violences done to chronology, and the incessant discrepancy in the details of daily life, made the attempt short-lived. It was a time of red-hot enthusiasm in our play, and we built fairy palaces—at Westminster and Temple Bar—dream palaces in real stone ; beautiful evidences of our pretence. But all day long incessant small discrepancies knocked at our doors. We could not really recall the past centuries, and weld them into the present. You cannot have Cook's excursionists on the island of Capri, if you are going to replace Tiberius Cæsar there. Time, the policeman, moved us on, and we proceed to play just round the corner. We took off our armour, and put on dress swords and bag-wigs. The 150 years or so seemed a bridgeable difference, and Christopher Wren a good serviceable stock on which we could graft what of Italian, Dutch, German, or other, we might choose. And at this point we are now arrived. The whole past is a vast treasury for us to draw upon. But this wide range of choice, and our coquetry with the dead past, has been attained with the loss of tradition. Whilst the boundaries of knowledge have been enormously enlarged by the collection of data from over the whole inhabited globe, the architect of to-day finds himself unsupported.

And this want of traditional support has had the result of clogging and obscuring his mind with detail. There is no help now to be got from the mason's shed or the carpenter's bench. The traditional methods have been obliterated ; new-fangled and old-fangled methods have quite obscured the current methods, and the craftsman looks to the architect's drawings for guidance in the minutest particular.

Now, leaving out of sight altogether the result of this state of things on the craftsman, so far as this means thoroughness in an architect's grasp of his work, it is wholesome ; but there is a strong tendency to adopt the opinion that detail will pull one through, even if one cannot get the masses right. A profusion of small members and architectural finery distracts the eye and masks the proportion ; few people, indeed, have any sense of the one, but the attention of almost anyone can be arrested, and his amusement secured, by something unexpected in ornament.

To take one of the latest instances which have come under my notice. A short while ago

the Terrace in High Street, Kensington, came into the hands of the builder. The buildings, low and out of date, stood back from the road, and their reticence did something to counteract the unpleasant constricted feeling that one has in the High Street. In one of the houses John Leech finished out the years of his life; but such claim for permanence was too slight to be considered; the houses were pulled down, and a large block erected on the advanced frontage. The ground floor is built in the "practical" style—that is to say, there are brick party-walls, some steel knitting-needles, and some sheets of plate-glass. Above this rise four storeys of domestic architecture in the style of the Man in the Street. The building is curiously illustrative of the temper of the day. Built to capture the average man's fancy, we may suppose it a successful example of what the average man requires. First of all, it is devoid of proportion; its sky-line is jagged and fussy, its masses are ill-arranged, its window-openings brutally ill-shaped. Secondly, it is devoid of stability—the four storeys rest on sheets of plate-glass placed edgewise. On the other hand, it is covered with knick-knacks and the general frippery of architectural ornamentation. The inference to be drawn is that the number who appreciate good proportion is so small that it may be disregarded, but almost anyone can enjoy a pilaster with its hair well curled and frizzed. One may ask, Why not have good proportion as well? It sounds reasonable. But a man who builds for the evil aspects of our age, frankly endorsing them, is incapable of good proportion. Good proportion involves self-restraint and sacrifice. Self-restraint and sacrifice in these days of universal emancipation and unexampled progress! Across the road, and forming its north side, are two blocks of buildings called Lower Phillimore Place. They are not conspicuous examples of good proportion, but they are simple, quiet, and refined. They look with scorn at the blazing vulgarity of the newcomer opposite. Seventy years ago we should have called them builders' houses of a good type; to-day we call them dull. Our jaded appetites will not rise to a design so tame and monotonous. Think for a moment of the din and clamour amidst which we live. Our eyes and ears are so ceaselessly assaulted that they have grown callous, and nothing but extreme effects arrest our attention. The shopman, to secure his customer, spends thousands on advertisement, on recondite forms of illustration; his shop is one huge blaze of electric light or gas; men stand at the doors to delay the traveller's passing by without entering; strange forms perambulate the streets to fasten the remembrance of his wares or his name in the victim's mind; huge lettering eclipses the front of the shop, and huge glass lamps threaten annihilation to the pedestrian. This is the complexity of competition, due to the increasing density of our population. Then there is the complexity of the intellect. Our poets write in so involved a way that we are forced to have Browning Societies to explain what the master meant. There are some who unblushingly say that they cannot understand Mr. Meredith's novels. In music, none but a skilled musician has a chance of disentangling the labyrinthine intricacy of a symphony by Brahms. In opera it is enough to remark that Wagner requires an orchestra of one hundred and fourteen performers for the *Walküre*, and one can imagine what kind of tapestry of sound such a loom would produce.

Sensations at high pressure such as these are very exalted, and, arrived at after due preparation and training, are possibly the proper outcome of man's aspirations to be better than his fathers were; but in their train come a lot of fantastic and outrageous attendants—like their leaders—at high pressure. The motley routs have no thought of impressing their own forms on a dram-drinking, exhausted audience; but they seek for symbols that have been precious in the eyes and hearts of mankind, and propose by exaggeration and distortion to sting and pain us into perpetual reminder of themselves. I will give an instance of the extremely complicated way in which a manufacturer sets to work to impress upon your mind the name of the article he makes. We are all unhappily familiarised with the explosive statements,

pointless anecdotes, and catchpenny superlatives that cluster and swarm on everything we touch ; and the example I select is as familiar as any, but a trifle more subtle in its brutality than the general run.

Over the west door of the church of San Salvatore, in the Borgo Ognissanti at Florence, is a lunette by one of the Della Robbias representing the Annunciation. Following the contour of the arch in which the plaque is set is a semicircle of winged cherubs, forming a kind of guardian chorus to both the Messenger and the Virgin. I have enlarged one of these heads, not because I thought it better than the others, or specially characteristic. It is one of the many hundred that the Della Robbias did, and though the pitch of excellence they reached was high, it was outdone by the greater men like Donatello, Verrocchio, and the later sculptors. I can take the head, then, as a sample of good art then current in Florence. I do not know what the warrant is for these winged heads in legend and tradition. In the Bible they are figures that are winged—not heads merely. But it is a beautiful fancy, and was most fondly used. Though not exclusively, they were represented chiefly clustered round the Madonna—clustered in a way so intimate that they count as more than ministers. It is as if the words, the deeds, the thoughts and sympathies of the Madonna had materialised themselves, and that in Heaven Love's Meinie became the divine incarnation of the human love and devotion she felt whilst on earth. Whatever of nestling Love there is on earth, and hoped to be hereafter, has been gathered up and fixed by your Italian sculptors in the guise of a cherub's head.

This lovely creation took a deep hold in all feeling hearts. When Sir Joshua Reynolds desired to add a crowning grace to the child's head that he had been studying, he added the suggestion of immortality to the face by the addition of the cherubs' wings, that the beauty which Nature could make, but could not make undying, might on his canvas record also the artist's sigh that in this world it is permitted such loveliness to decay.

And now look on this.*

There is no want of skill here. In mere technical ability I suppose it is equal to Della Robbia's head. It was meant to be startling, impudent, and shocking—and it is. In fact, it is more shocking than the cold-hearted beast who drew it can conceive, for his senses are too dulled to give him an inkling of the amount of pain his outrage can inflict. But observe what a complicated system this implies. A manufacturer procures an assassin to give you a foul blow, in the hopes that his violence may compel you to deal with him. His accursed trade-mark is to sear itself so deeply in your brain as to efface all other claims, and to leave you racked into a sort of dependence upon it. How can our architecture be simple if we behave so elaborately ? If our architecture is to be worth anything it must express our mode of life.

We are, let us hope, at a measurable distance from the end of this present dissolute style, for dissolute it is. As long as the mouldings and the ornament further and explain the meaning of the design—are organic—all is well ; just as in literature, and in the drama especially, as long as every epithet, explanation, and incident further the action of the piece, it is well ; but every idle episode, everything that can savour in the least of redundancy, is bad art. Buildings, like the drama, should be pregnant—condensed—in their ornamentation. Simplicity in architecture means good art in architecture, and good art in architecture means perfect adaptation to the circumstances surrounding it. Good art is therefore pre-eminently practical. All this welter of indiscriminate ornament is not practical. There is no mind in it, and thought lies at the base of propriety. There is no fitness in it—for fitness requires

* Here the speaker exhibited a well-known soap-seller's advertisement, representing a winged monkey's head with a frying-pan in its mouth.



INK-PHOTO. SPRAGUE & CO LONDON

HEAD, BY DELLA ROBBIA, IN GLAZED TERRA-COTTA.

anxious consideration and weighing of the conditions which necessitate the feature. It requires but a moderate amount of reflection and observation to recognise how woefully unpractical our street architecture at the present moment is. In our tall narrow thoroughfares all the pomp and circumstance of cornice and pilaster is not only so much money thrown away by the architect, but so much discomfort and privation manufactured for the folk who throng the street, and so much tax on posterity for the maintenance of the miscreation. What architectural qualities are aimed at in these elaborate façades? Not proportion, for the exigencies of modern life have struck out a new set of proportions incompatible with the details of the date used. Richness? Yes, for the moment; but how short a time does it take to foul the broderie, and how far worse than plain clothes is soiled and tattered finery! Variety? Yes; but what occasion is there for this in the narrow frontage in a street full of independent and competitive designs?

Of breadth and restraint not a particle; and yet these and the attribute of colour are the only qualities that are of practical value in our streets. The comfort of colour, how great it is! It cheers, it protects and encourages. Our grim streets scowl down upon us till we feel like helpless orphans in the clutch of an Afrite. With colour, you do not need a protecting or constructed detail—colour obscures detail—but only broad spaces.

One should, of course, distinguish between private and public buildings. The simplicity that is called for in the one should give place to a harmony reached by more complex methods in the other, just as the simplicity of a citizen's life differs from the complicated equilibrium of our social system. As long as our methods of trading remain what they are, we must expect to see this riot of architectural features in our streets; it is our duty, as fellow-feeling citizens, to arrest and change these methods, and then in the future our streets will stand peacefully about us in sympathy with the quiet tenour of our lives.

II. By BASIL CHAMPNEYS, B.A.

I HAVE been asked to speak to you this evening on the subject of Simplicity in the Art of Architecture, and to do this specially with reference to churches and country-houses. I may say that the former and more general aspect of the subject is less difficult than the latter, for this reason, that the principle of simplicity appears to me to be universally applicable to all architectural art whatever, and that I am quite unable so to subdivide it as to say anything in general terms about one branch of the art which is not equally applicable to all the others. Still, I shall endeavour to make a special application of these general rules to the domains of art which have been suggested as my special subject.

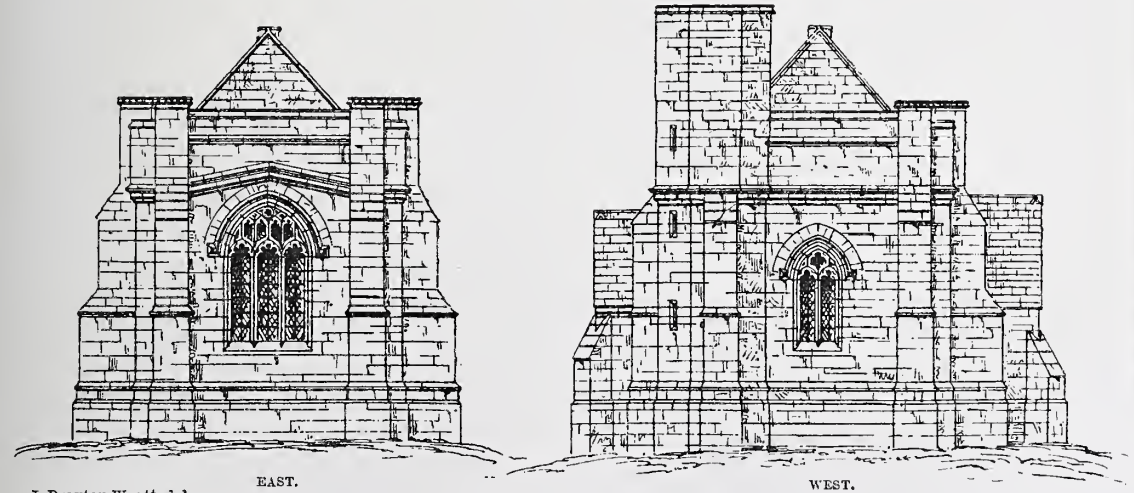
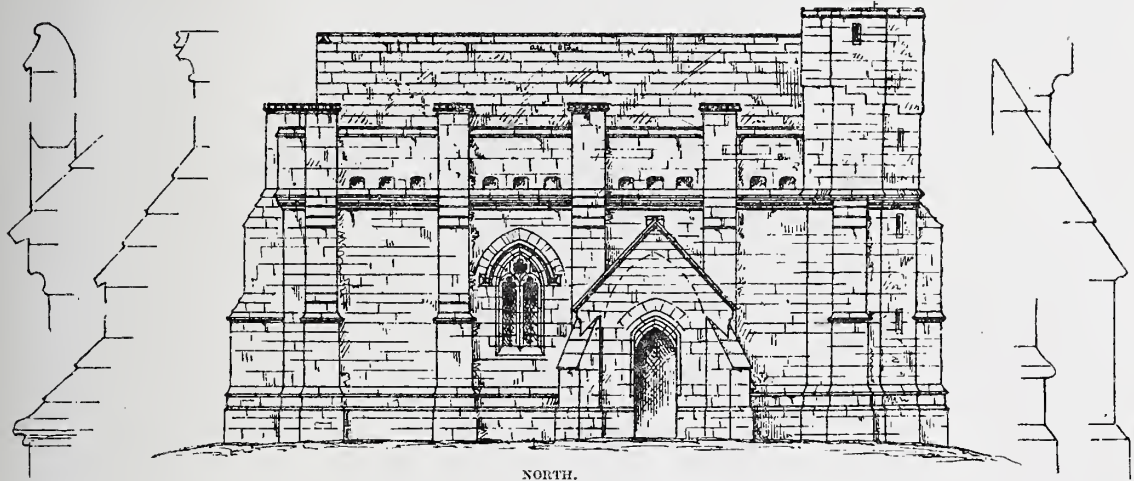
There are two positions which it is desirable that we should establish in the first instance: the one that simplicity is a note of the highest art everywhere and in all its branches; and the other that it is specially characteristic of the English genius. To take these in inverted order, I may say, first, that it has always appeared to me that the wider study of our English architecture leads to the conclusion that reticence has been as obviously a characteristic of the English in art as in manners. I admit that generalisations are always somewhat risky, and am aware that many examples might be quoted which seem to point in another direction; still, I am convinced that it is so in the main, and would quote as confirmation one or two examples in the history of English architecture which will at least illustrate, if they do not actually prove, my point. First, that in the fourteenth century, when foreign art was developing into the vagaries of the flamboyant in France and the neighbouring countries, and in Germany into a variety of ingenious extravagancies, in England the invention of the Perpen-

dicular held eccentricity in check, and resulted in work which varies as often in the direction of severity as of exuberance. A work such as the Chapel of King's College, Cambridge, with all its elaboration and extreme development of constructional art in its vaulting, is still essentially one of the simplest, as it is one of the grandest, of mediæval buildings. If such a work as Henry VII.'s chapel be quoted against me, I should answer that, beautiful as it is, it shows the note of decadence, and is evidence only of the exuberance into which art may run when the restraint of a wholesome traditional principle is removed. But, putting aside these more conspicuous examples, one can appeal with even greater confidence to what I may call the vernacular examples of ecclesiastical art, to the dignified modesty of thousands of village churches of no special fame, all of which, almost without exception, show unobtrusively some note of true inventiveness and some degree of poetic charm. The example of church architecture which I illustrate, one of many which might equally well have been chosen, shows how much dignity, character, and charm may be evinced in a work of the most modest proportions and aims. Those who care to analyse the means by which this result is reached will find that the strength of the design lies mainly in the subordination of every detail to the general conception, and that a reticent simplicity, rather than any display of inventive power, is its dominant note.

Or, again, if we look at the earliest introduction of classical influence into England, and its subsequent development here, I think that we shall not fail to find that as the process of assimilation progressed, so did simplicity gain upon exuberance, and that the sumptuous elaboration of, say, Burleigh passed, when brought into complete harmony with English tendencies, into such simpler forms as Chequers Court, the example illustrated, and thence into the type of modest manor-houses which everywhere evince the dignified reticence of truly English architecture.

But to return to the more general principle, it is essential to remove at once an idea which seems to me to be most unfortunately prevalent, namely, that simplicity in art is usually to be found in an inverse ratio to inventiveness. Such an idea is as dangerous as I am confident that it is false. So much so, that I believe that the exact opposite is essentially true, and that if Necessity is the mother of Invention, Simplicity may truly be said to be the daughter of Inventiveness. If my theory with regard to English architecture is true, this would in itself be almost sufficient to confute the heresy. It is inconceivable that the national genius which has produced a wealth of poetry such as may reasonably be held to balance in standard and in volume that which all that the rest of the world has afforded could have failed of invention in another sphere, and that its simplicity in art could have resulted from poverty of idea rather than from deliberate choice. It is, on the contrary, no paradox to say that extravagance is oftener a note of poverty than of wealth of inventive power. He whose ideas come readily and in obedience to the main conception of his work will be content to use them as servants to his predominant aim. When they are few and far between, he cannot afford to put them aside, however incongruous they may be; they become his masters, and the unity of his work has to suffer in the interests of their display. I venture to believe that all great artists, if they had studied their own mental processes, would be unanimous in saying that the main discipline of the artistic conscience has been, at least in early days, to refuse, and ruthlessly put aside, all imaginations not cognate to the central conception; that their duty has been to repress constantly, never to stimulate, the inventive power.

It is true that the discipline is a hard one at all times, and that it is especially difficult in our own day and in reference to our own art. Competition is keen, and the temptations to self-assertion or self-advertisement may be overwhelming. If, as too often happens, a young architect may have had to wait during many years of maturity for a chance of showing what



J. Drayton Wyatt, del.

ST. CATHERINE'S CHAPEL, ABBOTSBURY, DORSET.

Reproduced on a diminished scale from THE BUILDING NEWS of 6th Aug. 1880.

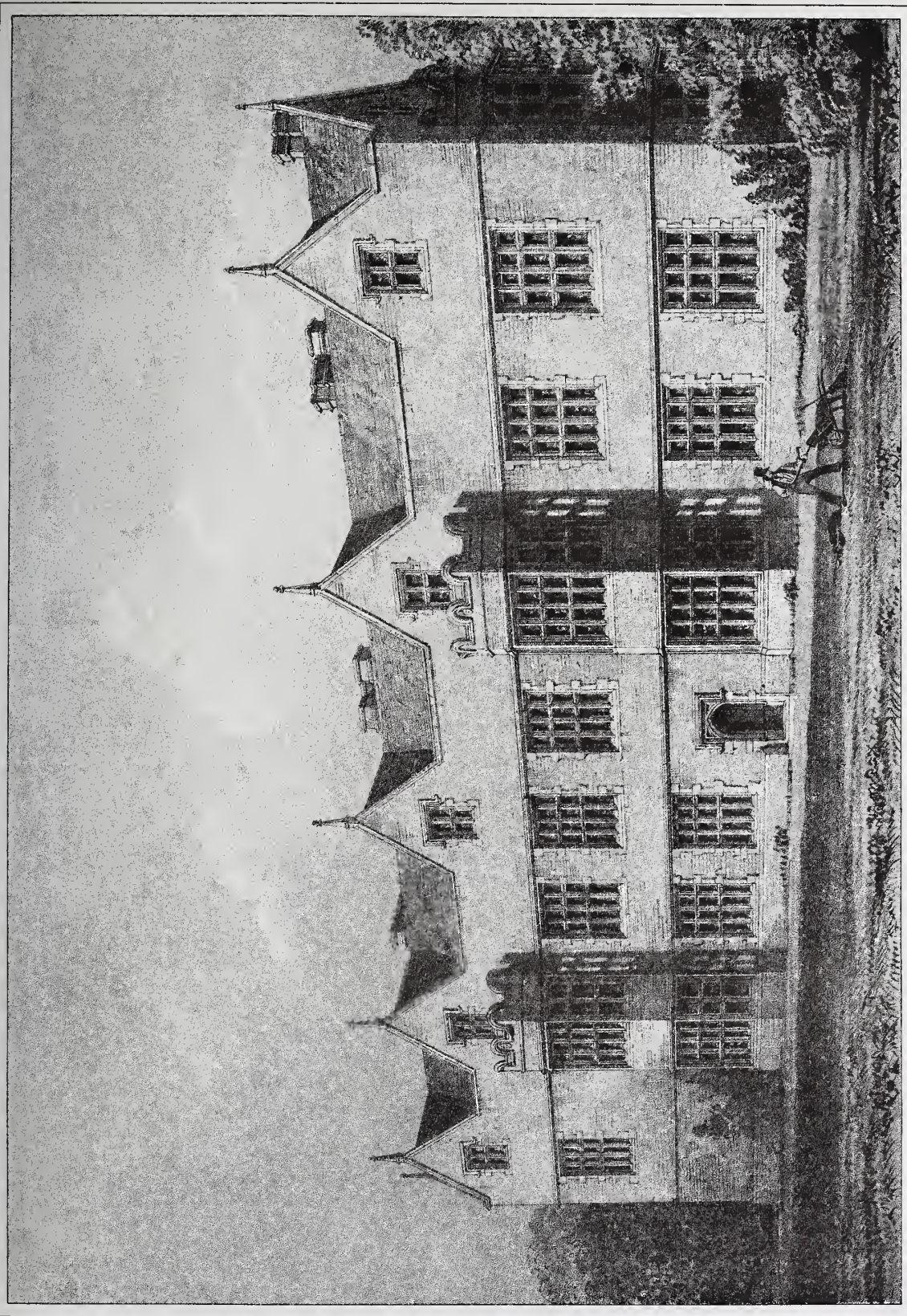
is in him—years during which he has been accumulating knowledge—it is no doubt hard to realise that a single opportunity can afford but a limited area for the display of what he may either know or evolve. Moreover, he can scarcely fail to realise that the age is not readily appreciative of the refinements of his art; that the more salient or striking design may, in public estimation, altogether overpower the more refined and reticent; and if he has to live by the public, it is no easy matter to disregard its preferences. Still, the principle is not compromised even though its application may be difficult; and from first to last the law holds good, that every building, to be a work of art, must originate in one central idea—what the French call the *idée mère*; that to this idea all that the inventive powers may evolve must be strictly subordinated, and that it is better to apparently fail in inventiveness than actually to fail in unity and keeping.

But there is another and closely cognate danger of no less import which threatens the artistic integrity of the architect. I mean the popular demand for so-called originality. This is perhaps the most dangerous influence against which the art of the time has to struggle; nor is it more noxious than absolutely unreasonable. For, in the first place, originality is not too easy either to define or to recognise. In the second place, true inventiveness is always unconscious; nor can any one by taking thought increase his originality one whit more than he can add a cubit to his stature. Demand is said by economists to create supply, but in the absence of the genuine article the demand may be met by adulteration. Some, indeed, actually prefer the adulterated article. We have heard of people of the “Gamp” type preferring oleomargarine to butter as having more “flavour,” and refusing filtered water because all the nourishment had been taken out of it. True originality is a growth of nature which needs no forcing-house, nor can its light be hidden under any bushel. Spurious originality is very easily produced; it often means nothing more than doing what has never been done before; and there may be very excellent reasons why it should never have been done before, nor ever be done again. It is quite open to any one to walk down Regent Street with one leg of his trousers blue and another yellow; but we shall scarcely applaud him for originality—rather put him into durance as a lunatic, and possibly a dangerous one.

There are various ways in which spurious originality may be achieved, and may, in an age of popular ignorance, pass muster for the genuine article. One is the forced and purposeless combination of different and incompatible styles in a single building. Such juxtaposition in an ancient building, where it notes the history, the gradual growth and development of the fabric, is valuable, interesting, and very often beautiful, and no Vandalism is more to be condemned than that which seeks to reduce such examples to a Procrustean standard of uniformity. In an obviously modern work, the artificial and enforced union must needs savour of affectation, the unmistakable note of spurious originality.

A second method is to seek out for imitation such strange and decadent phases of architecture as the past has evolved—phases valuable only in an archæological sense; such, too, as are especially easy to copy, decadent art being essentially *vitiis imitabile*—and to palm off the reproductions of such obsolete eccentricities as original invention.

Unity and beauty should be the sole aims of which the artist allows himself to be conscious. As for his originality he will never succeed in suppressing it if it is present, or in generating it if it is absent; so that he must leave that alone for ever. All this seems obvious enough—so obvious that I am almost ashamed to have dwelt on the point. Nevertheless, there is a tendency, evinced both in theory and in practice, to demand on the one hand, and to force on the other; the result of which, if not counteracted, will be to produce something as like the real thing as the contortions of a galvanised corpse are to the natural movements of an athlete.



From Studies of Ancient Domestic Architecture, by E.B. Lamb, London, 1846.

CHEQUERS COURT, BUCKS.

In this connection I may add that no one can dispense with the lessons taught by earlier architecture. These contain, when properly understood, the accumulated experience of ages. Moreover, no art has ever progressed by jerks; healthy progress has always been smooth, gradual, and tentatively modest; and if this is the case with other arts, it is especially true of architecture, which can never be largely divorced from precedent, and relies so largely for its effect on associated ideas. But, on the other hand, there will always be legitimate occasions for new departures, originating either in the modification of contemporary modes of life, or in new developments of construction; and as architecture is essentially based upon these, so from these will its variations be most healthily derived.

To recapitulate: I have maintained that beauty, conditioned by simplicity and unity—which are practically the same—should be the unique aim in architecture. But it may be well to show under what conditions and upon what methods these may best be obtained.

Style has been defined by someone as “having plenty to say.” It would be more correct to say that one of the essential conditions for writing a good style is to have plenty of material; perhaps another condition may be not to try to say too much. It is a characteristic of the present day that there is an abundance of writers, both of poetry and prose, who say nothing in the most perfect manner. I was startled the other day in reading a criticism on Swift to find the critic saying that Swift had no style. I had always looked on him as a master of style. On thinking it over, it seemed to me that what the author meant was that the great writer had no mannerism—which is true. The matter was predominant in Swift’s mind to the exclusion of any conscious thought as to the manner, which is on that very account the perfection of style. The other process, to consider the manner of expression so that the matter becomes a negligible quantity, is to put the cart before the horse, or to try to make the cone stand on its point.

These remarks are not so irrelevant as they may seem, and have a very direct application to the question of architectural simplicity. Architecture, of all the arts, is the most firmly based on the practical. In the design of every building the primary problem is to fulfil certain definite practical requirements according to established constructional laws, and it is on the spirit in which such problems are met that style in architecture mainly depends. If they are met honestly and simply, the thing to be done being held primarily in view and sound laws of construction loyally obeyed, at least the conditions of good architecture are present. If, on the other hand, these practical problems are subordinated to ingenuities of plan or preciosity in elevation, if the construction is forced in the interests of the picturesque, then there is more than a probability that the result will be affected and unnatural; the manner will have taken precedence of the matter, the cart will have been put before the horse, the cone inverted. This danger seems to me to call for an especial warning in the present day, when everyone seems to expect on every occasion something new and striking, and when facilities of construction are infinitely capable of abuse.

Another evil which seems to be more or less prevalent is what may be called “sketch-book architecture.” I have seen within the last few years many designs, especially of country houses, which look to me as if the process had been to foist upon the practical scheme some picturesque effect which was in no degree native to it; and if this impression is produced, all true pleasure in the work, at least with those who understand the art, is necessarily excluded.

But I must, in conclusion, guard against one possible misconception. When I say that the simple and legitimate solution of the practical problem should take precedence of further development in the pursuit of beauty, I must hasten to add that this precedence must be a precedence in importance rather than in time. I have maintained that, in architecture, unity and simplicity are so closely allied as to be almost interchangeable terms. But the only

condition on which true and complete unity in architecture can be obtained is that the design shall have been originally conceived as one complete whole. This should seem too obvious to need assertion. Nevertheless, one often comes upon statements or proposals which seem to imply that a design may be taken to pieces, and that the elevation is to follow a plan previously and independently made. This is a dangerous heresy. A plan is a good plan if, fulfilling the primary practical requirements of the scheme, it involves by legitimate construction a building both internally and externally good. Plan, section, and elevation must be conceived at one time, and in their full connection one with another. None is before or after the other; none is greater or less than another. Unity of effect involves and implies unity of conception. Unity is the condition of simplicity, and simplicity is the predominant note of the greatest architectural art.

III. By the President, FRANCIS C. PENROSE, F.R.S.

THE complaint made, and not without reason, that we fail in simplicity in architecture, is probably very much connected with the eclectic phase of art in which we live; but there is no reason why, because we recognise a tendency to an error, we should not struggle against it. In an age of such varied and complicated wants as the present, the primitive simplicity of our Norman and Saxon ancestors cannot be maintained, nor would it be, to that extent, desirable. Every historic style of architecture has passed through the phases of its first uneducated dawn, then its meridian excellence, and thence has sunk into a more or less complete state of decadence. There has been a rude but grand kind of simplicity in the first period; then the well-ordered and chastened simplicity of the culminating stage, and invariably a loss of this quality at the close. The Egyptian and Greek styles do not controvert this law; but in these two it is not so easy to point out the full development. What may be called the childhood of Egyptian architecture has not yet been discovered, but we cannot doubt its having had existence; and the decadence of the Greek is too much mixed up with Roman influence to be quoted effectively in pointing the moral, unless we take our examples from Rome itself, and compare the works of Augustus with those of Hadrian and Diocletian. The same process was at work in the Italian revival of classical architecture. The buildings by Alberti, Brunellesco, Bramante, Peruzzi, and, indeed, all the earlier masters, are remarkable for their simplicity; but they were succeeded by the more complex works of Bernini and the turgid *barocco* of Boromini and the followers of the latter, who were void of the imagination which sometimes peeps through their master's extravagances. But it is the history of Mediæval architecture which best supplies all the links of the sequence. The early Romanesque and Norman styles, strong in the simplicity of youth, led to the full-developed Gothic of the thirteenth century—of which one of the characteristics that strikes us most is simplicity. Two centuries later we find that the French Gothic of Chartres had degenerated into the Flamboyant of Troyes; and the Westminster Abbey of our First Edward ends in the Tudor of Henry VII. But, nevertheless, in England at least, a resolute stand was in some very important instances made against the prevailing tendency to complication. Witness the works of William of Wykeham, in Winchester Cathedral and elsewhere, and of the architect, whoever he was, who built King's College Chapel, a building in which the essential characters of order and simplicity of form, both inside and out, have seldom been better displayed. A noble stand was also made against the degeneracy of the Renaissance in England by Inigo Jones and Sir Christopher Wren, and in France by Claude Perrault in the eastern front of the Louvre.

Besides these examples of stemming the adverse current, we have encouragement derived from the sequence of the works of nature. Consider the gradation which we find between the pendent violet and cowslip of spring, the severe concentric majesty of the summer rose, and the radiating flowers of autumn; but none of these, with all their variation of character, can we charge with want of simplicity. The examples and analogy above given ought to encourage us to feel assured that, even though a tendency adverse to simplicity has become prevalent, it is quite capable of being corrected. Let us, therefore, endeavour to establish the means by which it may be done. A prime essential is the rule that no particle of ornament, whether decoration be abundant or scanty, should be used without a definite aim. To carry this out, however, requires much time and determination applied in the initial stages of a design. A writer of eminence once apologised to a correspondent for the length of the letter he had written to him, because he had not time to write a shorter one; but it may be said in favour of the concentration of energy recommended that it can hardly fail to save time in the end.

An architect's studies may have led him to take particular notice of picturesque combinations, and his predilections may lie in that direction. It is possible that if the building on which he is engaged be very much limited in its site, with respect to the points of view from which it could be seen, he may be right in giving it an unsymmetrical elevation; but even then the quality of simplicity need not be entirely ignored. But the occasion I have supposed is comparatively rare, and our buildings are usually to be seen from more points than one; and it almost invariably happens that when a picturesque effect is chiefly aimed at, the changes of aspect will set it all wrong from most other points of view; whereas a well-balanced design is pleasing on all sides.

Let us first consider the advantage of a well-ordered and simple plan. One of the greatest charms in viewing a building arises from the exercise of the mind when the orthographic aspect is distorted by perspective in recovering the true shape or plan from the image presented to the eye. In a well-balanced architectural composition, this process can be gone through satisfactorily before the mind is fatigued by it. It should not, indeed, be so obvious that no amount of study need be given to it, otherwise the task would be too easy; but there should be no puzzling difficulty, and whatever amount of study may be requisite should arise, as in literature, from the amount of thought demanded by the matter, and not from involved manner.

Next, as to the quality of simplicity in the orthographic aspect (I need scarcely explain that orthography is only a long name for elevation), the first principle should be the expression of one central idea connected with the purpose of the building, and together with this the expression, not too rudely given, but with sufficient emphasis to satisfy the mind, of the main contrivances for the support of the superstructure; otherwise there may be as little pleasure in looking at the building as there would be at an oak of which the trunk and foot-roots are obscured by ornamental shrubs. It is true that, although there should be but one main effort, in a large structure there may, and ought to, be important subordinate compositions; but they should all have reference to the main idea, and by far the larger part of the ornamentation used should be grouped in connection with it. Some by-play may often very fitly be introduced here and there, to avoid too great severity, but always in subordination. In what direction this main effort should be directed must depend very much upon circumstances, especially the requirements of the plan and of the site. The leading apartments of the plan will almost in every case give the clue to the direction where the principal effort should be made; and if a building be in a street, its width or narrowness, or the opportunity of a view presented by a cross street, cannot but have much influence on the scheme of the ornamentation. In the country the conditions may be still more varied, but few considerations

can ever outweigh aspect. I need not enlarge upon the value imparted even to the simplest forms by sunshine, provided only that the shape and material be suitable.

I have been chiefly referring to the framework of a design, and not to the outward dress, involving such ornament as it should properly receive. It may be instructive to point out how very little some of the finest works of architecture owe to complexity of structure and ornament. The temple architecture of Greece, which had the maximum of studied form and the minimum of ornament, as we generally understand the term, preserved almost its primitive simplicity of treatment, with variations, however, of proportion and of detail, for about 700 years.

Of the Greek civil architecture we have, indeed, but one conspicuous example in sufficient integrity to be quoted; but fortunately it is one of the most famous and admired of them all—the Athenian Propylea. In this building, so far as we know, there was no ornamental carving whatever; nothing beyond the studied lines of the architecture, combining large surfaces of plain wall, and the coloured decorations of the interior. In our own Gothic architecture there is no more beautiful tower than that of Magdalen College, Oxford; and this is almost severe in its simplicity. Our two noblest cathedral fronts, Lincoln and Peterborough, owe their imposing and beautiful effect to simple forms. Giotto's famous Campanile at Florence, although its surface is enriched with inlaid marbles, is simplicity itself as respects its architecture. In Tintern Abbey there is not one single enriched capital—indeed, scarcely any carved work of any kind—but it must have been, nevertheless, one of the most lovely specimens of its class, as it is almost peerless amongst ruins. Not but there are some examples of Medieval building in which simplicity does not reign supreme. I have already referred to the French Flamboyant, to which class may be added most of the later German stump tracery architecture and the confused plateresque of Spain; but I may also mention the impression made upon me by the over-decoration of a building of a better time, a restoration certainly, but presumably a careful one. I refer to the Sainte-Chapelle at Paris. When I first saw this building, the new decorations were being executed, but had not advanced very far; and I saw with pleasure what had been done, and admired the noble framework of the architecture, but I remember that at that time the windows and the floor were quite plain. When next I saw the chapel all was complete; every part that could be painted or gilt was so elaborated, and the floor richly diapered with encaustic tiles. The effect then was overpoweringly oppressive, and I was glad to beat a hasty retreat. I cannot doubt that if three-quarters of the money spent upon the decoration of that building had been diverted to some other use, the effect would have been vastly better.

Turning again to Nature, we find the most distinct evidence of simplicity of aim combined with economy of decoration. How small is the flower compared with the stalk which carries it! How small are the more ornamental features, not only in man but in animals also, compared with the breadth of the simpler parts, which, however, have had quite as much care bestowed upon their structure and proportions! The exceptional ornamentation of certain birds and insects arises from variation of colour, and not from complication of form.

But to return to the architecture of our own day. We observe, with much disappointment, that many new buildings in London and in our great manufacturing towns—combined, as they often are, with much cleverness of detail—exhibit an extraordinary waste of ornament and confusion of general harmony. How refreshing it is, by way of contrast, for instance in the City, to come across one of Sir Christopher Wren's works, or one of the few remnants of Inigo Jones. Or, in a great provincial town, to find one of Professor Cockerell's branch banks, or an institution building by Sir Charles Barry, in which we can read at once the main intention of the building, contrived with a wise economy of ornament which convicts most of

the more pretentious edifices in the neighbourhood of waste of effort! The value of a plain wall of good material has been too much lost sight of, whilst the worthlessness of surface ornament, especially when obscured and disfigured by the atmosphere of our smoky towns, has not been sufficiently regarded.

Let us, then, take for granted the desire to work out a design in due simplicity. Different architects may easily have different ways of proceeding; the method which has occurred to me is something of the following nature. Having well thought out the capabilities of the plan, commence the elevation on quite a small scale—such, for instance, as the object would appear at a distance equal to ten or twelve times the height. On so small a scale none but the principal features would be distinct. Sketch these into shape before any enlargement of scale is thought of. Then adopt scales representing the building at nearer distances by steps until the scale is sufficiently large to exhibit roughly all the detail that may seem desirable. When this has been discussed and got into shape it will be desirable to leave the elevation alone for such interval as may be wanted to attend to some other of the requirements of the building, and then, with a fresh eye, return to the elevations and compare the last enlarged sketching with the first small scale drafts, and carefully consider whether in the subsequent elaboration the design has at all lost its primitive simplicity, and, if so, mercifully cut out all excrescences which may have caused such departure. And then, and not before—as advised by Sir Joshua Reynolds—is the time for looking over portfolios and books of reference to see how works which bear some analogy to the present proposal have been treated by others.

It has often been said that an architect should be original. At one time the demand was fairly justified—namely, when the more exactly the façade of a Greek temple could be domesticated amongst us, or, a little later, the arcade of a Gothic cathedral made to do somewhat analogous duty, the greater the achievement. These misdirections of energy have passed away, but the cry “Be original” still continues. Those who are stimulated to comply literally can only do so by the endeavour to introduce on their works some ill-founded novelties, which only add to confusion. There is, however, ample room for true originality by the exercise of the restraint and the condensation of thought referred to above; and there is ample scope for its exhibition by skilful planning and grouping, so that its merit may at once be evident to the thoughtful observer when comparing any such work with florid, unmeaning designs, of which we have so many, worthy of the speculative builder. A true critic may then be led to say, “This is the work of an Architect.”

DISCUSSION OF THE FOREGOING PAPERS.

The President, FRANCIS C. PENROSE, F.R.S., in the Chair.

MR. HOWARD INCE, who had been invited to speak at the Meeting, was unable to attend, but sent the following communication, which was read by Mr. Caröe:—

After the able Papers to which you will listen this evening, it may do no harm to be reminded—first, that simplicity is not by itself meritorious; and secondly, that simplicity is, after all, a relative term. If mere simplicity were meritorious, Gower Street itself might fairly lay claim to the virtue. What we really would achieve is a fine effect by apparently simple means—in fact, the evidence of a reserve of power, or, in other words, the exhibition of one of the most noble qualities, “restraint.” Indeed, this might have been a more accurate word for the title of this discussion.

Restraint implies a considerable power of design, a judicial calmness, self-reliance, and, above all, a determined resolve not to advertise or play to the gallery. A design which displays this quality is almost certain to be received without enthusiasm, and may even be jeered at; but compensation will come with time. The very absence of apparent effort soothes the excited nerves even of enthusiasts. The restfulness of quiet dignity gradually endears it, till it becomes a friend—that is, a sympathetic companion. Secondly, that simplicity is at best a relative term. Like beauty, it exists only by force of contrast. If a building is to show this quality, it must either be grouped with others which are flagrantly profuse and restless, or else must contain the foil within itself

by a determined enrichment and elaboration of one or more parts. There can be no doubt which of these methods is preferable. The power to produce extremely rich and elaborate design when required is essential to the attainment of simplicity. Just as the early Italian painters won many of their greatest triumphs through their training as goldsmiths and designers of goldsmiths' work, so a huge façade may gain in simplicity if its designer shall have carried elaboration to the limit of his power in some small monument or accessory. In the best Greek work, the cornice—in the best Byzantine and Gothic work, the doorway—was usually selected for especial enrichment, thereby to give emphasis to the reticence of the other parts. Whichever feature we moderns may select is probably immaterial. Its selection may depend on circumstances, but never on chance. The essential condition is, that one part be preferred, rather than that doors, windows, and wall-spaces should be equally elaborate. Compare for a minute the façade of the Certosa at Pavia with the façade of Como Cathedral. Perhaps the most virulent destroyer of simplicity in modern work is the "sunk panel." It is an architectural pimple. There are buildings over whose fair face it has broken out like a skin eruption. On his suburban dwelling, on his City office, and everywhere by the way, the citizen sees it spreading over all that he knows as architecture. In the worst cases it suppurates into a carved centre. Over the windows, under the windows, round the windows, and between the windows, it spreads its devastating course. It weakens plinths, it fusses friezes. It is the panacea of the mechanical draughtsman, the palladium of the speculating builder. It would be no unimportant step towards an increased simplicity, if we in this room not only abstained from this detestable "sunk panel" ourselves, but banded ourselves into a league for its suppression wherever possible.

MR. H. H. STATHAM [*F.*] asked to be allowed to commence by proposing a vote of thanks to the President and to the two gentlemen, who they were all sorry to feel were not members of the Institute, who had contributed such excellent and thoughtful Papers upon a subject the consideration of which was very much called for at present, if they regarded the great majority of buildings which were hurried on at the present day, and the exuberance, as had been said, of ill-thought-out ornament characteristic of them, and which, he feared, was to some extent due to the increasing prevalence of the system of competition which almost inevitably led to the desire to produce a design that would attract attention before anything else. At the same time it was of no particular use that the one who opened a discussion should agree with everything that had been said, and although, as a matter of fact, he did

agree with everything that had been said, he thought there were points where more was meant than met the ear, and he should like to suggest another side to the question. The more thoughtful minority of architects, or some of them, had taken lately, perhaps had been driven to, the opposite extreme from the florid architecture, and they were, he thought, rather in danger of drifting into what they might call the affectation of simplicity. He might give one or two instances, but he would ask, in the first place, were their critics altogether consistent with themselves? Streets in the form of the old Georgian street used to be considered dull. Now they were told that it was stupid to consider them dull. Mr. Ricardo had mentioned an instance in Lower Phillimore Place, where there was an example of much more sensible architecture than that newly built opposite. He (the speaker) would adduce another instance. He knew an old Georgian street in which there were red brick houses with no ornament of any kind, but a cement string carried from one end to the other, and, he believed, another little string above. An architect came, and he made a new front to one of those. He put on gables at the top; he put in a very big window with plaster decoration over it; and he was so anxious to get curves that he got a bow window in the ground floor by tucking the bow back to the inside of the walls. That was on the south side of Great George Street, and the architect was his friend Mr. Ricardo. He was not shocked by that in the least; on the contrary, he assured Mr. Ricardo that every time he went past it, it "contributed to his mental health, power, and pleasure." Mr. Ricardo had put something very interesting and picturesque into what was a very dull street. But he (the speaker) did not quite understand how his friend's practice squared with his preaching. To come to the other point, as to the affectation of simplicity, he was talking one day to a gentleman who was one of what he might call the simple-minded architects, those who kept aloof from the tortuosities of the Institute, and who was complaining vastly of the vulgarity of contemporary architecture. Like Vivien in the *Idylls of the King*, he

let his tongue

Rage like a fire among the noblest names,

till at last he (the speaker) pulled him up and said, "My dear fellow, whose architecture do you admire?" Then he mentioned one person, whom, as he (the speaker) did not want to be personal, he would call X. Y.—a man, however, whose name probably many present had hardly heard of, but he had discovered that to admire the buildings of X. Y. was one of the proofs of being among the truly elect. He (the speaker) had not seen any of that gentleman's buildings, although he knew his name, and he inquired where he could see one, and was told to go and look at a small house in a certain square. He went, and saw a

small semi-detached house of excellent brickwork—it was always refreshing to see excellent brickwork—but there was not one moulding or anything of what they usually called an architectural feature from top to bottom of the front, excepting a half brick projecting in a line to make the semblance of a string. It was, of course, very easy on those terms to avoid bad taste; but, instead of “simplicity in architecture,” was not that rather simplicity without architecture? Another instance. Among the examples put up on the screens was a drawing of Newgate. It was a curious indication of the rate at which things had gone that about ten years ago he was giving a lecture—not to architects, but to a general audience—and he instanced Newgate as an example of expression in architecture, and a row of young architectural students at the top of the room began to laugh. Of course he went for them. “Yes,” he said, “Dance was told to design a gaol, and he “made a building as like a gaol as possible. And “he was right.” But surely it was only in that respect that Newgate could be admired as a simple building. They could not, he thought, have Newgate held up to them, because of its simplicity in architecture, as an example worth imitating for another building. As a prison it was admirable because it was so forbidding. One word as to what simplicity in architecture really meant. It had been hinted at most truly by Mr. Champneys, and he (the speaker) should quite agree with him, only he should add one word more to what Mr. Champneys had said, that unity and simplicity were so closely allied as to be almost interchangeable terms. They were; but, if they thought what that led to, they would see that it would allow for a very large amount of elaboration. It was a dictum of Sir Charles Barry (whom he ventured to think the greatest English architect since Wren) that he did not object to any amount of richness in a building provided it were consistently carried out. Two views of simplicity might be taken: in the first place as regarded the general design of a building, and in the second place as regarded the detail. With regard to the general design, they wanted to see it well balanced, and, in an important building, symmetrical, and not cut up into lines merely for the sake of producing what people called a picturesque skyline. In the case of detail, what was wanted was to have all the detail thoughtful, well designed, and proper to its place. Surely that was one reason for preferring what was called simplicity, because the designing of thoroughly ornamental detail was such a difficult thing, requiring so much thought; and one of the curses of the present day consisted in the amount of bad and thoughtless ornament put on, simply because the man wanted to put something there to attract attention, and did not know what else to put. But if they came to the case of a building where there had been time

and the will to give thought to the whole of the ornament, they might go to any amount of richness and still be simple. Take the Taj Mahal in India. He called that, on Mr. Champneys’s own principle, a simple building; it had got what he called the *idée mère*—everything was subordinate to the original idea. He was not sure that Henry VII.’s Chapel was not simple. A French friend of his, who was in London a year or two ago for the purpose of studying its architecture, had assured him that nothing he had seen in London had struck him as so beautiful as the interior of Henry VII.’s Chapel—he had visited it again and again. That was an indication that it had a power over men’s minds. Its richness was consistent; it was, of course, the very extreme of elaboration; but still it might be claimed as one of the buildings which in its general idea was connected, logical, and therefore simple, and only elaborated in proper subordination to the general features. He thanked the President particularly for the most suggestive remarks he had made upon the mode of designing a building—to study it in block on a small scale first, and then study the details on a larger scale. All the younger architects present would do well to lay that to heart; it was a most useful suggestion which perhaps had not been sufficiently kept before the minds of people in designing.

Mr. L. ALMA TADEMA [*H.A.*], R.A., said that it was only natural he should feel it an honour to second the vote of thanks; but he confessed that he felt rather like the ornament that was excessive in a building, because what right had he to speak to architects about architecture? The distinguished President of the Royal Academy did it so well that they had shown their appreciation of it in a very practical manner; but Sir Frederic Leighton was an exceptional man. True, he (the speaker) had painted architecture in his backgrounds, and had tried to build some backgrounds for future pictures of his own, and had enjoyed doing so mightily; but he would never try it again. Simplicity in architecture, he would suggest, was the same divine idea of simplicity which should govern all art. A work of art must look like one conception—must look as if it had been done easily—and what the President had quoted so happily of the Frenchman who said, “Excuse me, Sire, but my letter is so long because “I had so little time,” conveyed the true meaning of what he wanted to say; because the more they, the architects, worked on their buildings, and the more he worked on his pictures, the more those wretched, useless ornaments were blotted out, and the more they brought to the front that quality which the Greeks, the great masters in art, possessed to such perfection. The President had pointed out—and they could not be grateful enough to him—that true note of art which lay in the execution and the quality of the line, in the

harmony of the proportions, in the intensity of the curve—as for instance the curve in the steps of the Parthenon. Therein lay the beauty of the design. Taking the Greek vase—which was so exact in its architectural forms and curves, so beautiful in its whole—there was a profusion of ornament, but the ornament, being painted, never interfered with that whole. And this seemed to him the great secret of Greek architecture—the ornaments being only lines and paintings, they never interfered with form. He might relate a little experience of his own. There was a small museum, now transferred elsewhere, in the Royal Academy of Antwerp, with a double staircase leading up to a gallery, and at the end of the gallery was the true entrance to the museum. Opposite there was a big niche, and in it a bust of Rubens—which was quite right. It was not a monument of architecture, but it was very pleasing. A wave of monumental painting came over Belgium, the Government devoted so much money to the purpose, and every artist of repute was offered a building to decorate. Nicaise de Keyser, then President of the Royal Academy, was asked to decorate the vestibule. He accepted, on condition that the galleries should be shut up, and that instead of the curves which gave quality to the architecture, there should be a wall, in order that his paintings might show to advantage. When his (the speaker's) master, Baron Leys, was asked to decorate a building, he wrote to the Minister of the Department: "If the architect has put a plain wall in order to bring out the quality of his columns and mouldings, then I have no right to destroy that plain wall which is the *modus operandi* of his design. Give me, therefore, a square box—a room in the Hôtel de Ville—and I, with an architectural friend, will decorate it: he will do the architecture, and I will do the painting." That led to the idea he desired to give expression to—that the simplicity of architecture was a quality of its harmony. The Greeks could not have architecture smothered with ornament—it was not possible. Would the moulding of a plinth in the Erechtheum have ever attained such refinement of form, if not intended to be placed on a plain wall? It was, of course, quite right to say that a building like Henry VII.'s Chapel was beautiful; that its ornament did not destroy the simplicity of its proportions; but, still, it reminded him a little of a Maori, who remained a beautiful man although he was tattooed. The great question was Proportion. Unity and Simplicity were synonymous with Beauty; they were, however, but the children of Proportion, which was the true source of Beauty. With regard to the cherubs Mr. Ricardo had spoken of so delightfully, he thought that the earliest winged cherubs were those in the Church of St. Sophia at Constantinople. They were usually seen with the Madonna, and he would suggest that they might represent the souls of the

Innocents, and that this was the reason of their being without bodies. Mr. Champneys' idea with regard to the plan and section and elevation had pleased him very much. He had always considered these to be the Three Graces of architecture, which could not be separated. What was the use of a beautiful façade if the planning of a house were bad? He remembered when, as a youngster, he was in Brussels, there was in one of the boulevards a house elaborately carved in beautiful blue stone, and an Englishman, who wanted to come and live in Brussels, went to see the house, and asked the price of it. The landlord stated the price. "That is too much," said the Englishman. "But," said the landlord, "look at the façade!" "Oh, yes, I forgot that; I will take the house opposite!" In London the subject of colour was a question he had considered a great deal. In his own house, being a painter, he had played, of course, with colours; but London was a very difficult climate; everything went black and everything went to pieces. He had tried with tiles and had not succeeded; he had tried with paint, but it was ruined in one season. Therefore colour was a most difficult thing to deal with in London. As to the use of relief, they had been rightly reminded that the low relief, got impregnated with soot and obliterated, thus calling the high relief into undue prominence. London architects were indeed to be sympathised with. Simplicity was a beautiful thing if it led to more refined forms. Simplicity was one of the great laws of art; but no poverty—that was not art. MR. H. W. PRIMROSE, C.B., C.S.I., said he had not come prepared to speak, but he had listened with the greatest interest to the discussion, and had been reminded of the old phrase, *Ars est celare artem*. In discussing the question of simplicity, it had occurred to him that they were unconsciously confusing the word "simplicity" with the word "artlessness," because artlessness was one thing and simplicity was another. Artlessness was at the bottom of the scale, simplicity at the top. It was what art finally arrived at in its highest development.

MR. WILLIAM YOUNG [F.] thought it a healthy sign for the Institute that it had given up one night to discuss the subject of simplicity in architecture. Although, looking round upon the architectural work of the day, they must acknowledge that there was no lack of honest endeavour after simplicity, yet they must admit that the majority of the work was characterised by recklessness, by faddishness, and an utter disregard of all the old principles on which architecture had been built up; but then that was simply a reflection of the current thought of the day. The great social evolution which was now going on at a rapid rate was characterised by the same principles which characterised our architecture. Before going further he would thank Mr. Alma Tadema for those last words of his—Simplicity—

but no poverty. It seemed to him that they were in want of a true definition of the word "simplicity." There had been several definitions given; Mr. Statham had given two, but they ought to arrive at some common understanding as to what they understood by the word "simplicity." He had two meanings of the word for two different kinds of simplicity at hand. There was first the simplicity, he might say, begotten by indifference out of ignorance, or, if they liked to call it, the simplicity by faddism out of conceit; and, on the other hand, there was the simplicity by deep study out of great skill. The one was the simplicity of Simple Simon; the other was the simplicity of Wisdom; and he presumed that throughout it was the simplicity of deep thought, of wisdom, that they strove for. That was no new element in architecture—it was no new light. Mr. Ricardo quoted Ruskin; but simplicity was not one of Ruskin's seven lamps, and it was the second lamp that he had omitted. But although it was not one of Ruskin's lamps, it was one of the lamps of architecture known to the old architects in the days of the ancient Greeks, and carried down to the present day. If they looked through all the great buildings of the past, from the Parthenon downwards, they would find that simplicity was the characteristic of them all. What he might call simplicity should not be confined to the elevations; it should also go to the plan. He had noticed that in most of their large public buildings, especially in recent times—and he might refer to some which took a first place in competition—the plan was characterised by great simplicity, but the elevation was generally characterised by an utter want of simplicity. In domestic buildings, again, they might look at the view of a building which was marked by extreme simplicity and was most attractive in its way; but if they looked at the plan they found it most intricate. It seemed to him that sometimes people spoiled the plan for the sake of simplicity in elevation; and if they had got a simple plan they spoiled it by intricate elevation. That led him to the thought that a certain amount of moderation should be observed in simplicity as in everything else. It might be that to arrive at true simplicity merely meant condensing, as had been said that evening; just in the same way, if they were writing an essay the thoughts flowed fast and free, and they filled page after page with a long essay; but a conscientious man would go through it and reduce one-half of the words, and, by so doing, make it more effective, and produce simplicity so far as the work was concerned. Well, simplicity in their designs might be got in the same way. It was not by drawing to a small scale and a big scale. As a practising architect, he would say they might draw to any scale on any piece of paper that came to hand. With regard to simplicity of design, when the design

was completed it should be well thought over, and useless features weeded out. But that was not all—that was not true condensing; it was not only that they had to omit everything that was useless and everything that could be dispensed with, but they had also to add all that had been taken away to the proportion and composition of what was left. That principle of proportion and composition was one of the things that were little thought of in the present day. If they had to do a column, to be simple they must design it in the shape of a cigar. Simplicity might be carried too far, just as much as decoration might be carried too far. He had looked at buildings that were very simple, but carried out with such an effort—such forcible efforts—to appear simple as to become most objectionable to look at, if not irritating. Now, good architecture never became irritating. Simplicity was always modest; and if they went in for simplicity, it should be with all the results of extraordinary care and study, and not simplicity for simplicity's sake alone, but simplicity for the sake of Art and for the sake of Beauty. He believed still, as he believed when a young man, that simplicity would not enable one to produce a great design. Good work in architecture, as in anything else, could only be done by enthusiasm; but enthusiasm tempered by simplicity, and simplicity tempered by moderation.

Mr. WILLIAM WHITE [F.], F.S.A., said there was one element which seemed to have been lost sight of, and which he had always looked upon as of far greater consequence even than that of simplicity, although it might perhaps be said to embrace simplicity, and that was the element of repose. The element of repose in a building was that which had been the very staple of his own mind throughout his life, and that repose was subject to several conditions. One of these was proportion. There could be no doubt whatever that proportion was the one first and greatest element in architecture, and good proportion would give repose. In order that there might be repose in a building there should be no ornament such as to interfere with it, but rather to emphasise it.

Mr. E. R. ROBSON [F.], F.S.A., thought that after all they had heard about simplicity the idea might be better expressed in the mouth of an artist by the words "self-restraint," "reticence." He would rather see a careful exercise of their faculties of design (after having arrived at a good knowledge of architecture) than any attempt to reduce it to nothing but a dead wall, which would be the greatest simplicity of all. A building characterised by self-restraint suggested always a great deal more than it expressed; and a man who had the sense to produce buildings in that way would always produce an interesting building. He would wish to emphasise the profound truth of Mr. Alma Tadema's closing words—Simplicity if you like, but no poverty.

After a few words from the President, Mr. Basil Champneys briefly acknowledged the vote for himself and the authors of the other Papers, observing that it would have been better to have started by a universally admitted definition of what "simplicity" was, as perhaps its absence had been to some of them a little bit of a trap. Of course, they clearly did not intend that it should mean nothing but excessive plainness, and he should not himself mind exchanging the term for that of reticence, or restraint, or possibly for other terms tending in the same direction.

STYLE, INDIVIDUALITY, AND NATIONAL TRADITION.*

It seems to me that there is no subject which is more worthy of study, none which, studied aright and the knowledge thereby gained rightly applied, will conduce more to the true advancement of architecture than that of style. In individuality working through style lies the whole interest of architecture, regarded as a fine art. That these two—individuality and style—are not antagonistic, as some would hold, is surely shown by the great and notable work of the masters—of Peruzzi, for instance, or of Wren, or of Norman Shaw in our own day. And if the two be separated—as, of course, they may be—can there be any doubt that, of individuality dis severed from style, or style without individuality, in a dignified, serious, and permanent art such as is ours, the latter is the quality infinitely to be preferred? The whole thought of mankind is moulded by tradition; art has always lived in and by it; and of all the arts Architecture, inalienably bound up as it is with construction (which, despite the occasional introduction of new materials and methods, changes but little from age to age), is of necessity most ruled by its sway. The laws of nature are immutable, and if a space has to be covered in, an opening bridged, it can only be linteled or arched—there is no third way. Yet there be many who still say continually, "Who will show us any new thing?" and by not a few it is held to be a reproach to the architects of this generation that they are unable to evolve a new style. I have already hinted that I do not think this thing probable or even possible. Let us look a little further into this matter—consider it historically; the history of the growth of new styles (now so called, but in their own time never thought of as new) will, I think, confirm us in our opinion.

The new styles, we shall find, arose from one of two causes: either from one or more nations with an indigenous and a living art being brought into close contact with another and a newer race, with instincts ready to seize and improve upon what was

then first brought within its ken, or by an increase of scientific knowledge applied to the fulfilment of new requirements in a novel or improved system of construction. Of the first we have an example in the birth of the Greek style, from the quick reception and subtle modification characteristic of the race upon the architecture of Egypt, with, perhaps, collateral influence of Assyria and Persia. As to the second, the Tuscan arch may be said to have produced Roman, and eventually Romanesque, architecture; and the gradually-acquired knowledge of how to counteract thrust with thrust instead of with solid inertia, coupled with the new ritualistic requirements, and supported by the wealth and energy of the Mediæval Church—from those evolved, in the course of generations, the so-called Gothic style. I have taken these as examples; you will find that similar environments and influences have brought about the genesis of all the historic styles known to us.

Now, for us in this nineteenth century none of these conditions exist, nor are they at all likely to arise. To the early Greeks the art of Egypt came as a revelation, and produced the effect of such; but what revelation can come to us who know from books and newspapers all that has been or is in the arts and sciences in every remotest corner of the globe? The pointed arch and flying-buttress produce a new style; is the fire-proof floor likely to do as much? The whole system of iron and steel construction might have been expected to bring about a new era, and was by some asserted to be on the point of doing so; but one, nay, two generations have passed without the expectation showing any signs of being fulfilled, unless the Crystal Palace and the Forth Bridge may rank as a style of architecture by themselves. The reason seems plain—the lintel and the cantilever are not new, but only the materials and methods by which they can be produced on so large a scale; and the new system of construction accordingly is readily assimilated by the style already existing.

Let us not, then, trouble ourselves about a new style; for if such is to come, which I think I have shown is not likely, it certainly will not come by one individual or another setting out to cudgel his brains towards its invention. Instead, I would strongly urge upon you the prolonged and thorough study and the complete mastery in principle and detail of one of the great styles of architecture. Most, if not all, of the bad architecture we see around us is due to the want of such study—buildings which bear upon their face evidence that they are the work of ill-educated men architecturally. Suggestions as to composition, ill-assorted varieties of windows, oddments, so to speak, of mouldings and ornaments picked up at random from this book or that, strung together without cohesion or congruity of style—such are the characteristics of many a city front or suburban villa. A correct

* Being a portion of Mr. Paterson's Presidential Address to the Glasgow Architectural Association this Session.

rendering of a past style, applied with thought to the solution of a modern problem, may be uninteresting (though there is no reason that it should be), but it will never be vulgar; and vulgarity and the fine arts have no communion. If it be asked which of the various styles should be particularly the object of study, the true reply, to my mind, would be that for the purpose already indicated—regarded, that is, as a means of architectural training merely, training in grasp, refinement, homogeneity of design—it does not matter much which style is selected; nor is it necessary that the student confine himself to one, provided that the main principles and the details of each are thoroughly mastered. The architectural student of to-day would certainly consider himself but poorly equipped with but one style in his portfolio; yet, with regard to actual work, why should it be necessary for the architect to work in more than one style, unless it be to supply an actual demand on the part of the public for such variety (which, in most cases, is doubtful) or, perhaps, for the purpose of gaining competitions, according to the supposed predilections of the assessor or committee in charge? We become so accustomed to the state of things prevailing in our own particular day that there is something startling in the thought that it is only within very recent times—from but a generation back, indeed—that it has been considered a right thing or desirable that a church should be in one style, a house in another, and a town-hall or exchange in a third. Leaving aside this question for the moment, however, if it be proposed to make a selection of one style, and that from the point of view not only of training but of present and prospective utility, there can be no question but that the Renaissance (a loose enough name, but one easily and widely understood) is likely to prove of most advantage, involving, of course, as its base and root a previous examination, after the manner of the great Renaissance artists, of the architecture of Greece and Rome. The general trend of design by which Renaissance—or free classic if you prefer to call it so—in one form or another has become the style of modern civilisation the world throughout must be patent to all. Since its inception nearly four hundred years ago—if, indeed, its first beginnings should not rather be traced to some of the earliest rock-hewn temples of the East—by its elasticity, its adaptability to modern requirements and constructional facilities, it has surely, if slowly, become the recognised medium for the architectural expression of the civilised world.

A remarkable exception to this steady progression was witnessed in the late Gothic revival in this country, which was, as we all know, a deliberate revolt from the prevailing tendency. A few years, and its rise and decline have become matters of history. In the conscious eclecticism of its origin might have been surely seen the certainty of its short-lived success; for architecture to have

any vitality must be the free and natural expression of the thoughts, needs, and requirements of the time; and it is not in the power of any body of architects, however able, to impose upon society at large the necessity of “thinking back” six hundred years to discover how these requirements should be met. Yet be it noted in passing that by the mastery of the style selected many of the works produced under this influence have that permanent artistic value which I have already tried to show follows of necessity from a thorough knowledge and a discriminate use of any one phase of architecture. It does not lie within the compass of this Paper to trace the various concurrent courses which led to this remarkable development; but when we think of the greatness of the names associated with it, of Barry, Pugin, Scott, Street, and Burges, and of the entire failure to bring about the realisation of their expressed design—the establishment, namely, in this country of a phase of Mediæval art as the one channel through which all architectural thought should find expression—we may safely conclude that, having well nigh run its course, leaving behind it an undoubted influence for good in directness of thought, appreciation of beautiful and significant detail, and constructional honesty, it is not likely to be repeated. Church building is practically the only branch of present-day practice in which the active influence of the Gothic revival is still manifest, in a predilection in favour of churches in the pointed-arch style, which, in so far as it is a real sentiment, must still be met and responded to by architects. Whether this will have any continuance it is hard to say; though, when we think that it is only an historical accident, so to speak, that connects the spread of Christianity in Europe with the rise and apogee of Mediæval art; that the manner of Christian worship must adapt itself to the spread of education and other changes of modern times (witness the practical disappearance of the monastic orders with the need for the vast clergy-reserved choir in abbey and cathedral); and, further, that there is no necessary connection between the pointed arch and the religious sentiment, it would seem natural to suppose that this influence will pass away likewise, and that our sons after us will find it natural and well-becoming to worship God in a building more refined, maybe, and exalted, but of the same type of architecture as those devoted to mundane affairs. Of those buildings which I have seen, that which displayed, perhaps, most fully the religious sentiment was a Doric Greek temple converted to the uses of a Christian church. The Basilican type has an historical connection with the Catholic universal faith, closer even than the Mediæval cathedral. Nowhere do we find buildings more characterised by religious feeling than these, or the early Italian churches of Brunellesco planned on similar lines; and I for one hail with satisfaction the recently-announced intention of the Roman Catholics in this

country to revert to the earlier type in their new cathedral in London. The result, both as to the building itself and the influence it is likely to exert, will be looked forward to with interest; and in the hands of an artist like Mr. Bentley, whose work is too little known outside a limited circle of admirers, expectations, however high, are not likely to be disappointed.

With one of the expressed objects of the Gothic revivalists we should have every sympathy—their desire, namely, to have a *national* architecture. But have we any claim upon Gothic as an art peculiarly English? With the exception of its latest development in Perpendicular, surely history gives emphatic evidence to the contrary. On the other hand, in connection with the tendency for the Renaissance to become the architectural style of the world, are we doomed thereby to become enveloped in one prevailing and cosmopolitan monotony? By no means. In the originality of the individual we have one safeguard; in that of the nation, with racial and climatic influences of its own—forming tradition within tradition—we have another. The great styles, indeed—Classic, Gothic, Oriental—may be likened to wells of water, the gathering up of many wandering rivulets and distant springs; cleared as it were by a period of filtration and settlement, when, afresh distributed like irrigation waters through many diverging channels, they absorb an additional element in the character and complexion of the soils through which they pass. Look at the Renaissance as developed, for example (leaving out Italy as the fountain head), in France, Germany, Holland, England, and Scotland. It is the same style, yet how marked the national modifications, and this not only in the beginnings of the style, but even, if less defined (owing to tendencies to be spoken of later), in the present day, as a casual glance through the pages of *Academy Architecture* will show. In the other arts national sentiments and traditions are sufficient to cause this divergence; much more so in architecture, where, in addition to these, the varied character of the materials and methods of workmanship in the different countries of necessity heighten the contrast. That this is desirable from an artistic point of view we have already seen. Who so unpatriotic, then, as to throw over such influence in contributing, through the most permanent and most widely reaching of all the arts, to the evidence of his country's existence and individuality? Yet there is an undoubted tendency at the present time in the other direction, caused largely, no doubt, by the desire for originality at any price (though the reputation for it be gained only by being the first to filch a motive from some newly-discovered and remote territory), and ministered to by the publication from time to time of a book of jottings and details from this country or that, so that the future method of affixing a date to nineteenth-century work will be by consulting the publishing list of

an architectural library. The main and ultimate aim of this Paper, the point to which I have been gradually leading up, if slowly and with many erratic excursions, is to deprecate and discourage, as far as in me lies, such practice. Granted a prevailing European and over-seas style of architecture (for such, it seems to me, is bound to characterise the future of the art), we in Scotland have had, and we may and should continue to have, a *national* type of that style. Who can deny that the Scottish nation has characteristics in the present day, as in the past, differentiating it not only from the peoples of the Continent, but from its sister-race across the border? Cautious yet pushing; logical, humorous, and imaginative, yet parsimonious, or at least averse to lavish display; enthusiastic, especially in its hero-worship, yet in matters of every-day life undemonstrative—such are some of the outstanding qualities of the people which did and still should find an echo in its architecture, did vanity and the desire for personal display of superior knowledge on the part of architects not intervene.

In the past, we find a marked distinction in the character of the ecclesiastical buildings of England and Scotland in pre-Reformation times, the more noteworthy from the fact that such work owed its origin almost exclusively to the monks, for whom nationality was merged in the order. The difference between the English mansion-house of the seventeenth century and the Scottish castle of the same period was not caused entirely (though to a considerable extent) by the comparative degree of settlement of the two countries; it was also a matter of external and racial influence and of the character of the peoples. The same difference is traceable a century later, and still is observable (despite the counter influence spoken of) in the work of the present day. Compare old Glasgow College with its contemporaries in Oxford or Cambridge, or one of the late Renaissance mansions in the South with Drumlanrig Castle, which, though built as late as the very end of the seventeenth century, and in a manner altogether removed from the fortified keep of the so-called "Scotch baronial," is still entirely Scottish in character. And observe, the difference still exists in the ordinary every-day building, the farm-house or village street of the present time, where the architect, with his book-learning, does not interfere. Ugly these may be in their newness, but they are Scottish to the ridge and chimney-copes, friendly and homely to the folk who dwell in them, and to the landscape of mountain and stream amid which they grow. It is largely a matter of local materials and builders' traditional methods, but these things are the very salt of architecture as a living art. Why, then, throw them over in our town buildings, so that a street in Glasgow might as well be a street in Manchester, with a suggestion (somewhat distant) of Florence, or Seville, or Rotterdam to complete the medley? The Tower

of Babel made, gradual and steady, its upward progress to the stars till the confusion of tongues fell upon the builders. In such evil plight is our modern architecture, especially in this country of Britain, so that an Englishman nowadays will be in turn French, Dutch, or Spanish, while a Scotchman, when he cannot be any of these, will at least be an Englishman! Lest there should be any doubt as to the foreign inspiration, even indigenous materials and methods are thrown aside, so that, with doubtful results as to comfort and durability, our modern suburban villas and fishers' cottages in Scotland, inspired by the half-timber work of the South, may become like restorations from Cheshire or Shropshire, torn from their natural surroundings and (granted a new birth in varnished red-pine instead of oak) set up in the North to look disconsolate and home-sick among their robusiter brethren in stone. Forthwith the newspaper man, to show that he, too, has a smattering of the polyglot architectural, and wishful to extend his knowledge to the ignorant lay folk, describes such work as being in the "Swiss-châlet style." Why does almost every modern Scottish village church look hopelessly out of touch with its surroundings? Simply because the architect takes as his type the old English parish church, though since the days of John Knox the manner of worship and the whole cast of thought in matters religious have been entirely different in the two countries. The Disruption barn is not, perhaps, architectural, but it is at least in tone with its envioning houses in country town or stragglng village street; and, despite its bareness, savours of the Word preached within its walls. Is it not possible to take it as the type, and, while making our churches a real work of architecture, retain something of the local feeling and national Presbyterianism?

I would recommend, then, the study, not only of style, and particularly of the style of the Renaissance, but of our national Scottish development of that style. Do not imagine that I would have all our architecture, our warehouses and Exchanges, our cottages and mansions, modelled upon Crathes or Craigievar, Rowallan and Maybole, in the curiously named "Scotch-baronial" style, with rope mouldings, sham battlements and gun-ports, and turrets with "nae insides."* Such would only be the attitude of the Gothic revivalists exaggerated, and with the same fatal germ of eclecticism and "thinking back." The short life and early death of such a revival have already been seen in this country. I would have our national architecture studied in its later as well as its earlier develop-

ments, in such buildings as Heriot's Hospital, old Glasgow College, Drumlanrig, the later part of Falkland, and many smaller buildings of the late seventeenth and eighteenth centuries scattered throughout the country—studied in breadth and dignity, largeness of scale, simplicity of composition, and interesting sky-line, its concentration of ornament, and that of a varied and fanciful character. I would have the spirit of such work translated and made use of in carrying out, with all modern resources, the different architectural problems of our day. I would have the typical mouldings and ornaments preserved, but refined and corrected when need were by reference to their prototypes, with such characteristic features as the traditional construction of the skew in corbie steps, and the stone-corbelling, with the accompanying transitions from square to octagonal or circular forms in plan, made use of when occasion offered. It would accordingly be necessary, and above all things desirable, that the style should be studied, not as independent and self-centred (which it never was), but as the national phase of what is common to many countries. Hence, with our examination of Scottish work, we should combine the French and English which so strongly influenced it; the Italian, from which the first impetus sprang; and, through this last, the Roman and Greek prototypes of them all. Not that such knowledge should be applied in endeavouring to bring our architecture up to date (as I have seen it done) by piercing a tower of Scottish outline with pure *cinque-cento* windows, or adorning a corresponding gable with the early Italian shield with cherubs' heads and ribbons to match (decking, as it were, a kilted Highlander with a Roman scarf), but in rendering homogeneous and logical the whole, and in purifying and refining its features where the character of the building or its surroundings required it. I would further urge that we should employ home materials for the main masses at least of our buildings, in preference to outside and foreign ones; and that, when working in the country, we should find out and make use of the local characteristics as shown in farmhouse and cottage.

We need not fear that our work will become monotonous, lacking in variety or interest to ourselves, or the world in general. The Italian masters did not complain that they had but one style in which to design, and we do not find surely any lack of individual fancy in a series of works by, let us say, Bramante, Peruzzi, and Michelangelo. On the contrary, I cannot but think that our art, instead of losing, would gain in interest and variety, and in directness of appeal to all outside our ranks interested in architecture, from its closer connection with the country which nourishes us and with the early efforts of the men from whom we are sprung. A. N. PATERSON.

Glasgow, 31 Jan. 1895.

* The reference here is to a story current in Scotland of the owner of a brand-new Scotch-baronial mansion in progress, who, making his complaint to the clerk-of-works that he had in vain sought an entrance to a noble angle-turret with gun-ports and battlements complete, was thus answered: "Couldna get inside the turret, sir? Little wunner at that, for it has *nae insides*."—A. N. P.



9, CONDUIT STREET, LONDON, W., 14 February 1895.

CHRONICLE.

District Surveyors in London.

It will be remembered that at the General Meeting of the Institute held 3rd December 1894, when a discussion followed a Paper by Mr. Caröe [F.] on "The Recent Falling-off of Candidates in the Statutory Examination for the Office of District Surveyor," a Resolution was passed to the effect that the Meeting desired to see the high status of District Surveyors maintained, by permitting them to practise privately as heretofore, under such restrictions as might be thought necessary [p. 98]. This Resolution, duly communicated to the London County Council, has elicited an answer, addressed to the Secretary of the Institute, as follows:—

Spring Gardens, S.W., 18 January 1895.

SIR,—I have laid before the Building Act Committee of the Council your letter of the 20th December last expressing the desire of the Royal Institute of British Architects that District Surveyors should be allowed to take private practice, subject to necessary restrictions.

In reply I have been directed to inform you that this question has been most carefully considered by the Council on several occasions, and that the course now followed was only resolved upon after fully weighing the arguments on both sides. This being the case the Committee does not see its way to recommending the Council to reopen the matter.—I am, Sir, your obedient servant, H. DELAHOOKE, Clerk of the Council.

The reply does not touch upon the fact that recent legislation has imposed an increase of responsibility upon District Surveyors, although this formed part of the Resolution to which reference is made, and of which the London County Council were fully informed.

The Hungarian Architects and Engineers.

The Council of the Institute received, at their Meeting of the 11th inst., a most gratifying communication from Budapest, written in both Hungarian and English, on the triple subjects of the Congress held there last September, the reference to it in the President's Opening Address, and the recent election of two distinguished Hungarian architects as Hon. Corresponding Members. The English version of the communication, which is addressed to the general body of the Royal Institute of British Architects, is as follows:—

GENTLEMEN,—The Institute of Hungarian Engineers and Architects was highly pleased to

hear of the honouring reception you were kind enough to bestow upon its Secretary during his stay in London, while the friendly words with which your worthy President remembered the Hungarian Technical College for having cordially received our English colleagues when taking part in the Budapest Congress of Hygiene and Demography did not fail to fill us with great satisfaction.

Our Committee, at their meeting of the 15th January, unanimously Resolved to vote the thanks of the Institute for your having elected our colleagues Aloisius Hauszman and Emericus Steindl Honorary Corresponding Members respectively of your body, which distinction we consider, not only honourable to our said colleagues, but also to Hungarian Technical Science, as well as to Hungarian culture in general.

It is with high satisfaction that we take the pleasure of informing you of this Resolution of our Committee.

With the expression of our profound esteem, and with confraternal greetings, we have the honour to remain, Gentlemen, your obedient servants, THE INSTITUTE OF HUNGARIAN ENGINEERS AND ARCHITECTS. GYOZO CZIGLER, President; KAMILL FITTLER, Secretary.

The Budapest Congress was an eminently successful one, and it appears to have been highly appreciated by all the several nationalities represented at it. The report of the Delegates appointed by the Council will be found at page 16 of the current volume of the JOURNAL, and the President's reference at page 3. In connection with the letter read to the Council last Monday, and given above, letters were also read from Professor Steindl and Professor Hauszman, of Budapest; from Monsieur Charles Buis, the Burgomaster of Brussels; Monsieur Edouard Naville, of Geneva; and Mr. Barr Ferree, of New York, acknowledging, in the most cordial manner, the receipt of their respective Certificates as Hon. Corresponding Members.

The Eighth General Meeting.

The Meeting of the 11th inst., which was under the management of the Art Standing Committee, and graced by the presence of several ladies, was remarkable for a Paper on "The Value of Simplicity in Architecture," prepared by the President at very short notice, due to the fact that Mr. Alma Tadema [H.A.] preferred to make a speech rather than read a Paper, as he had first contemplated. The President's Paper was read by Mr. Caröe [F.], and the other two contributors were Mr. Basil Champneys and Mr. Halsey Ricardo. Prior to the delivery of the Papers, the Meeting was enlivened by a telegram from Mr. Walter Crane, to the effect that, though he could not attend it, the members might count him "against architectural confectionery and fidgety

“façades.” The Papers, and a full report of the discussion of them, will be found on previous pages.

Birmingham, London, and the Unemployed.

Thoughtful men cannot fail to have been struck with the great speech delivered to an audience of about 5,000 persons by Mr. Chamberlain, the Member for a part of Birmingham, and whilom its distinguished Mayor, on the 6th inst., at Stepney, under the auspices of the London Municipal Society, of which Sir Horace Farquhar, Bart., L.C.C., is the President, and Mr. J. G. Hay Halkett the Secretary. Excellent as the whole speech was, nothing in it was more instructive than the description of what Birmingham has already done, or more suggestive than the method Mr. Chamberlain would adopt towards meeting the great difficulty of providing work, which should be remunerative to the employer, for the unemployed. Here is what Birmingham has done and does in the way of municipal improvement:—

Birmingham is a town of 450,000 inhabitants—that is to say, it is about one-tenth the size and about one-tenth the population of this metropolis of ours. But in Birmingham the municipality is ever present; it is the active centre of all the public life of the town; its members are perpetually striving strenuously to promote the good, the happiness, and welfare of the whole population. We have in the centre of the town, within a convenient distance of the vast majority of the population, our great town-hall, where all the burgesses find their meeting-place upon great occasions of public interest. We have not got in Birmingham, when we hold a big meeting, to depend upon the kindness or hospitality of a private individual to find a meeting-place. The town-hall is flanked by a stately pile of magnificent buildings whose magnificence testifies to the importance and dignity of the work that is being carried on by the city council as trustees for the whole community. The city council are the directors of a great co-operative undertaking in which every citizen is a shareholder, and the dividends are payable in the better health, in the increased comfort, in the recreation, and in the happiness of the whole population. The mayor of the town is the first citizen of the town, and while he holds his office he is entitled to, and he receives, universal respect and honour from all the burgesses, and he is looked upon by them as their natural leader in all public and in all philanthropic questions. And what is the work which this council undertakes to do? It does all the work of your vestries; it does all the work which is done or which is proposed to be done by the County Council; and, in addition to that, it maintains, for the benefit of the people, an art gallery and two museums, the attendance at which in every year exceeds the number of persons who pass through the doors of the British Museum or the National Gallery. It has a great central library with 150,000 volumes, free and open to every member of the population. It has eight lending libraries scattered throughout the whole district, bringing the opportunity of education and recreation home to every citizen, and the issue from these lending libraries was, I believe, last year, something like one million volumes. It has five baths and washhouses; it has fourteen parks and recreation grounds; it has a technical school; it has a hospital for infectious diseases; it has the control and possession of the water-supply of the town; it has the control and possession of the gas-supply of the town. It has carried out an immense improvement scheme whereby a whole area and a whole district of the town has been

reconstructed; and it holds now, on behalf of the burgesses, estates in the town itself which are worth, I should think, on a moderate estimate, two millions sterling. All this activity, all these possessions belong to 450,000 people; they belong to a district which is no larger than these Tower Hamlets in which I am speaking.

Mr. Chamberlain would do as much for the Imperial Capital; but without decentralisation of local government in the Metropolis he thinks it impossible. He would divide this province of houses containing five millions of souls into ten separate municipalities of 500,000 souls—in other words, ten Birmingham. He commended the municipal spirit of the Midland capital, the intense feeling, the interest shown there in such common undertakings as he had described. It was due to the sense of possession which the poorest shared with the richest, the sense that this was their property and not another's. Londoners, he said, would not know what municipal government was, what its capabilities and advantages were, until they had acquired a similar spirit and similar or greater results, not for the centre of London alone, but for every district which contained a population equal to that of Birmingham, throughout the Metropolis. He proceeded:—

What are the two greatest of the unsolved problems of local life in London? They are the re-housing of the poor and the question of the unemployed, and I think also that these two questions are very closely connected. . . . The true remedy for the unemployed is to find work which will be remunerative in itself and which can be profitably undertaken. Remember this: it is no use finding work which is not wanted. If you establish, as some of our friends desire to do, municipal workshops to make things of which there is already too much production, you only glut the market, and for every man whom you employ in these municipal workshops you will turn out of employment another man who is already engaged in making the same article; therefore, I say, it is necessary that the work which you find for the unemployed should be new work, should be work that wants to be done, and should be work that can be done profitably. Now I do not know of any work that answers these conditions unless it be the work which can be undertaken in every district in London at the same time and in sufficient quantity—the work of reconstructing unhealthy areas and of re-housing the population. Nobody will deny the necessity of this work; nobody will say that it is not wanted, urgently wanted—the removal of congested districts in our midst, with all their attendant evils. They are not only a scandal, but they are a danger to public life and social order. This, then, is the work which is wanted.

My solution is that you should have, not in the centre of the town alone, but in all the outlying districts, great schemes of reconstruction and improvement. This is rather a serious proposal, and I have to ask your careful attention as I do not wish to be misunderstood. I set before you, as an alternative to anything that the County Council has done, as an alternative to mere street improvement, the reconstruction of areas. Now let me point out what that means. No small improvement—I do not care where it is made—can pay its way. If you run a street through a part of this district, and do nothing more, the whole cost of the street will fall upon you, and such benefit as there is will go to the surrounding districts. I defy you, however clever you may be, to draw up any scheme of

betterment which will materially improve your position. But if, on the contrary, you would take a great area, if you would take possession of the whole of it, and having got it, if you would treat it as a great landowner treats an estate—on business principles—if you would lay it out with big streets and side streets and open spaces, you may then let in light and air to a vast population, you may improve the condition of the whole district, you may increase the health of the whole community, and you can do all this at a cost which certainly will not be excessive upon the community. Now, that is a great proposition; that is a daring proposition; but it is made by one who knows something of what he is talking about. It is made by one who has carried out successfully a similar policy. When I was Mayor of Birmingham we had to deal with what you well know—with what you hear of constantly—what is technically described as an “unhealthy area.” That means a group of houses or a street or two in which the conditions of life are unfit for human beings. In one case there were streets in which the death-rate was 70 per 1,000, the normal death-rate being only about 20 in the 1,000. If we had dealt with that district by itself, as the County Council deals in similar cases, we should have had the whole expense upon our shoulders, and it would have been a very great one, and we should have got no advantage except the improvement of the immediate district. But what we did was to buy all the land around it. We bought 70 acres of building land in Birmingham, covered with houses, and we set to work to reconstruct the whole of that district. And we have done it with such effect that not only have we reduced the death-rate, not only have we improved the general condition of the town, but we have made great thoroughfares which have increased the convenience and increased the trade of the town. We have done it, it is quite true, at a cost which, in the first instance, was considerable, but which every day tends to disappear, until in a short time it will have disappeared altogether, and before long, in the course of time, our Corporation of Birmingham will be the free and unencumbered owner of 70 acres of freehold land worth, perhaps, two millions sterling.

But the speaker maintained that this could not be done by any central body, such as the present Council for instance, because so large a body, having control of an enormous municipality, could not attend to details. “But if there were established,” said Mr. Chamberlain, “local councils of authority and dignity, in all these great separate districts—provinces I called them just now—I believe that there would soon spring up a competition in good work among them, and that you would find numbers of such schemes initiated and carried out; and in that case I think that the problem of the unemployment of the working classes would soon be diminished and perhaps disappear; and that, at any rate, you would find work for those who are anxious to do work and unable to get the opportunity.” He further urged:—

I have spoken of great schemes in preference to small schemes, but one of my main reasons for urging them is that they would cost less, because, believe me, economy is at the very root of the efficiency of local government. Here is the County Council. In six years it has increased the average of the rate through London by 20 per cent., and there are people who know the finances of the County Council who tell you that if their policy is continued you must expect that that percentage will be doubled or trebled in the course of the next few years. Now there are some

very foolish people who think that the rates of London are a bottomless purse into which they can put their hands and scatter gold without ever coming to an end. There never was a more profound mistake. You may do what you please; you may propose schemes of betterment, taxation of ground landlords—yes, you may do all that to the best of your ability; you may try to ruin the rich if you like. I am speaking perfectly seriously. I go as far as this, and I am putting an extreme case. You may try, if you like, to put all the taxation on the rich—you may try till you are black in the face, but you will not do it. Whatever you do, the pressure of taxation will ultimately and in the long run fall upon the poor. That is an economic truth. If you ruin the shopkeepers you will add to the army of the unemployed; if you raise the rents of workmen's houses you will increase the overcrowding and the congestion of which we complain; and, therefore, if you raise the rates, as sure as the night follows the day you will increase the evil which you are seeking to diminish.

Mr. Chamberlain, in the course of his speech, said, perhaps, many things which could not be agreeable to the majority of members of the London County Council, to whom, however, he gave the credit of being actuated by good intentions. In his opinion, municipal life is a question of infinite detail upon which the happiness of the population depends; and municipal councillors, instead of soaring into the highest regions of abstruse politics, ought, he thinks, to condescend even to visit individual houses, look after individual drains, supervise and control the sanitary administration of a great city. He has no faith in the direct employment of workmen by a County Council, and fears that it may lead, as has been the case in America, to paying them more than they could earn in ordinary employment. “If by this means, or by any other means,” he said, “you increase the expenditure of your local authorities, if you prevent them, therefore, from doing work as cheaply as private individuals can do it, you destroy the very reason for their existence; and you make impossible the undertaking, or the successful prosecution, of those great enterprises which I desire to see undertaken.” That Mr. Chamberlain's schemes of improvement, not to mention the references made in other parts of his speech to the London County Council, will not find favour with a large majority of that body goes without saying. Witness Mr. W. Wallace Bruce's attack, in *The Times* of the 12th inst., upon the proposal to buy up and reconstruct insanitary areas in and around Central London.

The Glasgow School of Art.

In continuation of a course which Mr. W. J. Anderson [A.] is giving at the Glasgow School of Art, adapted for students preparing for the Institute Examinations, a special lecture was delivered on Thursday the 31st ult., the subject being “The Influence of Classic Architecture upon the Renaissance of Italy.” Previous lectures having dealt with Greek and Roman styles of architecture, it was sought to define the limits of their influence upon the movement known as the Renaissance.

The early Florentine Renaissance buildings were, in their form and treatment, more affected by the preceding Romanesque and Italianised Gothic buildings than by any antique examples, and the revival in Florence partook as much of an Etruscan character as it did of Roman and Greek. Still more may the Gothic influence be traced in the early work of the Milan district, as, for example, in such buildings as the Certosa di Pavia, Como Cathedral, which are really transitional in character. But although the divergence in form and even in methods of treatment are not remarkable, the treatment of every detail was affected by study of classical art, and by an evident desire to get to the root principles of things. The result is seen in such exteriors as the school of St. Mark and the church of Santa Maria Miracoli in Venice. The classic influence was more powerful in the period immediately succeeding, when Bramante, Peruzzi, Sanmichele, and Sansovino produced works based on direct personal study of Roman buildings. In many of these the distinctive Roman system of combined construction was adopted, while in others the arch was eliminated, and an attempt made to attain to a Greek type of design. Palladio, Vignola, and Serlio went farther, and in their books at least reduced everything to a proportional formula; while Michelangelo and others seem to have rushed to an opposite extreme, and deviated from all law or decorum. The lecture, which occupied one hour and three-quarters in delivery, was illustrated by about eighty photographic slides, explaining the history of the revival in Italy from the fifteenth to the seventeenth century.

"Greek Studies."

A posthumous work, by Walter Pater, just published by Messrs. Macmillan & Co., is worthy the attention of those who read and discussed the Papers of last Monday. In the words of a recent reviewer of the book, few writers in our time have so keenly apprehended and applied that severe and ultimate rule of art, control—control of thought, control of style, control, above all, of that dynamic condition of the human mind which we call "imagination." This same "Imagination," wrote the late Mr. Pater, "is a Divine gift, as was the Bacchic Vine; but each can intoxicate the heedless, and so enslave where it should serve. Therefore, I do not say with you that X. Z. is great because of his magnificent imagination, but because of his magnificently controlled imagination." Thus, it would seem, even imagination, inspiration, genius, to be made practically useful, must undergo training—in other words, must follow some organised system of education. Indeed, Mr. Basil Champneys, in his excellent Paper, very happily supported Walter Pater when he said, in reference to the great artists of the past, that the main discipline of the artistic conscience had been to put aside all

imaginations not cognate to the central conception—to repress constantly, never to stimulate, the inventive power.

Additions to the Library.

Verona, and other Lectures, by John Ruskin [London & Orpington: George Allen], has been received from the Publisher. *The London Building Act 1894*, with appendices, concise notes, and cross references, by W. R. Griffiths and F. W. Pember [London: Wm. Clowes & Sons, Ltd.]; *Stresses and Thrusts*, by G. A. T. Middleton [A.], being a text-book for students, and an enlarged edition of the same author's *Strains in Structures* [London: B. T. Batsford]; and *Lockwood's Builder's, Architect's, Contractor's, and Engineer's Price-book*, with a Supplement containing the London Building Act 1894, and edited by Francis T. W. Miller [A.] [London: Crosby Lockwood & Son], have all been received from their respective Publishers.

The Mausoleum at Halicarnassos, being an address delivered by Dr. A. S. Murray [H.A.] before the Glasgow Archaeological Society, and now published from the *Transactions* of the Society in pamphlet form, has been presented by the Author. *The Cathedrals of France*, an article originally contributed to *The Cosmopolitan Magazine* for January 1895, by Mr. Barr Ferree [Hon. Corr. M.], having been issued in pamphlet form for private distribution, a copy has been received from the Author.

The *Proceedings* of the Royal Society (vol. lvii. Nos. 340, 341); *The Geographical Journal* (including the *Proceedings* of the Royal Geographical Society) (vol. v. No. 2); *The Yorkshire Archaeological Journal* (part 51), containing among other papers a continuation of *Notes on Yorkshire Churches*, by the late Sir Stephen Glynne, Bart., and an illustrated Paper, *Mural Paintings in St. Peter's Church, Pickering*, by the Rev. G. H. Lightfoot; *The Journal and Transactions* of the Royal Photographic Society (vol. xix. No. 5); the *Transactions* of the Surveyors' Institution (vol. xxvii. part v.), containing a short Paper on *The London Building Act 1894*, by Henry Blackburn, with Discussion; and the *Twentieth Annual Report* (1893-94) of the Yorkshire College, Leeds, have been presented.

The first six parts of *The Quantity Surveyor*, by Charles Henry Searle, "being a Treatise (published in parts at 1s. 8d. each, post free) on the most modern and approved methods of measuring the various Artificers' Works in connection with Buildings, drawing up Bills of Quantities, and drafting Specifications and Contracts."

Neubauten und Concurrenzen in Oesterreich und Ungarn, edited by Herr Oskar Marmorek, is the title of an illustrated monthly periodical of architectural interest published in Vienna. The copies of the first and second issues (January and February), just received, promise well for the

future of Herr Marmorek's excellent architectural "monthly." The numbers already issued of the current (twelfth) volume of the *Deutsche Techniker-Zeitung*, of Berlin, have also been received from the publisher.

Epigraphia Indica of the Indian Archæological Survey (vol. ii. part xvi.) has been received from the Government of India. This part completes the second volume, and with its issue the arrangement for publication under Dr. Burgess [*H.A.*] terminates.

Mr. Mowbray A. Green [*A.*] has devised a new sort of form for architects' certificates, a book of which he has presented to the Institute. The advantages of Mr. Mowbray's certificate-form over others are (1) that the names of employer and contractor are placed on form and counterfoil, so as to avoid confusion; (2) that the receipt given in respect of the certificate is numbered by the architect at the time of making out the certificate; (3) that the whole is paged and indexed for the purpose of ready reference. Mr. Mowbray is further responsible for the arrangement of a form for Architects' Orders for Extras and Additions, a book of which he has also forwarded.

REVIEWS. XXI.

(62.)

THE INFLUENCE OF LITERATURE ON ARCHITECTURAL DEVELOPMENT.

* *Premiated Essays under mottoes "Craigside" (G. L. Sutcliffe [*A.*]), "Research" (J. Humphreys Jones [*A.*], B.A. Lond.), and "Ye Skeptic" (Alfred C. Houston [*A.*], Ashpitel Prizeman 1892).**

I have read with interest and pleasure the three essays sent in under the mottoes "Craigside," "Research," and "Ye Skeptic." They approach the subject in three different ways. The author of "Research" treats literature as the expression of national feeling, and then proceeds to enquire how far such feeling has been reflected in architecture. The writer of "Craigside" has carried his investigation into detail, and traces the influence upon architecture of the several kinds of literature, which he enumerates as religious, poetic, and romantic—the literature of emotion—and historical, scientific, and philosophical—the literature of thought. "Ye Skeptic" falls foul somewhat of the title proposed for an essay, partly on the grounds that literature is without influence upon architecture, partly—and there seems to be some confusion of thought here—because such influence must be for the bad. In fact, he regards his work as "an excursion into the pathology or

"morbid anatomy of architecture." For all that, he has written in a vivacious and well-informed manner.

It seems to me that the successful treatment of the prescribed subject makes at least two leading demands. On the one hand, there should be the attempt to ascertain the test, or tests, by which we are to measure the influence in question. And, on the other, the standards which have been so arrived at should be applied to one or two select periods.

It is impossible within the limits of a single essay to trace out the connection of architecture and literature for the last twenty-five centuries. This, indeed, has been attempted, and, considering the difficulty of his task, not without success, by "Research." "Craigside," who shows considerable learning, and has consulted the best authorities, is even more ambitious. He has written a summary of literary history under his six selected heads. It is one of the merits of "Ye Skeptic" that he has confined himself within narrower limits.

If we turn to the other part of the subject as I have ventured to divide it, the enquiry, namely, how the influence of literature upon architecture may be assessed, the opening portion of "Research's" essay appears to me to be most successful. He treats the art of building as one among the several modes by which a national spirit may find expression, and tries to show how the causes which have led to the rise of literature, in the strict sense of the word, have tended to change the functions performed by architecture.

What are the influences which determine the development of architecture, and how far does literature play a part among them? Before we can answer this question we ought to be quite clear as to the meaning we attach to our words. When we speak of architecture, do we include painting and sculpture, so far as they are subsidiary to it? Much of the enthusiasm which is aroused by fine buildings is due to the combination of these three arts. Nay, the further question at once arises—Is architecture, as an art, subsidiary to sculpture? Although this last question is rarely answered in the affirmative, yet the fact that it can be put should at least give us pause. At any rate, we may admit at once that the architecture of certain periods, and these the most brilliant, cannot be understood apart from the contemporary sculpture and painting. For example, "Ye Skeptic" makes a vigorous attack upon the Greek revival which took place in the early part of the present century. But he omits the most damaging count of the indictment which might be brought against it. The Greek styles, and pre-eminently the Doric, are designed with a view to colour decoration. This was applied to the finest materials. The visitor to the Acropolis sees scattered about the inner approach to the Propylæa the white marble fragments of the roof,

* The Essay sent in under motto "Bid me Discourse," the work of Mr. A. T. Bolton [*A.*], *Soane Medallist* 1893, to whom was awarded the Institute Silver Medal (Essays) and twenty-five guineas for the current year, will be published in a future issue.

with the traces of colour decoration still visible. Thus the beautiful marble of Pentelicus was thought to gain by the use of colour. In the light of this universal use of colour by the Greek architects it is impossible to feel in sympathy even with the best works of the English revival; the repellent air which such works seem to have is due to this breach of the true rules of the style. Further, the finest Greek buildings seem to have been designed with a special view to the reception of paintings. We can still trace in the temple of Zeus at Olympia the slabs employed to receive the paintings of Panæus.

It appears, therefore, that colour ornaments, and even paintings, are an integral part of the finest Greek architecture. As it happens, the technique of the masters contemporary with Phidias was of a simple character owing to imperfect acquaintance with perspective, and we can gain sufficient idea of their work from sculpture reliefs and vase paintings. If Greek architecture cannot be understood apart from colour decoration and painting, still less can it be understood apart from sculpture. In studying Greek work it is impossible to dissociate the buildings from the sculptures employed to give them meaning. The Greek who visited the Acropolis was less struck by the elaborate sculpture of the Parthenon than by the fact that the pediments of the Propylæa were left without it. If we enquire into the subjects represented upon the buildings, we find that they were drawn from the general mass of popular tradition, and in most instances stood in close connection with local legends. Here, then, we have a point of contact between architecture in the widest sense and literature. The Parthenon was the frame, so to speak, for a picture, or rather gallery of pictures, in marble; but it was more than this. The uses to which the building was put interpreted the sculpture which adorned the pediments and the frieze. There was thus a vital relation between the building itself and its ornaments.

Let us now take the Greek practice as a clue to guide us, and resume our enquiry. We gain a stronger feeling of the unity of the arts; we find the same subjects treated more or less in the same spirit on paintings, sculptured reliefs, painted vases, and we are reminded over and over again of the same subjects as treated by the poets. Yet each artist in his own kind works at his task in the method of his school. There is no attempt on the part of the public to interfere in the procedure of the artist. His task is indicated to him, but he carries it out in his own way. Pericles was the moving spirit in the erection of the great buildings of the Acropolis, but he left the artistic direction to Phidias. Hence the influence of literature upon Greek architecture was very indirect at its best period.

If we pass from the age of Pericles to the prac-

tice of the present, we are at once struck by the greater complexity of the work demanded from the modern architect. The different problems of planning and construction can only be solved in many cases by a great mental effort involving capacities of a special order. Hence we cannot expect the architect to be skilled in collateral arts; at least to the same extent as before modern times. The public taste and the practice of English architects have broken away from the use of colour, and are only now returning to it in any considerable amount. The neglect of colour decoration may be put down with some justice to the effect of literature. Travellers have spoken of the purity of effect which the white columns of southern temples possess even in their ruin. And people who desired to keep close to the spirit of the antique work have treated the use of colour as a deviation from their adopted standard. Hence our dismal classical productions. That sculpture, again, is so little appreciated in England is an inheritance from the Puritan revolution. So far as that was the outcome of literature in any of its forms, we must attribute to literature a harmful effect upon the state of architecture. If, on the other hand, we sought a positive characteristic of the best modern work, we might find it in its striving after the picturesque, taking the word in its proper meaning. The distribution of masses and of openings, so as to produce certain effects of relief and of shadow, is to use the resources of building in the manner of a painter. In England, at any rate, it has been a literary influence that has determined the tendency of architecture in this direction.

Nottingham.

FRANK GRANGER, D.Litt.

(63.)

THE CORPORATION OF LONDON AND ITS PUBLIC WORKS.

History of the Tower Bridge and of other Bridges over the Thames built by the Corporation of London. Including an Account of the Bridge House Trust from the Twelfth Century, based on the Records of the Bridge House Estates Committee. By Charles Welch, F.S.A., Librarian to the Corporation of London. With a description of the Tower Bridge by J. Wolfe Barry, C.B., M.Inst.C.E., Engineer of the Bridge; and an Introduction by the Rev. Canon Benham, B.D., F.S.A. Prepared under the direction of the Bridge House Estates Committee. 4o. Lcnl. 1894. Price 25s. net. [Messrs. Smith, Elder & Co., Waterloo Place, London.]

When the Corporation of London comes forth as an author, great expectations are naturally aroused. If we do not as a rule go in for very big things in this country, the Corporation of London is our grand exception, and has always been distinguished for liking to have "everything handsome about it." Therefore it is hardly necessary to say that this book, compiled and produced under the immediate auspices of the City, is thoroughly sumptuous in character, and

that nothing has been spared for its embellishment—at least in the way of large print, thick paper, wide margins, and numerous illustrations. So lavish, indeed, are its producers that they have put very much more into their book than the most exacting of readers could have expected from its chief title. We look for an account of the Tower Bridge, and we find that all that can be collected about the structure in question occupies less than a quarter of the volume, all the rest being purely works of supererogation. The actual description of the design and construction of the bridge by Mr. J. Wolfe Barry is clearly written and satisfactory enough, but it cannot be said to add anything of importance to the information on the same subject which we already possess, notably in the two works—one of them by Mr. Barry himself—published last year, and reviewed in the *JOURNAL** by Mr. Paul Waterhouse. Mr. Barry's paper forms a sort of kernel around which civic wisdom has wrapped, as though to enshrine it in a permanent and gorgeous covering, innumerable layers of quite extraneous matter, varied and diverse in quality and texture, and forming altogether a most wonderful miscellany.

As to composition, it is difficult to say what is *not* included, either by way of introduction or supplement to the main article; but one argument pervades and gives unity to the whole mass—the theme of the greatness of the Corporation of London and the surpassing magnificence of its public works, and more especially of all those lately completed. Mingled with, but rather lost in, this flood of eulogies, a diligent reader may pick out a good many bits of solid historical and archaeological matter relating to Old London Bridge, the Bridge House Trust, and other City antiquities. Some of these compilations are well done and interesting in themselves, but they all seem quite inappropriately introduced here; for, jarring strangely and painfully with the general impressions produced by these reminiscences, there runs through far too much of the book the smug, self-complacent spirit of the typical town councillor or vestryman, gloating over every “modern improvement”—more especially when a demolition—and perpetually congratulating himself on being altogether such a superior being to any of his poor, benighted forefathers. However, a grand drawing-room-table-ornament book has been produced, and there is certainly a fine bold air, a magnificent assumption, about this volume which distinguishes it above others; and, indeed, rather takes one's breath away. The notion of bringing in half-contemptuous descriptions of Old London Bridge, and mediæval London in general, by way of foil to the Tower Bridge, for the greater glory of the latter, has about it something of the sublime; there would be nothing surprising now

in seeing an account of the Westminster Aquarium swelled out by incidental notices of the neighbouring Abbey and Palace, or a description of the marbles of the British Museum forming a preamble to an essay on the Griffin of Temple Bar.

ARTHUR S. FLOWER.

NOTES, QUERIES, AND REPLIES.

COMPETITIONS.

Clauses of Two Recent Sets of Conditions.

The Conditions of a competition between architects, promoted by the county borough of West Ham, for a Technical Institute and Public Library, have attracted attention from the liberal spirit in which they are put forth and from the preciseness of their general tenour, Mr. Macvicar Anderson being the assessor. Another competition, promoted by the Aston Union, Birmingham, for Cottage Homes, is conspicuous by the clearness of the Conditions imposed upon competitors—no professional assessor having yet been appointed to advise the promoters, the right to do which they reserve. Extracts of important clauses from both papers here follow:—

The West Ham Competition.

The plans to have flat tints indicating the floor areas, &c.; the walls, both in plans and sections, to be coloured red, and the elevations and perspective to be in pen and ink without any tint or colour. The dimensions of the principal rooms to be figured on the plans, and their heights on the sections. The drawings to be on sheets of white paper, of uniform size, mounted on plain stretchers, without frames or borders, the stretchers being covered with the drawings.

Each competitor is to submit one design only; and no alternative design, or alternative treatments of parts of the design, will be allowed.

The floors throughout to be of fire-proof construction. The system of warming and ventilating the whole building to be indicated on the drawings as far as practicable, and to be fully described in the report which is to accompany each design.

The total cost of the building is not to exceed £40,000. Any design the probable cost of which is adjudged by the assessor to be likely to materially exceed that sum will be set aside.

Each set of drawings to be accompanied by a report giving a general description of the design and of the materials proposed to be employed, as well as of the suggested schemes of warming, ventilation, and sanitation. The report to comprise an estimate of the sum for which the building can be completed, the cubic areas, and the rate per foot cube at which they are priced being stated. The estimate is to include library and other fittings, and every branch of work, except such fittings as are in the nature of furniture.

In the event of the estimate of the successful competitor being materially exceeded by tenders from approved builders, the Council reserves to itself the right to set aside the selected design, and the author in such case to have no claim beyond the amount of the premium which may have been awarded to him.

Three premiums of £250, £150, and £100 to be paid to those competitors whose designs are respectively placed first, second, and third in point of merit by the assessor. The competitor to whom the first premium of

* Vol. I. Third Series, p. 562.

£250 is awarded, to be employed as the architect, and he shall be paid for his services in accordance with the Schedule of Professional Practice and Charges of architects, published by the Royal Institute of British Architects, such payment being independent of the premium of £250.

The following will be deemed by the assessor to be grounds for disqualification, viz. :—

- (a) Any attempt on the part of a competitor to make known his identity, or to influence the decision personally, or through any member of the Council, or otherwise.
- (b) The delivery of a design after the specified date, unless arising from accident in transmission, satisfactorily explained.
- (c) Any encroachment beyond the building limitations of the site [as laid down in an accompanying plan].
- (d) Non-compliance with the conditions as to the drawings, as to number, scale, and style of execution.
- (e) Material excess in cost beyond [£40,000] the sum named.
- (f) Departure from or non-compliance with any of the conditions embodied in the foregoing instructions, the whole of which will be rigidly adhered to and enforced.

The Aston Union Competition.

The Architect who sends in the plans and specifications deemed best by the Guardians, and selected by them, shall be appointed Architect for the buildings contracted to be erected and erected, or shall, as the Guardians in their sole discretion may determine, instead of being so appointed, be awarded the sum of £70 for his plans and specifications, such plans and specifications to be retained by the Guardians, and to become their absolute property for adoption or otherwise.

The commission of the Architect whose plans are selected as best, if he be appointed to carry out the work, shall be at the rate of 5 per cent. upon the cost of the buildings erected, with the exception of the cottages of each size after the first pair, upon the cost of which $2\frac{1}{2}$ per cent. shall be the rate of commission, and this payment shall be the entire one in return for the plans and specifications, the superintendence of the erection of the buildings, and the carrying out generally of the works to be executed.

If the lowest tender to do the work according to the selected plans and specifications from a builder or builders whom the Guardians deem substantial or suitable shall exceed by 10 per cent. or more the estimate of the architect, the Guardians shall have the power to reject these plans and specifications, although they have been provisionally accepted, and to select and adopt those of some other architect in their place.

The Guardians may appoint a building surveyor or arrange with the successful competitor for the preparation of bills of quantities, but if they take the latter course the charge is not to exceed $1\frac{1}{2}$ per cent. on the cost of the buildings erected.

The Architect who sends in the plans and specifications considered by the Guardians as second best, and selected by them, shall be awarded the sum of £30, such plans and specifications to be retained by the Guardians and to become their absolute property for adoption or otherwise.

The Guardians reserve to themselves the right to engage an Architect or Surveyor to advise them with respect to any points that may arise in the selection of plans, but the selection will rest with the Guardians themselves.

The Guardians shall not be bound to select and accept any set of plans and specifications, and if they do accept any, the acceptance will be subject to the approval of the Local Government Board.

The drawings shall include a block plan showing all the buildings and drawn to a scale of 50 feet to 1 inch, also plans and elevations with any necessary sections of each separate building, drawn to a scale of 8 feet to 1 inch. Perspective drawings and coloured elevations shall not be sent in.

A written explanation must accompany the plans, but this, as well as the specifications, must not be in the architect's own handwriting.

The buildings to be shown on the plans must not entail any unnecessary expenditure in ornamentation or otherwise, but must be of the best materials and construction, and of such materials and design as to properly harmonise with the present workhouse buildings.

It may be interesting to note that, in both instances, the promoters decline to accept coloured elevations, and those of the Aston Union competition refuse to allow perspective drawings to be even sent in. In the latter instance a clause in the Conditions, that "any alterations whatsoever of any plans or specifications required to be made, either before the commencement of the work or during its progress, by the Guardians or the Local Government Board shall be made by the Architect appointed, without any additional charge," seems extraordinary, seeing that no limit is set to the extent of such alterations; but, possibly, in practice the extra labour and time involved would be infinitesimal.

Thomas Sandby, R.A., and Inspiration [p. 224].

From W. D. CARÖE [F.], M.A. Cantab., F.S.A.—

Mr. Street's review of *Thomas and Paul Sandby, Royal Academicians*, and the further notice upon Thomas Sandby, R.A., form not only interesting, but instructive reading, deserving of attention in these days of much discussion upon educational systems.

As Mr. Street implies in his question, "Where did Vanbrugh pick up his architectural knowledge?" it is remarkable, considering the records of his training, how Thomas Sandby acquired his undoubted proficiency in architecture, and the capacity to expound it, without any of the drilling, or education, or other methods adopted by this generation—to say nothing of examination. The quotation from Thomas Sandby's peroration, on p. 224, is specially striking, and leads to the conclusion that he certainly acquired his proficiency by "unremitting attention and indefatigable exertion," or, as the writer in the *JOURNAL* aptly paraphrases it, "hard study and diligent application."

But it may well be asked, "Where does Sandby refer to or imply the necessity of progressive examination?" It is rather hard to say whether the last five words used by the writer on p. 224 are to be classed as pathos or bathos, or an example of that curious aberration of a mind—such as one too often sees with regret—warped by the constant contemplation of one side of a question.



MINUTES. VIII.

At the Eighth General Meeting (Ordinary) of the Session, held on Monday, 11th February 1895, at 8 p.m., Mr. F. C. Penrose, F.R.S., *President*, in the Chair, with 27 Fellows (including 8 members of the Council), 24 Associates, 1 Hon. Associate, and 22 visitors, the Minutes of the Meeting held 28th January 1895 p. 225, were taken as read, and signed as correct.

The following candidates for membership, whose nomination had been previously approved by the Council, were recommended for admission: As FELLOWS, William Hennan [A.] (Birmingham); Paul Waterhouse A., M.A. As ASSOCIATES, Thomas Kershaw (Halifax); William Hodgson; Ernest Edward Fetch; Frederick Bligh Bond (Bristol); John Pain Clark; William Edward Vernon Crompton (Wigan), *Ashpitel Prizeman* 1894; Frederick Ernest Pearce Edwards (Liverpool); Henry Ernest Kirby; Charles Edward Bateman (Birmingham); Alfred Whitlock Field; George Gunn (Sandgate, Ayr); Wilberforce Ernest Hazell; John Henry Price (Liverpool); Harry Tom Boden Spencer; George Augustus Bligh Livesay (Bournemouth); Alexander Paul Macalister (Cambridge); Thomas Harry Weston (Bristol); Henry James Wise; Herbert Jeffrey Palmer; Joseph Spain (Sunderland); Charles Septimus Errington (Newcastle-on-Tyne); Frederick Brice Hobbs (Liverpool); Harry Wilson Pye; John Cadwallader Dewhurst (Belfast); William Edgar Gauld (Aberdeen); Robert William Horn (Glasgow); Vivian Herbert King; Alfred Henry Mills (Manchester); Thomas Aloysius Pole (Brisbane); George Patrick Sheridan; Percy Henry Adams; Harold Bailey (Hull); Percy Paovich Cotton; William Adam Forsyth; Francis John Potter; Charles Henry Smith; John Borrowman, jun.; Harry Ebenezer Budden; Frank Berridge Cooper (Leicester); Archibald Campbell Dickie; Samuel Stevens Dottridge; Arnold Seaward Taylor; Harold Edmund Church; Henry Ingle Potter; Alexander Robert Hennell; Allan John Pinn (Exeter); Sydney Benjamin Beale; Henry Ascough Chapman (Scarborough); George Coster (Bournemouth); Ernest Outram Cummins; Herbert Alfred Legg; George Oakley Scorer; Thomas Duncan Rhind; Luke Barlow (Manchester); John Laurie Carnell (Norwich); Hyla Edward Elkins. As HON. CORR. MEMBER, Louis Viollier (Geneva).

In reference to the award of the Royal Gold Medal for the current year—the day of election being Monday, 11th March 1895—By-law 64 was read; and the President announced that the Council proposed to submit to Her Majesty The Queen the name of Mr. James Brooks, *Vice-President*, as a fit recipient of that honour, for his executed works as an architect.

Papers on THE VALUE OF SIMPLICITY IN ARCHITECTURE, by Mr. Halsey Ricardo, Mr. Basil Champneys, B.A., and Mr. F. C. Penrose, F.R.S., *President*, having been read and discussed, a vote of thanks to their authors was passed by

acclamation; and Mr. Champneys having acknowledged the compliment, the Meeting separated at 10 p.m.

PROCEEDINGS OF ALLIED SOCIETIES.

MANCHESTER.

Electric Lighting. By E. A. Claremont.

Read before the Manchester Society of Architects, 8 Jan. 1895.

The purpose of this Paper is to describe various methods of obtaining light by electricity, many appliances required for the purpose, and the methods of erecting them. The subject is too vast to be treated in detail within the limits of a single Paper, so I shall touch only upon points of special interest.

In order that I may not use terms which may be confusing I have prepared the annexed table, which you can refer to, and on which you will see many of the terms are synonymous. You are all, doubtless, familiar with primary batteries of one kind or another, and how by connecting the two elements contained in a battery a current is set up.

Here is a diagram (fig. 1) where you will see that the battery, having a certain electromotive force, and the conductor joining the two elements or poles of the battery, having a certain resistance, an amount of current of definite quality will flow. By the formula you will see that, given any two of three quantities, the third can be

TERMS.	
VOLTS.	} Pressure.
E.M.F.	
ELECTRO-MOTIVE FORCE.	
POTENTIAL.	
AMPERE	} Flow of Electricity.
CURRENT.	
OHM=RESISTANCE.	
WATT=ELECTRICAL ENERGY.	
CURRENT × VOLT=WATTS.	

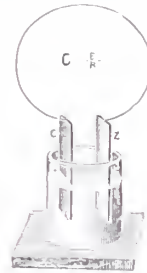


FIG. 1.—BATTERY AND CIRCUIT AND OHM'S LAW.

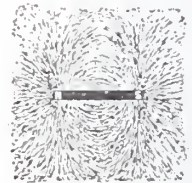


FIG. 2.—MAGNET AND LINES OF FORCE.

ascertained. Another method of obtaining a current is by "induction." To many this term is confusing and the process mysterious, but a little explanation will soon make it clear.

Any magnet has continually between its two poles lines of force or magnetism (of course invisible), and the diagram (fig. 2) illustrates this phenomenon. If I take a short length of insulated copper wire and wind it into a ring over my fingers, and then twist the bared ends together, and now revolve this coil in the lines of force from the magnet, current is "induced" in the coil and flows continuously in it while I continue to revolve it. That current is therefore obtained by "induction." I have had to describe these two processes of obtaining current in order to explain more clearly what follows.

I will now describe various types of dynamos, which, of course, constitute the chief means of obtaining current in the first instance for electric lighting.

It is true electric lighting can be obtained from primary batteries, but so far nothing has been achieved in that direction to be compared with dynamos, and most electricians rather shudder at the thought of having to use them for such a purpose. To obtain electric energy of really useful quantities from them, I think they all need very

strong acids, which give off terrible fumes. I have heard of a good room in a hotel being used for a few hours to store such goods in to give the electrician an opportunity of showing his wares, with the result of the paper and paint being bleached and coming off at the slightest touch. But that battery may have been a bad one. We can divide dynamos into three classes: "Series," "Shunt," and "Compound." Their names are very descriptive of their constitutions, as you may readily see from the diagrams.

Fig. 3 shows a "Series" dynamo, and the armature, which is merely the small coil I made on my fingers just now, mechanically applied, revolves between the poles of the magnet, and cuts the lines of force, and so has induced within it a current of electricity. This current is, by a simple appliance called a "commutator," which is attached to the armature winding, made to leave the armature in one direction and a practically continuous stream. The current, leaving by one brush or collector, passes through insulated wire wound on the magnet, and then on through all the paths provided for it in the external circuit, and back through the other brush—the external circuit representing merely any work or obstacle through which the current must traverse before it can get

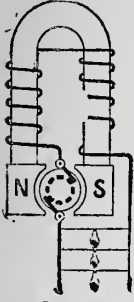


FIG. 3.—SERIES DYNAMO AND CIRCUIT.

back to the machine. Current will pass through the various paths provided in multiple in proportion to their resistance. Now, if I take a bar of iron which has a little magnetism in it, I can induce a current in a coil as I have shown; but if I take the same bar and wind on it insulated wire, through which I pass a current, the magnetism in the bar is increased enormously. What was only sufficient to be noticeable with a delicate instrument will now lift heavy weights. Such an arrangement is an electro-magnet. This bar of iron has sufficient magnetism to attract a pivoted needle, but that is practically all it can do. On attaching this source of electricity to allow a current to flow round the wire on the iron bar, the strength is considerably increased. The diagram of the Series machine shows how the current must pass round its iron magnet limbs before it gets to the external circuit, the magnet circuit and external circuit being in "series"—hence the name—and the result is that the magnet is rendered very strong, because it is converted into an electro-magnet. This armature will, up to a certain point, give out current according to the resistance of the external circuit, and so any variation in the external circuit will affect the strength of the magnet. For instance, suppose we add another path, then more current will traverse the magnets, and they will become proportionately stronger, and the electromotive force greater. So with a Series machine every additional path to the external circuit *strengthens* the machine and *increases* the E.M.F.

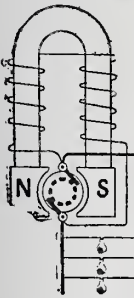


FIG. 4.—SHUNT DYNAMO AND CIRCUIT.

to their relative resistance. We will suppose the external and shunt circuits are equal; then half the current from the armature will traverse each. If we now add

another path to the external, more current will pass that way, and proportionately less round the "shunt." So that with a Shunt machine every additional path to the external circuit *weakens* the machine and *lowers* the electromotive force. This is exactly opposite to the result with the Series machine. Electricians require generally a dynamo which will give an unvarying E.M.F. irrespective of the load or external circuit.

I have shown two machines giving opposite effects, and now, if we combine the two, we obtain just what we require—a machine giving a constant E.M.F. irrespective of the load. This is a "Compound" machine, and, as the diagram (fig. 5) shows, the current can always traverse the shunt magnet coils, and all current passing to the external circuit must traverse the Series magnet coils. So with a Compound machine, provided the speed does not vary, the pressure will not vary, and you will have steady lights. The defect in the Shunt machine can be avoided by adjusting the resistance of the shunt circuit to suit the external, and that is easily done if an attendant is constantly on the watch; and in the Series machine by preventing more than the requisite current going through the magnet coils. If the resistance frame is provided with a switch the current passing through it can be graduated. If, then, this is inserted in the circuit of the shunt, the current can be regulated; and if it is inserted in the Series magnet circuit, some of the current will pass to the external circuit without traversing the magnets. A good dynamo (excepting some peculiar Series dynamos) should never spark. Provided the machine is correctly designed, the brushes, which are on a rotating frame, can be set at a certain neutral point where no sparking occurs, and the lines of force passing between the magnet poles take up a certain position according to the current leaving the armature. Now, if more current is demanded from the armature, it throws the lines of force into a new position, and unless the brushes are rotated to suit, sparking will occur. So the brushes must be adjusted to suit the load. This is merely a matter of degree, a good dynamo requiring only two or three adjustments from full load to open load. Generally speaking, in comparing dynamos, that one having the smallest armature compared with its magnets is the least likely to spark. If two manufacturers have each a ton of metal with which to produce a dynamo, one can make a machine from it to give, say, 200 lamps, and the other 400 lamps—the difference in the diameter of armature accounting for the difference in output. But the machine with the smallest armature will be the better; and, it follows, the heavier the machine for a given output the better it is. So the prices of dynamos are not comparable unless the weights, diameters of armatures, and speeds are alike. The purchaser must not be misled by spindle speeds, but must compare the periphery speeds, and see which machine is mechanically best suited for its speed. I have so far only described what are called continuous current dynamos, the current flowing in one direction; but there are machines made which produce a current which flows backwards and forwards, called an alternating current. They are somewhat similar in principle to those I have described, having, however, no "commutators" (which, you will recollect, I mentioned as being an apparatus attached to the armature of a continuous-current machine to obtain the flow of current in one direction), but merely collectors; and as the current produced by them alternates, it cannot, except under very special conditions, be used to magnetise the

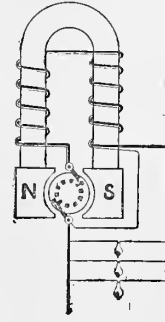


FIG. 5.—COMPOUND DYNAMO.

magnets of the machine; and so, generally, a small continuous-current machine is used for this purpose. These alternating machines are seldom used for private installations, but are most useful for lighting towns and conveying electricity over large areas.

Every dynamo has a definite output at a definite speed—that is to say, it has a definite E.M.F. and current, which, multiplied together, are termed watts. The word "watts," therefore, represents so much energy, but does not describe the proportion of E.M.F. and current. For instance, a dynamo capable of supplying 1,000 watts could be wound for 100 volts and 10 ampères, or 10 volts and 100 ampères, or 50 volts and 20 ampères, and so on, the multiplication of the volts and ampères giving a result in watts. Supposing, then, it was desired to light a widely-distributed area, it would mean that a certain quantity of electrical energy, *i.e.* a certain number of watts, must be conveyed to the various points. Now, conductors will carry current according to their sectional area, so the less the current to convey, the smaller the wires can be; and as the copper wires are one of the chief items of expense in electric lighting, this fact is taken advantage of by the watts being conveyed at a high pressure. That is to say, if three miles off we want electrical energy represented by 1,000 watts, we might convey it by having a wire large enough to carry 2 ampères at 500 volts. The expense would be exceedingly small compared with conveying 500 ampères at 2 volts, because 500 ampères would require an enormous wire.

Alternate current machines permit of their being built for very high pressure, and so are often used for distributing energy under such difficult conditions; but current at 1,000 volts, for instance, is not a desirable thing to have in private houses, because it might cause death if anyone handled the wire or fitting conveying the current; so transformers (fig. 6) are used to reduce the energy, when it has reached its destination, to something like reasonable pressure. You will all have seen an induction or shocking coil, and a transformer is practically the same thing. The iron core is wound with a fine and a thick wire separated from each other, and the current at high pressure arriving at, traversing, and returning from, the fine wire causes the coarse wire to give off almost the same amount of energy, but at a lower pressure. So the energy has been conveyed at a high and economical pressure, and is reduced at its destination to the low and domestic pressure.

The ultimate pressure usually found in towns is 100 volts. At Deptford, Mr. Ferranti, I believe, proposed to distribute current at an initial E.M.F. of 20,000 volts, but had so much trouble in controlling such a high-tension current that he reduced it to 10,000. The Manchester Corporation have adopted Dr. Hopkinson's five-wire system, of which fig. 7 is a diagram. You will see there are four dynamos of 100 volts each in series, giving a total of 400 volts between the two outside wires. Supposing each dynamo had its two wires as usual, eight wires would be required; but by this system there is a saving of three, besides other important advantages. The middle wire is "earthed"—that is, electrically connected to earth—so as to comply with the Barl of Trade Rules prohibiting more than 200 volts to earth in any building. With all continuous current



FIG. 6.—TRANSFORMER.

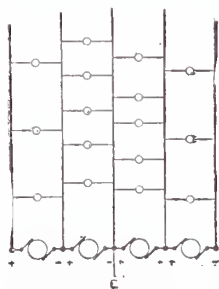


FIG. 7.—FIVE-WIRE SYSTEM.

is, electrically connected to earth—so as to comply with the Barl of Trade Rules prohibiting more than 200 volts to earth in any building. With all continuous current

systems especially, the loss of potential in conveying the current is very difficult to contend with. The trouble arises in the following manner:—We will suppose 5 ampères at a pressure of 100 volts is being conveyed to the building we are now in, and the wires are just large enough not to lose more than 2 per cent. That 2 per cent. is hardly noticeable, but on our turning on lamps absorbing another 20 ampères, the wires would lose a very considerable percentage, and the lamps would consequently fall in brilliancy. You will perhaps have noticed incandescent lamps about the town varying in brilliancy from time to time, and generally the cause is only the varying load on the mains, and not due to any defect at the supply station. Before leaving the subject of dynamos I should perhaps explain that an electric motor is practically the same thing as a dynamo, except that a dynamo has power imparted to it to turn it round; whereas a motor has only to be supplied with current, and it will revolve and give off power by a belt on its pulley or other means. You will have seen motors driving ventilating air-propellers. This means of transmitting electrical power and then converting it into mechanical is often used for colliery work—driving pumps, hauling tubs, and so on, and, in fact, for any work where it is not convenient or economical to have an engine.

There is a large field open to dynamo manufacturers to supply the works throughout the world now using steam uneconomically. Instead, in a print works, for instance, of having one or two medium-size engines and, perhaps, twenty small ones, the latter taking the 16 lb. and 18 lb. of coal per H.P. hour, it is possible to have one large engine driving a dynamo which will supply as many motors as are required, the result being that the steam power is obtained at an expenditure of more like 2 lb. of coal per H.P. hour, and the other losses of condensation and radiation are avoided. Besides these advantages the motor can be stopped at any moment; whereas the small engines are always running owing to the trouble of starting them, and the motors will run at a constant speed which can be altered by the workman in a few seconds when required. There are, I am sure, many instances of works within a few miles of Manchester where half the coal bill could be saved; and when a firm is spending, say, £5,000 or £10,000 a year in coal, the item is worth considering. The cost of the plant is, I should estimate, saved in about three years. Just as alternating high-tension currents can be reduced by transformers, so can continuous currents by motor transformers. The continuous high-tension current enters a motor as I have just described; but this motor could, instead of driving machinery, be made to drive a low-tension dynamo, the current from which could be used for lighting or other purposes. As a matter of fact, such a motor transformer has the two armatures on one shaft, and so appears like one dynamo, except that it has two commutators. In both alternate and continuous current work transformers can be made to transform the current into a higher tension instead of a lower, and continuous current transformers are often used throughout a district to add the little pressure to the circuit which has been lost in transmission, as I have just explained; so if we had such a machine in this building, we should not have a drop in the brilliancy of the lamps occasionally, because it would compensate for it. The great objection to such continuous current transformers is that, having, unlike the alternate current transformers, to be in motion, they require frequent attention.

As to motive power, there are steam, gas, and oil engines, and water turbines. In nearly every instance steam is used by supply companies and corporations; but I am glad to see gas-engines are attracting considerable attention for the purpose lately, and in one or two cases in Great Britain are being used.

I have always advocated the use of gas-engines for cor-

porations and companies having gas works on their hands, because they cannot only supply the gas at a small cost, but can convey it cheaply; whereas I have just shown the difficulty of conveying electrical energy except at very high pressure, and then with alternating currents; and if in such a town as Manchester there were many small electric-light stations, each providing for its small surrounding area, the current could be continuous without the loss of potential we are so much troubled with. Gas-engines are often badly spoken of through the lights pulsating, owing to the pulsating action of the engine itself; but this is quite unnecessary if the work is in the hands of first-rate contractors, who, sooner than be stinted in price, will let the order go elsewhere. Oil-engines are, I am very glad to say, coming rapidly to perfection. Electric lighting has been denied to many gentlemen for lighting houses hitherto owing to the necessity of having a steam engine where no gas existed, but this need not be so any longer. The cost of running a Hornby, Ackroyd, or Crossley oil-engine is, I understand, about $\frac{1}{2}$ d. per B. horse-power per hour; and as for a private house generally 6 or 8 B. horse-power only is required for two or three hours daily to charge the cells, you can see the expense is insignificant. The Crossley and Tangye gas-engines cost even a little less to run, with gas at a moderate figure. Either a gas or oil engine requires very little attention.

Anyone having the opportunity of using a water turbine is, of course, very fortunate, as he is practically getting his power for nothing. There is an installation at a private house within very few miles of Manchester where there is a turbine about 100 yards from the house, coupled direct on to a dynamo capable of supplying about 170 lamps of 16 candle-power each. The mains are insulated and protected with lead covering, and then laid in wooden tarred troughs to the house, where there are, besides the lamps mentioned, a number of presses—like electric bell presses—fixed in different rooms; and anyone, on pressing one, can automatically start the dynamo and turbine 100 yards off, and the light is at once available. By the same means, besides an ordinary switch to each lamp, the whole can be extinguished. Such an arrangement, I think, is perfect, as practically no attention is required beyond oiling the machinery, say, once a week, and the first cost is by no means large.

I must also mention steam turbines, which have been in use for some years, although comparatively rarely used. The principle is merely the passing of a jet of steam past blades attached to a shaft, the velocity of the steam giving the remarkable result. The speeds required by such machines are, however, I think, greatly to their disadvantage. One can imagine that a machine requiring a speed of 4,000 to 6,000 revolutions, with blades running within, say, one-thousandth of an inch to the cylinder, necessitates great accuracy and perfect workmanship. These steam turbines have the dynamos on the same shaft, and so a very small dynamo gives a tremendous output, the speed being so high. The cost of production is small, but I should imagine the cost of repairs would be great.

We now come to storage batteries or secondary batteries—or accumulators, as they are often called. These are exceedingly valuable in rendering supply-station plants on the continuous current system capable of coping with a sudden demand for current, in case of a fog, for instance, and private house plants more secure through the light at evening and night not being dependent upon moving machinery.

Accumulators have improved very much of late years, and competition having sprung up through new types being invented, they are procurable at more reasonable rates than hitherto, and this, combined with the improvements in the article itself, has brought them into more general use. These are, of course, charged with a dynamo, each cell requiring $2\frac{1}{2}$ volts to charge it, and giving out,

when discharged, about 2 volts; so, for 100-volt circuit, fifty would be required; but, as they are often discharged as low as 1.9 per cell on emergencies, fifty-three would be necessary, and one for reserve, making fifty-four. Each cell consists of a number of plates about 12 inches square and $\frac{3}{8}$ inch thick, standing on edge, and divided one from another by ebonite strips. The size of the plates is not increased to obtain greater capacity, but the number of plates, because by increasing the size of the plates they are likely to bend themselves.

Accumulators may be put up in boxes of glass, which is preferable for stationary use, as it permits of the plates being examined. For portable work, lead boxes are substituted for the glass, with wooden cases and lids fitted to them. Each cell will give a certain current for so many hours—say 20 amperes for 10 hours, which would be called a 200-ampere hour cell, because 10 amperes for 20 hours, or any such equivalent not exceeding the maximum current of 20 amperes, could be taken from it. The plates are of lead, prepared in different ways according to the make. The great distinction is, however, between what are termed “pasted” and “formed” plates. Pasted plates, made by one firm only in England, consist only of a plate of lead studded with holes filled in with peroxide of lead for the positive element and litharge for the negative, or else the paste is held in small ridges or lips formed on each side of the plate. In either pattern I consider the lead very likely to become dislodged through the electrical action causing gases to be given off. Much ingenuity has been expended to keep the paste in, but nothing, I consider, is so good as a cell which does not require any paste. Again, the holes, which in one pattern are drilled all over and right through each plate, greatly weaken them and allow them to buckle or bend, which is always likely to happen with rough electrical treatment, such as over-discharging. The “formed” plates, however, have no such troubles. They have no paste and no holes in them, but are formed in one, and, I think, the best pattern, by taking a long ribbon of lead about $\frac{3}{8}$ inch thick and bending it back on itself until it forms a plate 12 inches square. The object is to obtain great strength and rigidity. Whereas a plate with holes is easily bent, this is very difficult to bend. The large surface offered by the length of ribbon on the two faces of the plate and between each layer is chemically and electrically treated to obtain a thin skin of chemical substance as in the pasted type, but the skin being produced from the lead itself, and not pasted on, adheres very firmly. With pasted cells, the paste gradually wasting, the storage capacity gradually decreases, but with these plates the skin should gradually get deeper until at last—after very many years—the entire lead plate will turn to the same material as the skin, when the maximum capacity will be obtained and the plate will collapse. So in each plate is the life determined. For private house work, accumulators should always be put in of ample size. Better do without them than stint the capacity. They cannot in reason be too large. I have never known an instance of cells being unsatisfactory where they were large enough and reasonably treated. The contractor is generally so anxious to quote low, to obtain the order, that he specifies the smallest size possible, and assures the confiding client that all will be well. All lasts well long enough for him to get paid, but in a year or two the trouble begins. It is true the client very often misleads the contractor by underrating his requirements; and the only sure way for the contractor to estimate correctly is to allow storage for two-thirds the number of lamps installed for ten hours, which allows for five hours on two succeeding nights, so that there is no necessity to charge the cells on a Sunday. Another cause of cells going wrong is the arrangement for charging being irksome.

The contractor should—although he seldom does, be-

cause, again, he is anxious to quote low, but he should—study very carefully how to arrange his charging plant so that the work will be easy. The attendant is generally a gardener, and knows very little about anything but spades, and if he is called upon to do something that is tedious and distasteful to him, he very naturally—for I think any other man would do the same—shirks the work a little, not enough for his deficiencies to be apparent at the time, and he thinks all is consequently going well; but the day of reckoning comes in a year or two, when the cells fail. If, on the other hand, the plant will almost run itself, he will start it up and will not begrudge the cells another hour or so of charging. The difference is very marked; the installation is most successful. It is all in the hands of the contractor, and is the old tale of good and bad work. There are various methods of ascertaining the charge contained by accumulators. The specific gravity of the acid decreasing as the cells are discharged will, if the attendant is observant, by means of a hydrometer, give all the information required.

The E.M.F., again, is an indication, and an experienced eye will, by the colour of the positive plates, be able to judge very accurately. Some time ago a friend of mine showed me his cells and complained of their want of capacity. I examined them and found they appeared healthy, but required charging, although he assured me they had been charged fully a few hours previously. I could only conclude that they had discharged themselves since, as the colour of the plates distinctly indicated they were discharged, and I said a leak on the circuit must exist. I happened to see the two mains leading into the house from the garden through an iron grating, and as I thought they looked badly insulated at that point I examined them and found the grating quite warm. So the cells were going to ruin through being continually at work warming his grating. The fault was corrected, and they have since behaved admirably.

Having described the methods of generating and storing current, we now come to the wiring. This is a class of work that is quoted for at prices that puzzle all concerned—trade and consumer alike. To-day in Manchester some firms for simple work ask only 9s. and 10s. for each incandescent lamp of 16 candle-power erected complete, whilst others ask 20s. or 25s. The only explanation I can give you is that the workmanship and materials differ as much as the prices. There are two methods of wiring, known as the "tree" and the "distributing."

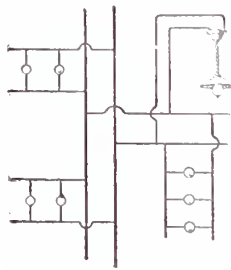


FIG. 8.—TREE WIRING.

Fig. 8 is a diagram of the "tree" method. This is cheap, and should only be used for mills and such places where the other method is hardly applicable. The defect in this system is the large number of joints necessitated. You will notice the mains start from one point, and branches and sub-branches are taken off where lights are required.

At each point of branching two joints are necessary, each having a cut out which I shall describe later. Now the contractor should use wire of not less than 600 megohm insulation. That is to say, the current, in endeavouring to escape, finds a resistance offered by the insulation of 600 million ohms—which is an enormous figure, and means practically perfection if it could be secured when the wire is fixed. The wire is submerged in water by the makers for twenty-four hours and then tested to see that the 600 megohms are obtained.

The covering of the wire is pure rubber immediately on the tinned copper, the tinning being to prevent the rubber attaching the copper. This pure rubber is in the form of

a tape, and is wrapped on spirally, so that water could easily get through *that*, but on top of the pure rubber is vulcanised rubber without the finest hole through it at any point. This gives a wire quite waterproof, and then as a protection from rough usage the vulcanised rubber is braided over. Now in an installation of 200 lights, at least 400 joints on the "tree" method are necessary, so all the precautions taken are lost unless the joints are as good as the original covering. When I tell you I never saw a joint made by any contractor which was not absurdly weak compared with the original covering, you will understand my contention that the expensive wire is rather a farce. The strength of a chain is decided by the weakest link, and so in this case if damp ever happens to get near a joint, the value of the insulation is determined by the covering on that joint.

Now the other method called the "distributing" is very different, for there need be no joints. The

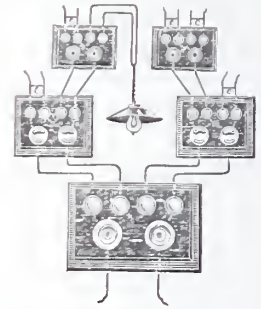


FIG. 9.—DISTRIBUTING WIRING.

mains starting from one point radiate to various other points with wires of different sizes according to the current required, and at these points are distributing boards so-called—made of enamelled slate preferably—upon each of which there are a number of cut-outs; the wires leading to the boards are taken direct into cut-outs, and those leaving from cut-outs, pieces of wire at the back forming the necessary connections. Dry positions are selected for these boards, and, supposing an installation to require ten of them, the risk of damp doing harm is small compared with the installation with 400 joints, and the perfect wire I have just described is unimpaired. To show how reliable this distributing system is, I may mention I have seen on the occasion of a fire breaking out (*not* through the electric light) a fireman playing with a hose round a room with the electric light still at work, and the wiring was found afterwards to be damaged only by fire and not by water.

In steamy places, by placing the lamps in lanterns as shown on diagram fig. 10, and having no joints, absolute security is obtained—in fact the work could be submerged and no harm come of it. All joints if they must be made should be soldered and wrapped as well as possible with pure and prepared rubber tapes, but I know of hundreds of joints that are not even soldered. The cut-outs I have just mentioned are merely appliances for inserting a piece of wire in circuit which will readily melt on any excessive current passing through it. They and all electric light fittings should be made of glazed porcelain, and should have the brass work fixed in by screws let into the face of the porcelain, so that no metal work at the back can touch a damp wall.

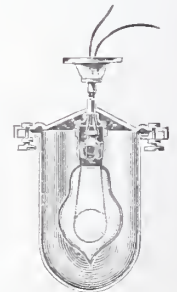


FIG. 10.—LANTERN AND WIRING.

Such are known as "high insulation" fittings, to distinguish them from fittings showing brasswork at the back. Tin wire is generally used to trim cut-outs with, as it does not oxidise and so lose its current-carrying capacity. Lead, on the contrary, is very treacherous, gradually deteriorating until at last it fuses at an inconvenient moment. The fuse wire should be large enough to convey fifty per cent. more current than the maximum load of the wire it is protecting. Taking the "tree" system for instance, you will see there is at every incan-

descent lamp a path for the current, and, as I have before mentioned, the path offering the least resistance will convey the most current. Supposing, now, the two wires leading to a lamp were to come into contact, the resistance of that circuit would be reduced to zero compared with the rest, which have each a high resistance lamp in them; so the rush of current down that circuit would be enormous, and would soon fire the wire, but the fuse at the cut-out would melt in a second and stop it.

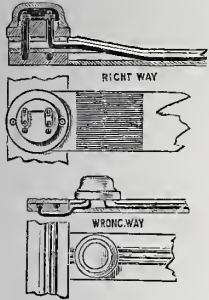


FIG. 11.—CUT-OUT SYSTEM.

As shown in fig. 11, there is a correct and an incorrect method of applying cut-outs: the correct places the cut-out immediately on the joint, so that the current must go through the fuse wire before it can get to its work. The incorrect places the cut-out too far away, and the wires might get together here at the point they cross, and the current obtain a low-resistance return path without passing a fuse wire.

Switches are mere mechanical means of breaking a wire. They must always, however, have a quick break action. That is, be so made that it is impossible to bring the contact lever away slowly. The metal current-carrying parts must be large enough not to heat, for all currents must have carrying capacity proportional to them, or they will heat the conductors of any kind. It is on this principle that electric welding is effected. A heavy current being passed between comparatively small capacity pieces of metal instantly melts and welds them.

Ceiling roses are merely appliances for joining the flexible wires by which incandescent lamps are hung to the conductor or the ceiling. They should always contain a fuse wire and have an arrangement for gripping the flexible, so that the lamp shade and flexible cannot be pulled down in cleaning. Lamp-holders are to hold the lamps and shades, the contact being made with the lamp by small spring plungers. These, too, must have cord grips.

The candle-power of incandescent lamps varies according to the size of the filament and the amount of current allowed to pass through it. With a given voltage a certain length and diameter of filament will give a certain light, but by increasing the diameter of the filament the light will be increased.

The 16 candle-power lamp here, for instance, would give, perhaps, 16,000 candles, if enough current was with a greater E.M.F. forced through it, but the filament would be raised to such a high point of incandescence that it would not last many seconds.

The makers of incandescent lamps are always seeking a material and method of preparation which will produce a strong filament, so that by raising its incandescence without reducing its life too much, they can obtain a more efficient lamp.

The candle-power of a filament rises to the sixth power of the current, so if a filament will only bear a very little more current the advantage is manifest. These lamps are accordingly sold to give a certain candle-power with a certain consumption of energy. Generally a 64 watt 16 candle-power lamp is used, or 4 watts for each candle-power produced; but lately lamps requiring only, say, 48 watts (or an economy of 25 per cent. of energy) have been put upon the market. They do not last quite as long as the less efficient, but where the energy is very dear it sometimes pays to break lamps and save current. Arc lamps vary much in design and price, but I consider there are only two or three good makes. An arc lamp is a piece of mechanism electrically controlled, which ensures two carbon pencils always remaining exactly the same distance apart.

In the inverted arc lamp, a style of lighting just coming into vogue, the light is thrown upon the ceiling and reflected back down into the room. The arc itself cannot be seen, and so the glare of the ordinary arc lamp, which is so objectionable, is avoided; there are many at work in this city. The inverted arc is fitted with a new apparatus which avoids the necessity of wires festooning on to the lamp to permit of it being lowered. The lamp is fitted with a barrel contact piece, which, as it enters the fitting on the ceiling, makes contact.

In the battery and galvanometer, you will notice that on the circuit being completed the needle deflects; if, then, the needle can be deflected through something which is supposed to be insulated, it shows a fault exists. There are two instruments called an ohmmeter and generator for the same purpose, one really being a small hand-dynamo, and the other a galvanometer. By these 200 volts can be put on the work, which is more than it should be ever afterwards subjected to. All work can be tested by such instruments. They will show if an installation is perfectly insulated, or is somewhere in contact—the wires with one another, or with earth—that is, with the gas or water-pipes, or other parts of the building; but you must bear in mind they will not show faulty joints, &c., until damp has actually attacked them.

CARDIFF.

The term of office of Mr. Edwin Seward [F.], as President of the Cardiff, South Wales, and Monmouthshire Society, having expired, his place has been filled by Mr. E. M. Bruce Vaughan [F.], recently elected.

LEGAL.

Timber Structure, Temporary or Permanent.

THE LONDON COUNTY COUNCIL v. GLUCKSTEIN.

On 21st January Mr. Lane, Q.C., heard, at the North London Police Court, the case of *The London County Council v. Gluckstein*. The summons was against Mr. Gluckstein, who is a builder, Tottenham Court Road, for erecting a temporary timber stage without the consent of the London County Council, or in conformity with the Metropolis Building Acts. So far as could be learnt, the charge was framed under the old law, and not under sections 83, 84 of the London Building Act 1894, which now govern the matter. Mr. Chilvers appeared for the London County Council, and Mr. R. C. Glen for the defendant.

The point of contention was as to whether it was a permanent or a temporary structure, and surveyors were called on either side giving opinions *pro* and *con*.

Mr. Barry, for the London County Council, said the structure was so roughly put up that it might have been done by a hedge carpenter, and, with the quality of the timber used, did not think it could last more than fifteen years, whereas his estimate of a permanent structure was a life of a hundred years.

Mr. J. Webster [A.] said he was called by the defendant to survey the structure, which he found supported by stout uprights, sunk four feet into the ground, and resting on about two feet of concrete, the uprights being properly creosoted. All the timbers were strongly spiked together, and he was of opinion that the stage in question would last thirty years, and much longer if repaired.

Mr. Chilvers submitted that, if this were intended as a permanent structure, the timbers would have been mortised together and bound with iron.

Mr. Lane said that this was not necessarily so. He remembered having been engaged in a dispute as to the building of a jetty, and in that case one of the most eminent of surveyors, who was called in as arbitrator, said that in rough work it was not necessary to employ joiners to do mortising, the only essential being butting and spiking

together, as had been done in this case. Putting all the evidence together, he came to the conclusion that this was a permanent structure within the meaning of the Act, and dismissed the summons.

The London Building Act 1894.

THE BEDFORD COURT MANSIONS CASE.

On the 28th January the first magisterial ruling was given on the London Building Act 1894. The following report is taken partly from the *Law Journal*, and partly from notes of the case kindly furnished by Mr. Bernard Dicksee [A.], who was present at the hearing:—

Mr. Charles Forster Hayward [F.], District Surveyor for the parish of St. George, Bloomsbury, served the "building owners" of Bedford Court Mansions with notice of objection to the proposed erection of a certain building. The building owners summoned the surveyor before Sir John Bridge at Bow Street, under section 150 of the Act, to show why his objection should not be overruled.

Mr. Horace Avory, for the complainants, explained that the object of the summons was to obtain the ruling of the chief magistrate as to the meaning of section 212 of the new Act. In 1890 his clients entered into a contract with the then Duke of Bedford to take the lease of a piece of ground in what was now Tavistock Street, but which was at that time a mews, at a ground-rent of £2,000 a year (subsequently modified to £1,600). They undertook to pull down and remove the existing structures, and erect certain flats in accordance with plans approved by the Duke of Bedford or his representatives, and complete them by June 1895. The buildings were to be erected in five blocks (subsequently modified to four), and a lease was to be granted for each block as completed. One block had been erected, and it was now proposed to go on with the erection of the other blocks, which were to form part of the same scheme, the elevation being continuous. The plans were approved shortly after the signing of the contract, and some years before the passing of the new Act. The complainants had paid the ground-rent since 1890, in all about £7,000. They had given notice to the surveyor of their desire to proceed with the erection of the remaining blocks, and he had given them notice that the buildings must be carried out under the new Act. The importance of this to his clients was that, under the new Act, the County Council could require a much larger area of air space than they could under the earlier Acts. Therefore, if the contention of the County Council was good in law, the complainants would have to curtail the size of their buildings, and there would be a corresponding reduction in the rents to be obtained, involving a loss of nearly £2,000 a year. There were two questions to be decided—

(1) Whether the building the complainants proposed to erect was in progress when the new Act came into force at the beginning of the year, seeing that it formed part of the building of which one block had already been erected; and (2) whether, supposing it was not a building in progress at the time, it was not a building which had to be carried out under a contract entered into before the passing of this new Act. In support of his argument, Mr. Avory quoted the following sections of the Act:—Sect. 210: "A building, structure, or work erected or constructed before the commencement of this Act to which no objection could have been taken under any law then in force shall (subject to the provisions of this Act as to new buildings or the alteration of buildings) be deemed to be erected or constructed in compliance with the provisions of this Act." Sect. 212: "Notwithstanding anything contained in this Act, a building, structure, or work which has been commenced before and is in progress at the commencement of this Act, or which is to be carried out under any contract entered into before the passing of this Act, may be completed subject to and in accordance with the pro-

"visions of the Acts relating thereto as in force immediately previous to the passing of this Act." Counsel added that during the present month the County Council had consented to the addition of bay windows and balconies to the building (under section 75 of the Metropolis Management Amendment Act 1862).

Evidence was then given as to the agreement between the complainants and the Duke of Bedford, and as to the date of the approval of the plans.

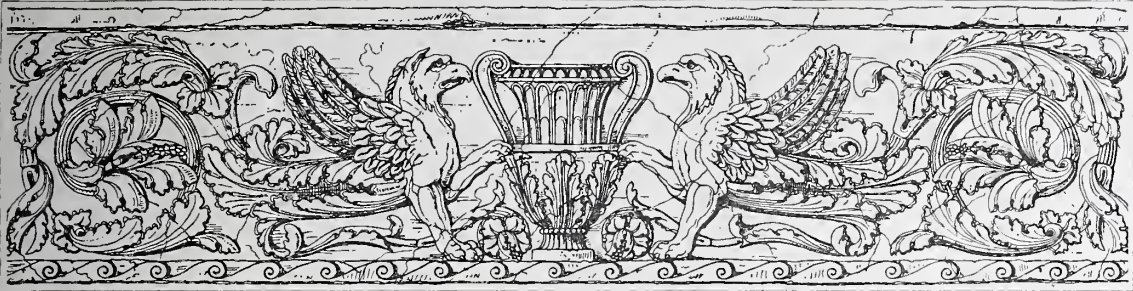
Mr. Freeman, who appeared for the County Council, contended that the buildings it was now proposed to erect were new buildings under the new Act. It was true that block A had been erected, but that did not throw a protection over blocks B, C, and D. He submitted that they were separate buildings, and not a continuance of the same building. By section 74 (1), buildings were required to be separated from each other by party-walls. Therefore, as each block was separated from the next by party-walls, it was a separate building, and the agreement supported this view, as each block was to be granted a separate lease as soon as completed. Section 212 was not intended to include a "building agreement" in the term "contract," for if that interpretation were allowed, a person who had entered into a building agreement to cover a large estate with houses might contend that all those houses could be erected under the old Acts, even although the building operations might extend over twenty or thirty years. That would result in an absurdity, for it could never have been intended that the new Act should be hung up in that way. He argued that the expression "contract" meant a contract between the building owner and the builder to erect the building.

Mr. Avory, in reply, stated that he did not contend that any "building agreement" entered into before the passing of the Act would be included in the term "contract" in section 212, and Mr. Freeman had mentioned a case where it would not; but he submitted that he had shown that in this case a definite contract had been entered into for the carrying out of this particular building—such a contract as would have entitled the Duke to sue for specific performance had his clients been in default. His clients were therefore entitled to build under the old Act.

Sir John Bridge said that there were two grounds on which Mr. Avory argued that he ought to give a decision in favour of his clients. The first was that the whole of these four blocks were one building which had been commenced and was in progress at the commencement of this Act. He was inclined to think that Mr. Avory was wrong on that point, but it was not necessary to decide that. The great point to be decided was whether this was a work to be carried out under a contract entered into before the passing of the new Act. In his opinion it was, and the building came under the old Acts. He must give to each word in the Act its ordinary meaning and its ordinary construction. It might have been better if the section he was asked to decide upon had been made clearer; but, as he said before, he could only give to the words their ordinary construction, and his decision was in favour of Mr. Avory's contention. The magistrate declined to grant costs, and notice of appeal was given.

According to the *Law Journal*, the importance of the decision is that the word "contract" is read, not as applying to a particular building contract, but as including a building agreement in respect of an estate.

* * Mr. Bernard Dicksee [A.] writes:—The result of the decision is, that for a building owner to be allowed to erect a building under the old Acts he must show a definite contract to carry out a particular building. A mere building agreement will not of itself be sufficient, and in order to make it so the building-owner must show that it became a definite contract by the approval of the plans by the lessor before the passing of the Act, or that the building was in some other way particularly described.



FEVER HOSPITALS. By T. W. ALDWINCKLE [F.].

Read at the General Meeting, Monday, 25th February 1895; and, with the illustrations, registered at Stationers' Hall as the property of the Royal Institute.

I WISH to preface this Paper with two preliminary remarks. In the first place, very much of what is herein written as to the requirements of Fever Hospitals will, necessarily, apply to hospitals of all kinds, being general principles of sanitation; and in the second place, as we are at the present time only upon the threshold of the vast and intricate subject of provision for infectious diseases, this Paper has been written rather in the spirit of inquiry than of dogmatism—not pretending to lay down hard-and-fast rules, but rather as offering suggestions, based to some extent upon practical experience, for the consideration of those who may be interested in the subject.

It is difficult to overestimate the importance of the subject which we are to consider this evening. Infectious disease may be regarded as an invading and powerful enemy, ever ready to enter the dwelling or the city, and to cause widespread ruin and destruction. Past history tells us only too forcibly how powerful and destructive this enemy has been, in times now happily gone by, when its inroads were unchecked by the fortifications of medical science and legislative provisions; and it is well within the province of Architecture to lend her powerful aid to the researches and efforts of Medicine in this defensive war against a common foe. The architect who would join in this humane crusade must, in order to be useful and successful, make himself intimately acquainted with the minute detail of the inner working of a Fever Hospital, and he could not do better than always bear in mind the following pregnant words from Sir Douglas Galton's book on *Hospital Construction* :—

Cleanliness and fresh air do not so much give life as they are life itself to the patient. Cleanliness—clean air, clean water, clean surroundings—and a fresh atmosphere are the true safeguards against infection, segregation by ample floor and cubic space, ample ramparts of fresh atmosphere, rather than segregation by walls and divisions. You cannot lock in or lock out the infectious poison. You can air it, diffuse it, and clean it away.

The general awakening of the public mind to the absolute importance of the isolation of persons suffering from infectious diseases is quite a recent one, as evidenced by the fact that thirty years ago there was in this country a complete absence of any organised system of infectious hospitals, and that London at that time possessed only two—viz. the London Fever Hospital, in Liverpool Road, Islington, and the Small-pox Hospital at Highgate, both institutions being entirely supported by voluntary subscriptions. Some of the general hospitals received fever patients under conditions of very imperfect isolation; failing which, infectious cases were sent to the workhouse, with results which can be easily imagined. As a natural consequence, the majority of patients suffering from fevers were treated in their own homes, and the general community lived on peacefully, utterly oblivious of the fact that infectious

diseases were rampant in its midst, and only quickened into a slight sense of interest by occasional epidemics. The one great principle, that an infectious case treated in its own home generally became a centre of infection, had only been recognised by the few.

The Sanitary Act of 1866 first gave powers to the local authorities to build, or otherwise arrange for, permanent or temporary hospitals for infectious diseases, and these powers have been considerably enlarged by the Public Health Act 1875 and the Isolation Hospitals Act 1893. This latter Act authorises County Councils to arrange for the erection (through a hospital committee) of isolation hospitals, with the powers of the Public Health Act 1875 as to the purchase of land. The cost of the land and that of building, furnishing, and maintenance of the hospital are to be defrayed by a local rate. This rate, however, is not to include "patients' expenses," which are described as the cost incurred in conveying, removing, and feeding the patients, and providing medicines, disinfection, and all other things required for patients individually. These expenses are to be paid as follows:—(a) In the case of a pauper, by the guardians of the union from which he is sent; (b) in the case of a non-pauper, by the patient, and is to be a debt recoverable at law.

So far as the provinces are concerned, these enabling Acts have not been adopted to the extent that could be desired: but of recent years there has grown up an increased recognition of the value of, and indeed the necessity for, the isolation of infectious diseases: and at the present time isolation hospitals are being built throughout the country, the designing of which has been very materially assisted (especially in the case of the smaller hospitals) by the excellent plans and instructions issued by the Local Government Board.

On the other hand, the Metropolis has been separately dealt with. In the year 1867 an Act was passed (commonly called Gathorne Hardy's Act), under which the Metropolitan Asylums Board was created as an authority for providing for the treatment of (a) persons suffering from infectious diseases; (b) imbeciles. We may dismiss this latter class (b) from our consideration. This was a distinctly Poor Law creation, and those who were treated under its provisions became, by law, paupers. But the importance of this measure, and the great benefits which it conferred upon London, can scarcely be over-estimated. For the first time in its history, the Metropolis was placed under the care of a central and representative authority, having power to provide for the reception and treatment of fevers as an organised system. The newly constructed Board speedily got to work, and two infectious hospitals, one at Homerton and the other at Stockwell, were opened in the early part of 1871, a temporary hospital at Hampstead having been opened in January 1870. Subsequently the following hospitals were erected by the Board:—

Western Hospital	366 beds, opened March 1877
South-Eastern Hospital	462 " " " "
Northern Hospital (for convalescing patients)	680 " " Sept. 1887
Gore Farm Convalescent Hospital,* Darenth, near Dartford	1,192 " " Oct. 1890
North-Eastern Hospital †	400 " " " 1892
Fountain Hospital †	406 " " " 1893

In the year 1887 London was visited by a severe epidemic of scarlet fever, and in order to meet the greatly increased requirements, the Metropolitan Asylums Board were compelled to erect temporary wooden buildings, wherever space could be found, on their then existing hospital sites, and by this means they were able to provide accommodation for quadruple the number of fever patients that they had been called upon to treat in their hospitals at any one

* Although nominally a small-pox hospital, the Gore Farm Hospital has hitherto been used for either small-pox or fever convalescent patients. Since its opening, it has

been twice used as a fever hospital, once as a small-pox hospital, and once for both diseases simultaneously.

† Temporary hospitals.

time during the previous ten years. Another epidemic spread over London in the year 1892, continuing throughout the following year. The then existing accommodation in the Board's hospitals was, however, still quite inadequate to meet the demands, and in 1892 a temporary hospital for 400 beds was erected at Tottenham, under the direction of Messrs. Harston, architects; and in 1893 another temporary hospital for the same number of beds was erected at Tooting, under the direction of the writer of this Paper. Both hospitals were erected as complete and fully equipped institutions in a few weeks, without contracts, the architects being entrusted by the Board with a free hand and with full power to incur the necessary expenditure.

Even these additional provisions did not fully meet the permanent and increasing needs of the Metropolis, and the Asylums Board are providing three more hospitals, each for about 500 beds, at Hither Green, Tooting, and Shooter's Hill, the latter being now in course of erection, while the contracts for the two former will shortly be let.

There is one very marked difference between London and the provinces as regards the administration of infectious hospitals. The Public Health Act of 1875 and the Isolation Hospitals Act 1893 give power to the local authorities of the provinces to make a charge, in respect of individual expenses, to non-pauper patients; but neither the Metropolitan Asylums Board nor the several Boards of Guardians have now any such power, sub-sections 2 and 3 of section 80 of the Public Health (London) Act 1891 throwing the whole of the expenses incurred in the maintenance of infectious cases upon the Metropolitan Common Poor Fund. On the other hand, it is no longer necessary to obtain a Poor Law relieving officer's order to qualify for admission into the Board's hospitals, the certificate of a qualified medical man being sufficient; and by the same Act the pauper character of the relief offered is also expressly removed, and the Board's hospitals are freely made use of by all classes. This would appear to be the right course, as, in the general interests of the community, it is preferable in most cases that a person suffering from fever should be isolated in a hospital, rather than remain a centre of infection in his own home, as he might elect to do if he thought that he would have to pay for his treatment while in hospital.

One great cause of the increased use of Fever Hospitals has, undoubtedly, been the passing of the Infectious Diseases (Notification) Act 1889. This Act provides—

(a) That the head of the family or the nearest relative of the patient resident in the building must give immediate notice (in case of infectious disease) to the Medical Officer of Health.

(b) That the medical practitioner attending on the patient, on finding a case of infectious disease, must notify to the Medical Officer of Health for the district the name of the patient, the situation of the house, and the infectious disease from which the patient is suffering.

One other point in connection with the recent history of isolation hospitals is important and instructive. In the case of the earlier hospitals, it was the practice to provide for both fever and small-pox patients upon the same site in two adjoining hospitals with separate administrative buildings, the hospitals at Homerton and Stockwell being illustrations of this arrangement. But in the year 1881 the growing feeling that small-pox hospitals were sources of danger to their surroundings induced the Local Government Board to instruct a Commissioner to make an investigation, taking the Western Hospital as the subject of special inquiry. The result of his investigations led him to the conclusion that small-pox had increased in the immediate vicinity of the hospital; that the proportion of houses attacked varied with the distance from the hospital; and that, "on comparison of recent epidemics, an almost constant ratio is observed between the amount of the hospital operations and the degree of excess of small-pox in the neighbourhood." About the same time, certain residents at Hampstead successfully brought an action against the Board in respect of the small-pox hospital there, the Court of Queen's Bench deciding that the hospital was a legal nuisance. The managers

subsequently obtained an order for a new trial (on appeal), but the action was eventually settled out of Court.

One result of all this was that the Asylums Board purchased three ships—the *Atlas* and the *Endymion*, opened in the autumn of 1881, and the *Castalia*, opened in the summer of 1884—and converted them into a floating small-pox hospital, moored in the Thames at Long Reach, erecting a laundry and administrative buildings upon eight acres of land adjoining. This hospital provides for 300 beds. The old small-pox wards at the several hospitals were then thrown open for the reception of fever patients, and at the present time the Board have no land hospitals for small-pox in London.

Passing now from the historical to the practical side of our subject, we will first of all glance at the main principles which should govern the planning of a fever hospital, premising that these general principles apply in most cases equally to hospitals of all sizes.

The amount of infectious hospital provisions to be made in proportion to the populations is an important subject, and I cannot do better than quote from a Paper read by Dr. Thorne Thorne, the Medical Officer of the Local Government Board, at the Seventh International Congress of Hygiene and Demography held in London, August 1891. He says:—

Speaking generally, it has been estimated that the provision of one bed per thousand inhabitants is sufficient for the permanent requirements of a sanitary district. But such requirements will necessarily vary with the character of the population. Thus, in a locality where the population is well-to-do, and most houses of a size and construction that offer reasonable facilities for the isolation of single attacks of the current infectious fevers, the amount of hospital accommodation needed for public health purposes will be less than in a manufacturing or colliery district, where infectious disease cannot be treated in the houses in which it breaks out without very great risk, if not certainty, of spreading.

The site should be, if possible, just outside the town or village for which it is intended. The question of transport of the patient is not so serious a difficulty as to outweigh the great advantages to be derived from the hospital having open fields rather than houses as its surroundings. Good ambulance arrangements will go far to overcome all difficulties as to transport. The land should be capable of good drainage, and there should be the means for a good and ample water-supply. The land should stand at a fairly high level, and a gentle fall towards the south is a distinct advantage. If there are any trees on the site when purchased, those on the north and east boundaries, at least, should be left standing if possible.

There should be two entrances to the hospital, one the "infected entrance" and one the "non-infected entrance," both controlled from the same porter's lodge. A wide roadway should run round the whole of the site, as a neutral zone to separate the hospital from the surrounding property. The axes of the ward pavilion should be as nearly as possible north-east and south-west, in order to provide for the maximum quantity of sunlight and the minimum of shade. This is of the utmost importance, and should be carefully borne in mind in the selection of a site. The ward pavilions should not, where practicable, be of more than one storey in height. This may necessitate the purchase of a larger site than otherwise, but the compensating advantages are many. I do not suppose that any experienced hospital architect would, by choice, place fever wards one above the other, necessitating, amongst other evils, much traffic up and down staircases, to say nothing of the obvious objections from a sanitary point of view: so that considerations of land area can be the only reason. It may be pointed out in this connection that the distance between the one-storeyed pavilions can safely be less than that between those of the two storeys, so that the expansion of the plan need not be so great as would at first appear. In the former case, 50 feet will be sufficient; whereas in the latter case, the width should not be less than twice the height of the pavilions, and would thus be not less than 65 feet.

The whole of the several buildings of an infectious hospital should be completely isolated,

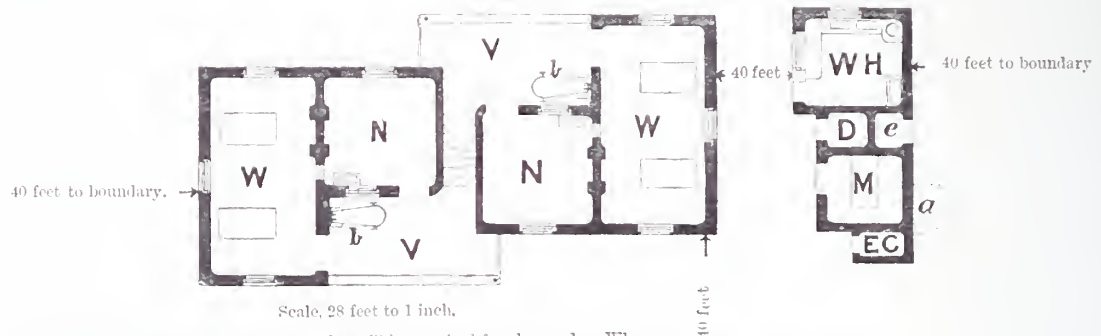
and stand perfectly free, without communicating corridors or covered way of any kind. This is not suggested as an experiment, but as the result of personal observation in the case of several excellent hospitals, such as the Eppendorf Hospital, Hamburg; the Moabit Infectious Hospital, Berlin; the Frederikshain Hospital, Berlin; the Urban Hospital, Berlin; the Belvidere Hospital, Glasgow; the Grafton Street Infectious Hospital, Liverpool. Others can be named, of which, however, I cannot speak from personal observation, such as the Epidemic Hospital, Copenhagen; the Ladywell Sanatorium, Salford; the Heathcote Infectious Hospital, Leamington, &c. It will doubtless be admitted that in an infectious hospital complete and absolute isolation of each ward pavilion, at least, is most desirable, and there should be good reasons adduced for in any way impairing such isolation by the introduction of communicating corridors, even with open sides. It is stated by some hospital authorities that these covered ways are necessary in order to protect the staff from the weather; but, apart from the fact that they are wholly inefficient for such a purpose, the authorities at the hospitals which I have mentioned as being without corridors or covered ways have all assured me that the staff experience no ill effects or inconvenience whatever from their absence. The complete isolation of the buildings is recognised and prepared for; the nurses and others dress accordingly, and the arrangements for conveying hot food from the kitchen to the wards are so well considered and complete that the food is, in all probability, hotter when it reaches the wards than where covered ways exist. There should be a clear space of at least three feet between the underside of the ground floor of all wards and the adjoining yard level, and the space thus left underneath the floor should be paved with tar paving, or some equally impervious material, laid in such a manner that the rain-water shall naturally drain off the same.

The ward pavilions for diphtheria or enteric fever should be separated at as great a distance as possible from those for scarlet fever. The isolation wards should be well separated from the remainder of the hospital. The official department and the kitchen and stores should be centrally situated, and the stores should be as near as possible to the "non-infected entrance." The staff quarters should be quite free from, and unsurrounded by, the ward pavilions or other infected buildings. The three classes of the subordinate staff in a large hospital—viz. nurses, female servants, and male servants—should have separate and distinct homes, each home being under the *resident control* of the principal officer responsible for its discipline. The laundry should be as free as possible from the hospital proper and from the staff quarters. No infected building should be nearer than 40 feet to the boundary, nor to any other building, infected or otherwise, in the hospital.

In the acquisition of a site for a fever hospital, the question arises as to the number of beds per acre that can safely be provided. In the plan B [p. 271], issued by the Local Government Board, the hospital of 8 beds is placed upon one acre of land. For larger hospitals I do not think that the maximum should exceed 20 beds per acre. At the Belvidere Hospital, Glasgow, there are 17 beds to the acre; at the Grafton Street Infectious Hospital, Liverpool, 34 beds; at the Moabit Infectious Hospital, Berlin, 40 beds. The older hospitals of the London Asylums Board show a somewhat higher proportion, the Eastern Hospital having 40 beds per acre; the Western Hospital, 36 beds; the South-Western Hospital, 47 beds; the South-Eastern, 42 beds per acre; while their hospitals recently built or now projected bear the following proportion:—North-Eastern, 22 beds; Fountain Temporary Hospital, 40 beds; Brook Hospital, 16 beds; Park Hospital, 28 beds, and the Fountain Permanent Hospital, 19 beds per acre. The temptation is very great to raise the number of beds per acre where the land is expensive; but it should be borne in mind that land is at once the cheapest and most permanent part of the expenditure upon a hospital.

This question leads to another, and a very important one, viz. as to the maximum number of beds for which an infectious hospital should be built. The requirements of large

towns necessitate the provision of a large number of beds; but it is an open question, most suitable for discussion, whether the aggregation of large numbers of acute infectious cases upon one site is desirable, and whether it would not be a preferable course to arrange hospitals for a smaller number of beds, and to increase the *number* of such hospitals in order to provide for the total number of beds required. As an illustration, if the population require a provision for 400 beds, I would suggest the erection of two hospitals for 200 beds each, rather than one for 400 beds; and where the required provision is for 750 beds, three hospitals of 250 beds each might be preferable to two of 375 beds. Indeed, a maximum of 300 beds suggests itself as desirable. It is usually less difficult to obtain sites for small hospitals than



N.B.—Movable baths and earth-commodes will be required for the wards. When nurses' bedrooms are not provided in the caretaker's cottage, they may be placed in an upper story of the Ward Block.

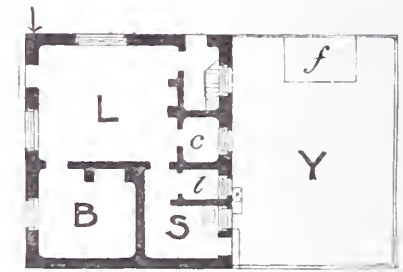
for large ones, and the hospitals being distributed would, in the case of large towns, render them more easy of access.

For our purposes we can divide fever hospitals into three classes—viz. (a) Small isolation hospitals, suitable for groups of villages or small towns; (b) hospitals not exceeding 100 beds; (c) hospitals exceeding 100 beds.

The first class of hospital is well illustrated by plans taken from the Memorandum issued by the Local Government Board in 1888, and reissued in 1892 and again in the present year, entitled "On the Provision of Isolation Hospital Accommodation by Local Authorities." The following extracts from this Memorandum are of great practical value, and fully describe the plans:—

English communities nowadays recognise the advantage of isolation hospitals as a means of preventing the spread of infectious diseases from persons who cannot be properly isolated in their own homes. But too often the provision of such hospitals is put off until some infectious disease is immediately threatening, or has actually invaded, a district. It cannot be too clearly understood that an isolation hospital, to fulfil its proper purpose of sanitary defence, ought to be in readiness beforehand. During the progress of an epidemic it is of little avail to set about hospital construction. The mischief of allowing infection to spread from first cases will already have been done, and this mischief cannot be repaired.

Large villages, and groups of adjacent villages, will commonly require the same sort of provision as towns. Where good roads and proper arrangements for the conveyance of the sick have been provided, the best arrangement for village populations is by a small building accessible from several villages; otherwise the requisite accommodation for, say, four cases of infectious diseases in a village may at times be got in a fairly isolated and otherwise suitable four-room or six-room cottage which has been acquired by

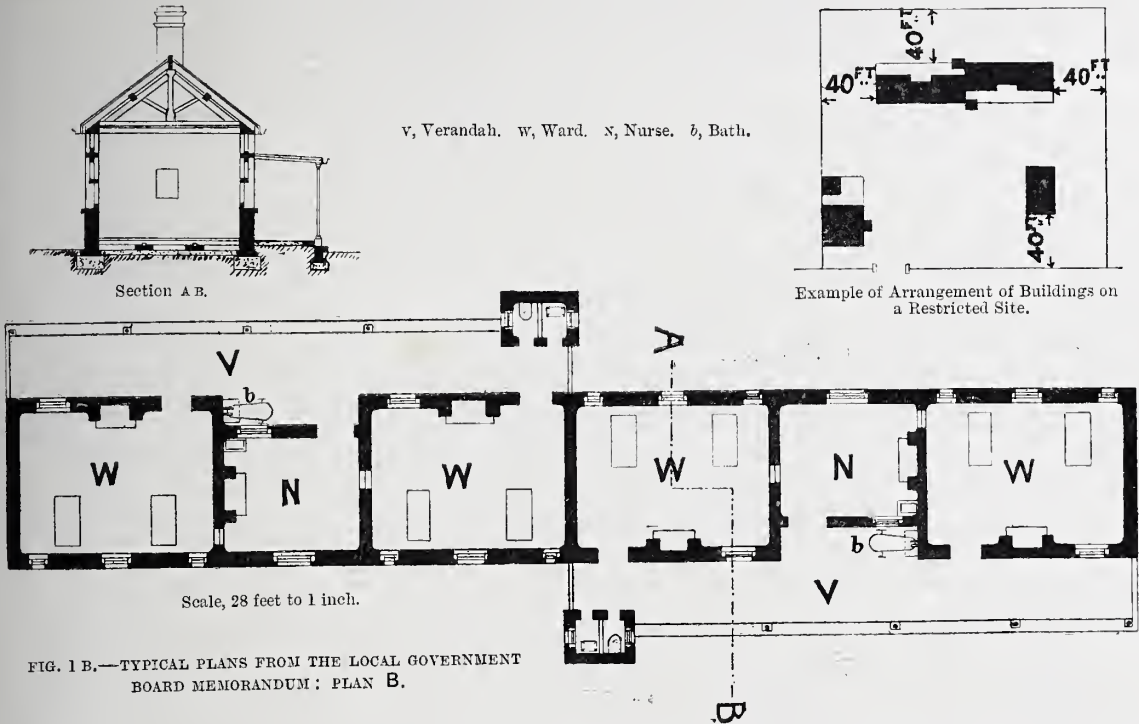


w, Ward. n, Nurse. v, Verandah. wh, Wash-house. D, Disinfector. M, Mortuary. EC, Earth-closet. L, Living-room. B, Bedroom. s, Scullery. Y, Yard. a, Ashes. c, Crookery. e, Dry earth. l, Larder. f, Fuel. b, Bath on wheel.

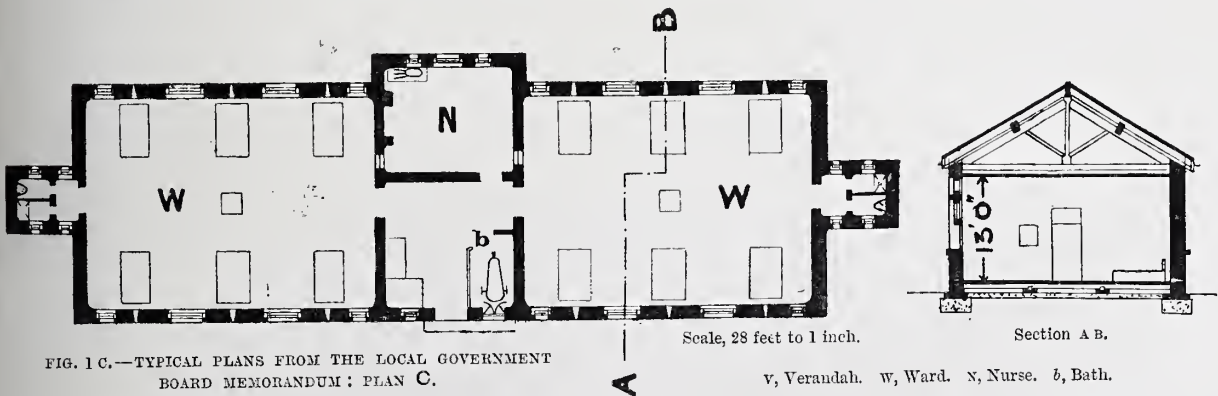
FIG. 1 A.—TYPICAL PLANS FROM THE LOCAL GOVERNMENT BOARD MEMORANDUM: PLAN A.

the Authority, or by arrangement made beforehand with some trustworthy cottage-holders, not having children, that they should receive and nurse, on occasion, patients requiring such accommodation.

In towns, hospital accommodation for infectious diseases is wanted more constantly, as well as in larger amount, than in villages; and in towns there is greater probability that room will be wanted at



the same time for two or more infectious diseases which have to be treated separately. The permanent provision to be made in a town should consist of not less than four rooms, in two separate pairs, each pair to receive the sufferers from one infectious disease, men and women of course separately. The number of cases for which permanent provision should be made must depend upon



various considerations, among which the size and growth of the town, the housing and habits of its population, and the traffic of the town with other places are the most important. . . .

For a town the hospital provision ought to consist of wards in one or more permanent buildings, with space enough for the erection of other wards, temporary or permanent. Considerations of intimate economy make it wise to have permanent buildings sufficient for somewhat more than the

average necessities of the place, so that recourse to temporary extensions may less often be necessary. In any case it is well to make the administrative offices somewhat in excess of the wants of the permanent wards; because thus, at little additional first cost, they will be ready to serve, when occasion comes, for the wants of temporary extensions.

Plans illustrating the sanitary requirements of small hospitals for infectious diseases are arranged on three sheets accompanying the present Memorandum. Plan A [p. 270], on the first sheet, is that of a little building to hold two patients of each sex. On the second sheet, a plan and a section (B) [p. 271] of a rather larger hospital building are shown, providing for eight persons, with separation of sex, and also of one infectious disease from another. A convenient disposition of buildings upon site is also indicated on the same sheet. The third sheet shows a plan and section (C) [p. 271] of a small pavilion, adapted to receive six male and six female patients suffering under one kind of infectious disease. It will be found that in all the plans proper standards of space are observed—viz. not less than 2,000 cubic feet of air-space, than 144 square feet of floor-space, and 12 linear feet of wall-space to each bed—and that means are provided for the adequate ventilation and warming of wards, and for securing them from closet emanations and the like. In plan A [p. 270], earth-closets, in other plans water-closets, are indicated as the means of excrement disposal. The latter are to be regarded as preferable where efficient sewers are available. Places for washing and disinfection, and for a mortuary, are indicated. It will be observed that an interval of 40 feet is everywhere interposed between every building used for the reception of infected persons or things, and the boundary of the hospital site. This boundary should have a close fence of not less than 6 feet 6 inches in height, and the 40 feet of interval should not afterwards be encroached upon by any temporary building or other extension of the hospital.

The second class of hospital is well illustrated by the following:—The Heathcote Infectious Hospital, Leamington; the Willesden Isolation Hospital; and the Grafton Street Infectious Hospital, Liverpool.

The Heathcote Infectious Hospital, Leamington [fig. 2, p. 273].—This isolation hospital provides at present for 22 beds upon an area of 2 acres 2 roods, and comprises four buildings, each completely isolated, and there are no covered ways. The administrative block, which is the only two-storey building on the site, is placed near the entrance, and contains, on the ground floor, a sitting-room for the matron and nurses, a room for the medical officers, kitchen, scullery, larder, and the usual offices; and on the first floor, bedrooms and bathroom for the matron, nurses, and servants. Another block comprises the laundry and disinfecting arrangements. The hospital proper consists of two buildings—one called the Ward Block, and the other the Isolation Block. The Ward Block contains two wards, each for six beds, intended for patients all of one disease, but as male and female wards. A nurses' duty-room and the bathroom are placed between the wards, the duty-room overlooking both wards. Each bed has a linear wall-space of 12 feet, a floor-space of 156 feet, and a cubic space of 2,028 feet. The Isolation Block is divided by a cross-wall in the centre into two equal portions, both portions being upon the same plan, but facing reverse ways. Each portion comprises a duty-room, one ward for three beds, and two wards for one bed each, together with a space for a movable bath, a w.c., and a slop-sink, the intercommunication throughout being by means of a verandah. In these wards the allowance per bed is 216 feet floor-space, and 2,592 feet cubic space.

The walls of the wards are lined to a height of 5 feet with tinted glazed bricks, above which they are plastered and distempered. The floors are laid with yellow deal in 3 inch widths, ploughed and tongued. The vertical angles of the walls, the horizontal angles at the junction of floors and walls, and of walls and ceilings, are all rounded, so are also all the angles of door panels and of the windows, and in the finishing of the doors and windows rounded fillets only are used, no recessed mouldings being used anywhere.

The windows, which form the principal means of ventilation, are divided into two parts by a transome, which is fixed about 18 inches down from the head of the frame. Above the

transome is a "hopper light," hung at the bottom to fall inwards, and provided with glazed cheeks at the sides to prevent down-draughts. Below the transome are double-hung sashes. In addition to the windows, openings are made at the floor-level behind each bed, and provided with Ellison's radiator ventilators; and there is in each ward an extraction flue carried up alongside the smoke flue, from which it is separated by iron plates. The inlet to the flue is at the ceiling-level, with a Bunsen burner, to produce an upward current when the fire is first lighted.

The Willesden Isolation Hospital [fig. 3, p. 275].—This isolation hospital provides at present for 42 beds upon about seven acres of land, or 6 beds to the acre. The porter's office at

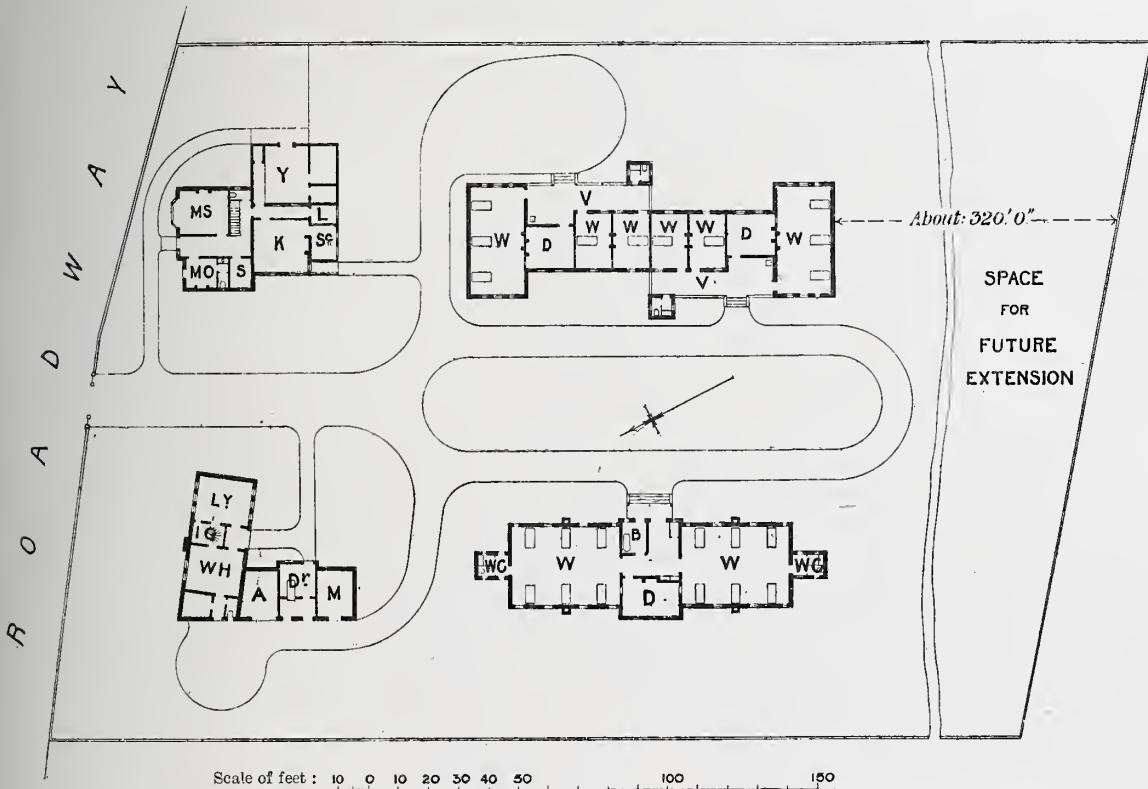


FIG. 2.—THE HEATHCOTE INFECTIOUS HOSPITAL, LEAMINGTON [p. 272]. (Mr. Keith D. Young, Architect.)

W, Ward. D, Duty-room. B, Bath-room. WC, W.c.'s and Slop-sinks. V, Verandah. MS, Matron's Sitting-room. MO, Medical Officer's Sitting-room. K, Kitchen. SC, Scullery. L, Larder. S, Store. Y, Yard. DR, Disinfector. M, Mortuary. A, Ambulance. WH, Wash-house. LY, Laundry. IC, Ironing closet.

the entrance contains, in addition to his living-rooms, an inquiry office, and waiting-room for friends of patients. The administrative block, which has wisely been designed to meet the requirements of future extension, comprises the usual accommodation for the medical officer, the matron, and a staff of about twenty nurses and servants, together with the kitchen and stores. There are three ward pavilions, each of the same plan. Each pavilion contains two wards for 8 beds, the nurses' duty-room in the centre of the block overlooking both wards. The bath-room is also in the centre facing the nurses' room. To each ward are a w.c. and a slop-sink in a turret at the end of the ward. The walls of the wards are lined to a height of 3 feet with salt-glazed bricks, above which is Keene's cement highly polished. The floors are kept up 4 feet above the general level of the ground, and are of fireproof construction; and a terrace, 2 feet 6 inches high and 6 feet wide, is formed round the entire pavilion. The linear

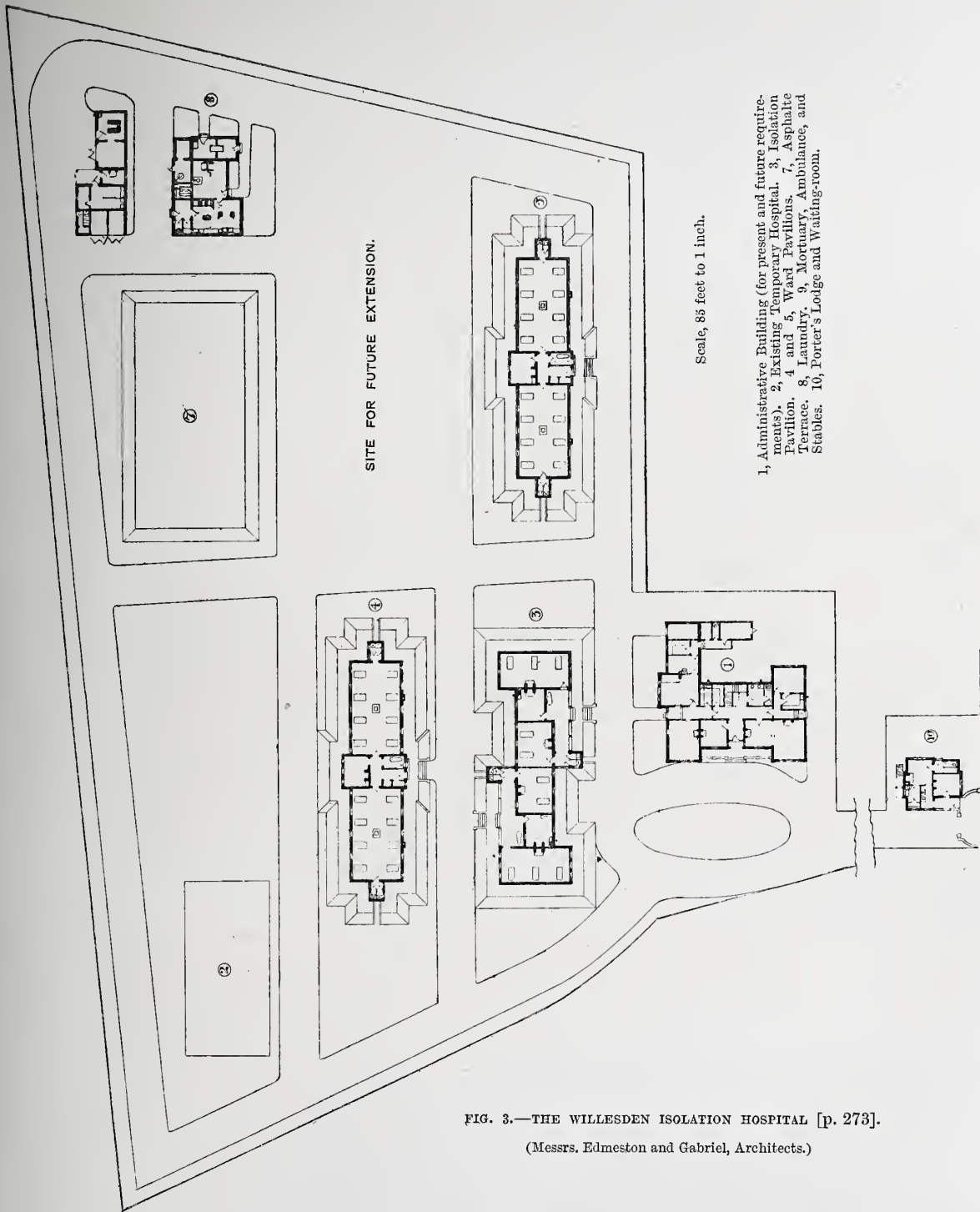
wall-space per bed is 12 feet, the floor-space 156 feet, and the cubic space 2,028 feet. The wards are warmed by double-faced open ventilating fireplaces with descending flues, so as not to obstruct the view down the ward.

The isolation pavilion is divided in the centre by a cross-wall, separating the block into two distinct divisions, one division facing east and the other west. Each division contains two wards, one for two beds and one for three beds, with a nurses' room between the wards and overlooking both. All these rooms are entered from a verandah, in which there is a space provided for a movable bath. Each division has, also, a w.c. and a slop-sink. The internal arrangements and finishings are similar to those in the ward pavilions, except that the floor-space per bed is 216 feet, and the cubic space per bed 2,800 feet. To the rear of the ward pavilions is a raised asphalted terrace upon which temporary buildings or tents can be quickly erected should occasion arise. At one corner of the site are the laundry block, the boiler-house, a steam disinfector, a mortuary and post-mortem room, and an ambulance-house. The whole of the buildings at this hospital are completely isolated, without communicating corridors of any kind.

Grafton Street Hospital, Liverpool [fig. 4, p. 277].—This hospital provides for 69 beds upon a little over two acres. The whole of the buildings are completely isolated, there being no connecting corridors or covered ways of any kind. The administrative block contains, on the ground floor, medical officer's sitting-room and bedroom, matron's sitting-room and bedroom, committee-room, officers' dining-room, nurses' day-room, servants' hall, dispensary, kitchen, and stores; and upon the first floor bedrooms for the staff. There are two main ward pavilions, each of two storeys, the ground floor for males and the upper floor for females, the staircase being well separated from the ground-floor ward, and approached externally. Each ward holds eight beds, and the two wards are overlooked from a centrally placed nurses' duty-room. The ward on one side is used for acute cases, and the other for convalescing patients. There is per bed 12 feet linear wall-space, and 156 feet floor-space. The isolation block contains two wards of two beds each, and one ward for one bed, with two nurses' duty-rooms, with baths, w.c., and slop-sinks, also in duplicate, thus admitting of two separate diseases, at least, being dealt with at the same time. There are also separate laundries for the staff and for patients, a complete disinfecting establishment, a mortuary and post-mortem room, and stables and coach-house for ambulance purposes. This is a complete Fever Hospital in miniature, and is well worth a visit.

The larger class of hospitals will be well illustrated by the following:—The Belvidere Infectious Hospital, Glasgow; the Moabit Infectious Hospital, Berlin; the London Fever Hospital; the Ladywell Sanatorium, Salford; the Epidemic Hospital, Copenhagen; the Infectious Hospital, Budapest; the Northern Convalescent Hospital, Winchmore Hill; the Park Hospital, Hither Green; the Fountain Permanent Hospital, Tooting; and the Brook Hospital, Shooter's Hill.

While I have referred to the Memorandum of the Local Government Board as governing the designs for smaller infectious hospitals, I think that this is the proper stage at which to refer to another document of equal value, which deals with hospitals of larger size. When, some two years ago, the Metropolitan Asylums Board were proposing to build additional hospitals, a specially appointed committee of that Board made a most exhaustive inquiry, extending over several months, as to the necessary requirements of a large Fever Hospital, visiting the principal institutions of similar character, and consulting with the most competent experts on the subject. The result was the issuing of a series of instructions to architects who were to compete for two of the new hospitals, and such instructions form, so



Scale, 85 feet to 1 inch.

1, Administrative Building (for present and future requirements). 2, Existing Temporary Hospital. 3, Isolation Pavilion. 4 and 5, Ward Pavilions. 7, Asphalt Terrace. 8, Laundry. 9, Mortuary, Ambulance, and Stables. 10, Porter's Lodge and Waiting-room.

FIG. 3.—THE WILLESDEN ISOLATION HOSPITAL [p. 273].
(Messrs. Edmeston and Gabriel, Architects.)

far as I am able to judge, the most complete text-book in existence on Fever Hospital requirements.

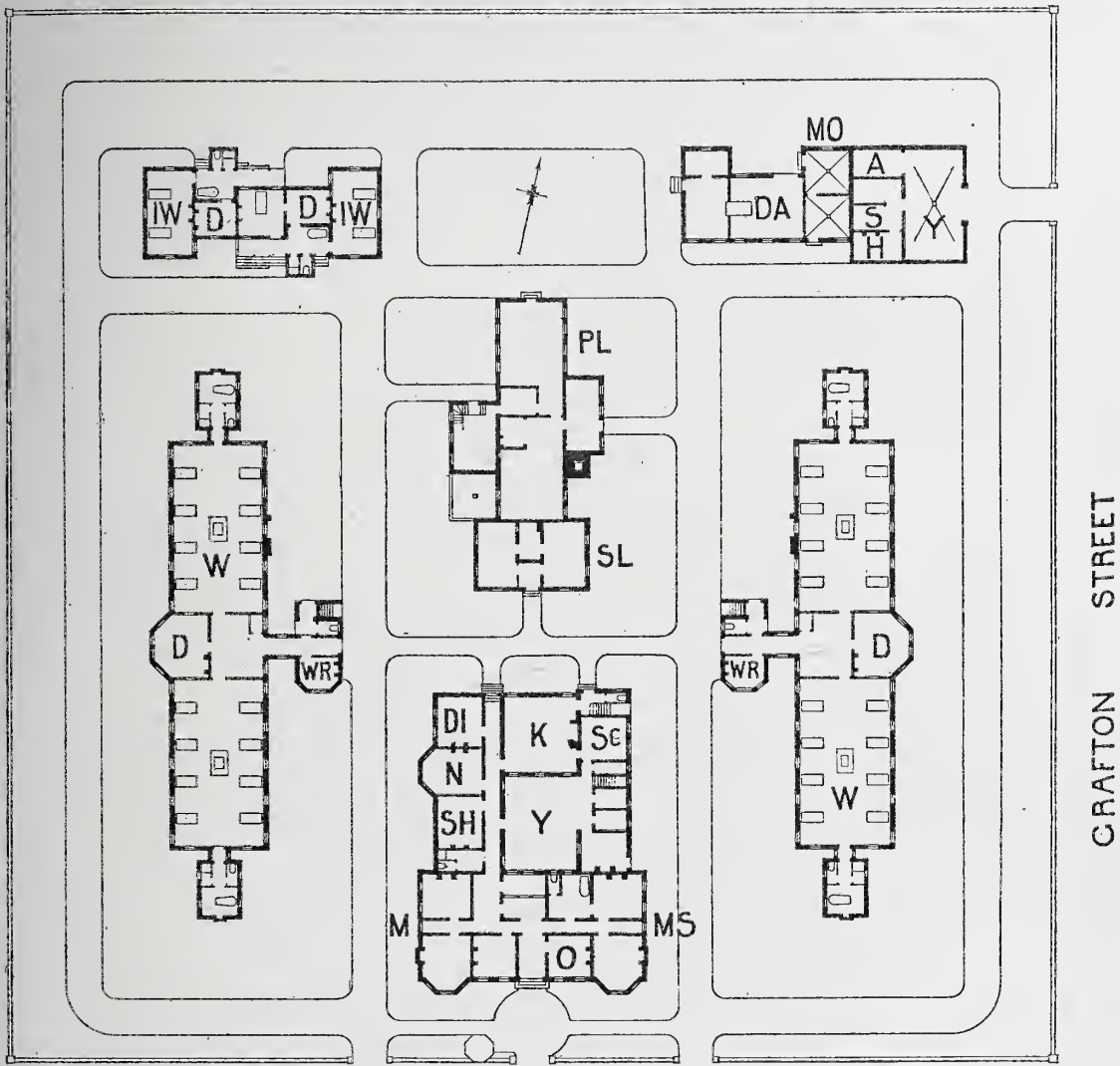
Belvidere Hospital, Glasgow [fig. 5, p. 279].—Upon this site of 32 acres, admirably situated, are two hospitals, one for fever, containing 390 beds, and one for small-pox, with 150

beds, each hospital with separate and distinct administrations, except that there is a central system of boilers, from which steam is conveyed to both hospitals for the purposes of heating, cooking, washing, &c. I will limit my description to the Fever Hospital. This hospital has two excellent features—the whole of the ward pavilions are of one storey, and there is a complete absence of connecting corridors of any kind, the latter feature being perfectly satisfactory to the authorities of the hospital. Another good feature is that the ward floors are in all cases not less than 4 feet above the general yard level, leaving a good air-space underneath the floor. Again, the staff quarters are well removed from the hospital proper. There are 13 ward pavilions, all of the same plan. Each pavilion consists of two separate and distinct sections, each section comprising an acute ward for 11 beds, a convalescent ward for 4 beds, the cubic space per bed in the former ward being 2,136 feet, and in the latter 2,500 feet. The wards are narrow, being only 22 feet wide, and the linear wall-space per bed does not average more than 9 feet. The high cubic space is obtained through having an open roof, the extreme height internally being 23 feet 9 inches to the apex, an arrangement not desirable for hospital wards. For so large a hospital the wards are small and numerous, thus increasing the cost of nursing. The nurses' room projects slightly into the ward with a bay window, but is not fitted up as a ward scullery. The wards are warmed by open fireplaces, and by low-pressure hot-water pipes running round the walls. The windows are double-glazed, with an air-space of three-quarters of an inch between the two panes of glass. Fresh air is admitted by direct openings beneath the windows, so arranged (under control) that the air passes over the heating pipes. There are ventilating dormers on opposite sides of the roof, Boyle's air-pump ventilators on the ridge, and ventilating shafts rising alongside the chimneys. There are separate laundries for the staff and for the patients, and a third laundry for washing the patients' own clothes. The stores and kitchen are centrally situated, the former being conveniently placed in relation to the entrance to the hospital.

The Moabit Hospital, Berlin [fig. 6, p. 281].—This hospital contains 800 beds upon 20 acres, or 40 beds to the acre. It was built originally as a purely infectious hospital, but other cases are now also received. The buildings, originally of a somewhat temporary character, are by degrees being remodelled and rendered more permanent, and a nurses' home has just been erected. The administrative buildings are placed to the front, and well apart from the ward pavilions. There are 29 ward pavilions, all of one storey only, nearly all of which have their axes east and west. The whole of the hospital buildings are completely isolated, with no connecting corridors of any kind. Each ward pavilion contains one large ward (the majority for 28 beds), duty-room, bathroom, w.c.'s, sink-room, and nurses' sleeping-room. The position of the w.c.'s and sink-room relatively to the ward would not satisfy English ideas of sanitation. The space for bed is as follows:—Wall-space, 6 feet 6 inches; floor-space, 75 feet; cubic space, 1,000 feet. In a few of the more recently constructed pavilions these spaces are slightly increased. The walls are bricknogged, and lined internally with boarding, the roofs are open, and the floors are laid with terrazzo. The warming is entirely by means of steam pipes running along the walls, there being two rows of piping on the north side of the ward, and one row on the south side. The ventilation is by means of a lantern ventilator in the ridge and by the windows, which consist of casements with a hopper fanlight over; but I was informed that the windows are seldom opened in winter. The temperature of the ward when I visited the hospital in December last was 68° Fahr. The majority of the ward pavilions are only 30 feet from the hospital boundary, some of them being still nearer. The steam for all purposes is generated in six large double-flued boilers, all of which have to be used in the winter. There is a large and well-appointed disinfecting house, with three steam disinfectors, and the baths are provided for the officers of this

department. There are no receiving wards at this hospital, the patients being taken direct to the ordinary wards.

London Fever Hospital [fig. 7, p. 288].—This hospital, which contains 150 beds upon an area of $3\frac{1}{2}$ acres, or 43 beds to the acre, was opened in the year 1849, and until 1871 was the



Scale of feet : 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

FIG. 4.—INFECTIOUS HOSPITAL, GRAFTON STREET, LIVERPOOL [p. 274]. (Mr. J. W. Simpson and Mr. E. J. Milner Allen, Architects.)

W, Ward. D, Duty-room. IW, Isolation Ward. PL, Patients' Laundry. SL, Staff Laundry. K, Kitchen. SC, Scullery. M, Matron's Quarters. MS, Medical Officer's Quarters. DA, Disinfectant. MO, Mortuary. S, Stables. H, Harness. A, Ambulance. Y, Yard. WR, Waiting-room. N, Nurses' Day-room. SH, Servants' Hall. D, Dispensary. O, Office.

only Fever Hospital in London. It is supported by voluntary contributions. Until the year 1871 the hospital received almost exclusively the poorer classes ; but the work of the Metropolitan Asylums Board after that date rendered this unnecessary, and at the present time the beds are occupied, to a great extent, if not exclusively, by paying patients. The wards for enteric fever were built in 1864. The general plan of this hospital, with the main buildings forming

an almost closed quadrangle, and with the principal wards for four rows of beds, will serve well to illustrate the progress made in hospital planning since this building was designed.

The Ladywell Sanatorium, Salford [fig. 8, p. 285].—The Ladywell Sanatorium at Salford contains 184 beds, and stands upon about $7\frac{1}{3}$ acres of land, giving 25 beds per acre. Space is left for a future pavilion to contain 48 beds, and when that is built there will be 32 beds per acre. The whole of the buildings are completely isolated, without connecting corridors of any kind. The administrative block stands quite free from the ward pavilions, and near the main entrance. It contains on the ground floor the official rooms, such as committee room, doctor's office, lady superintendent's office, sitting-rooms for the doctor, lady superintendent, and dispenser, and also the nurses' mess- and sitting-rooms. Bedrooms for the doctor and dispenser are placed on the first floor, with a separate staircase. The remainder of the upper floors of this block is devoted to nurses' bedrooms, servants' bedrooms, &c. Slightly to the rear stands the kitchen block, which (conveniently placed in regard to the ward pavilions) contains dispensary, kitchen, stores, servants' hall, &c.

There are at present three two-storey ward pavilions, the staircase leading to the first floor being well disconnected from the ground-floor wards. Each floor contains an acute ward for 6 beds, and a convalescent ward for 18 beds, a nurses' duty-room in the centre overlooking both wards, the bathroom facing the duty-room. The space per bed is—floor space, 169 feet; cubic space, 2,197 feet. The water-closets and slop-sink are placed opposite the staircase, and separated from the main pavilion by a well-ventilated corridor 12 feet long. The wards are warmed by open ventilating fire-places, and by external air warmed by passing over steam radiators placed in the window recesses. The exhaust ventilation is by means of extraction shafts, in which steam coils are placed to induce a rapid current of air. A striking feature in connection with these wards is that the side windows extend, without break, from floor to ceiling, so that in summer the patients can enjoy the advantage of living practically in the open air, but protected from the direct rays of the sun.

There are also two pavilions, each of two storeys, containing isolation wards, for the isolation of doubtful cases, and also to be used by paying patients. The stairs leading to the upper floors of these blocks are so placed that the nurses in charge of the upper wards would have no communication with those connected with the lower wards. In each pavilion there are four wards of two beds each, and four wards of three beds, together with four duty-rooms and four w.c.'s, thus admitting of the treatment of four different diseases at the same time. A verandah on the west side of the block forms a covered means of intercommunication between the several rooms, and the inconvenience caused by the ward doors opening directly into the open air (the usual difficulty in isolation wards of this type) is in this case overcome by reducing the size of the duty-rooms, and thus forming lobbies, from which the wards are entered. This hospital contains (in addition to the usual duplicated laundries for officers and patients) a sanitary department for the disinfection, not only of patients' clothes, but also of carpets, draperies, and the like, from all infected houses in the borough.

The Epidemic Hospital, Copenhagen [fig. 9, p. 287].—The Epidemic Hospital at Copenhagen contains 168 beds upon an area of 22 acres, or nearly 8 beds to the acre. The administrative block is placed free of the ward pavilions. There are eight ward pavilions, all of one storey. Of these, six are divided by a cross-wall into two perfectly distinct and separate portions, and contain wards of 12 beds, 6 beds, and 1 bed. The other two pavilions contain only wards for 1 bed each. One of these pavilions is reserved for ordinary isolation purposes, and the other for paying patients. None of the water-closets are placed in projecting turrets, as is the case with us, but lead direct from the ward corridors. There are also the administrative block, containing the official rooms, receiving-rooms, visiting-rooms, doctor's rooms;

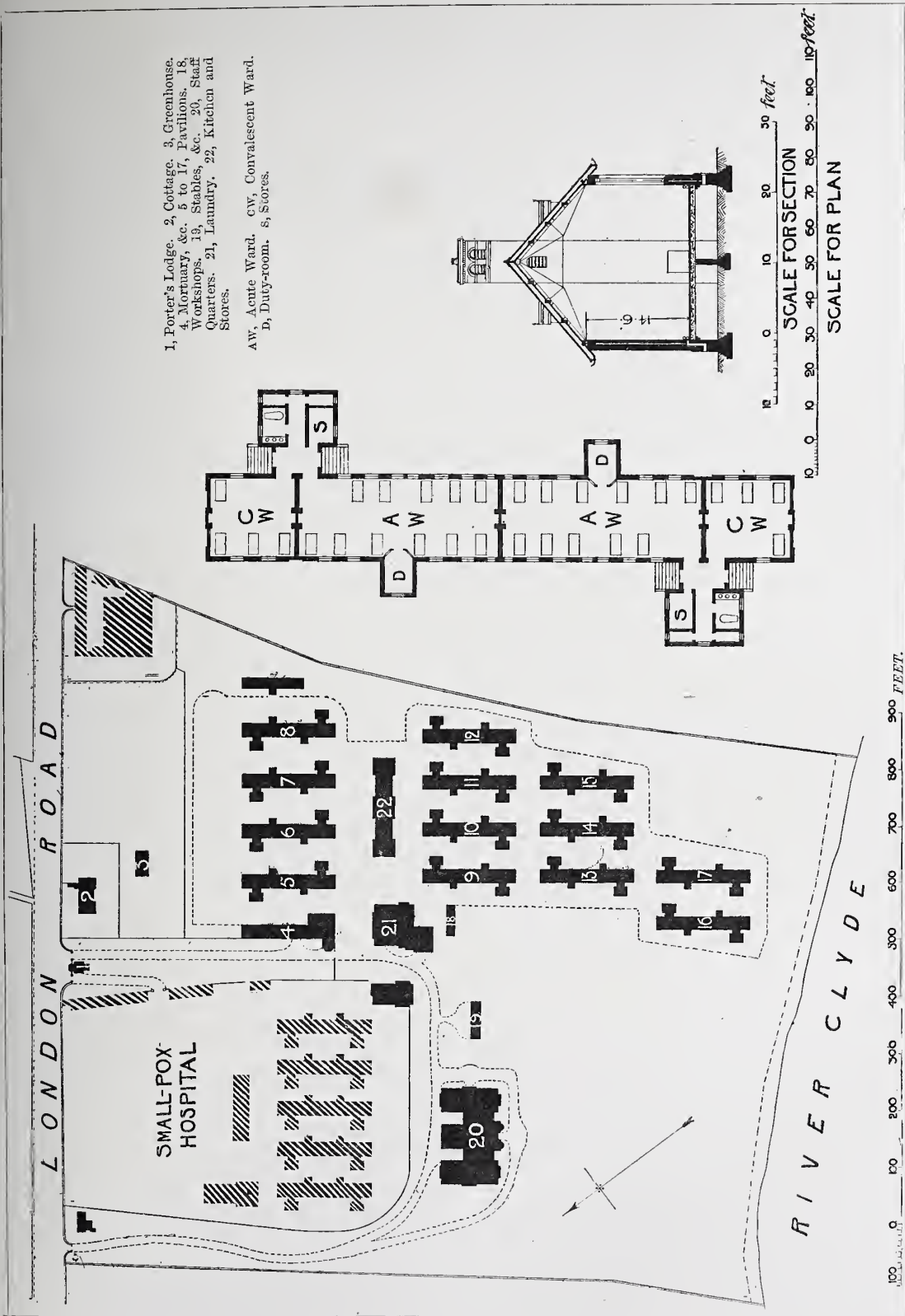


FIG. 5.—THE CITY OF GLASGOW FEVER HOSPITAL, BELVIDERE [p. 275]. (Mr. John Carrick, the Master of Works.)

also the kitchen block, laundry block, stables block, and mortuary block. The whole of the hospital buildings are entirely isolated, without connecting corridors or covered ways of any kind. The main wards are 26 feet wide, but the linear wall-space per bed is only 6 ft. 8 in., and the floor-space 86 feet.

The Infectious Hospital, Budapest [fig. 10, p. 289].—The new Infectious Hospital at Budapest contains 200 beds upon an area of $13\frac{1}{4}$ acres, or 15 beds to the acre. There are 8 one-storeyed pavilions, all of the same design, connected together by means of a covered way having open sides. Each pavilion contains one main ward for 16 beds, 2 wards for 4 beds each, and one single-bed ward. In the main ward the linear wall-space per bed is 6 ft. 9 in., the floor-space 88 ft. 6 in., and the cubic space 1,460 feet. A striking feature of this hospital is that the ward floors are raised nearly 9 feet above the general yard level, the space underneath forming a sub-storey, the floor of which is level with the ground. In this sub-storey are placed the channels for part of the heating apparatus. The wards are warmed by two systems: (*a*) by external air warmed and filtered at the intake, and arranged to enter the ward through covered pedestals placed in the centre of the ward, the intake being at a point about 16 feet above the ground level, at the top of a turret placed about 16 feet from the pavilion; (*b*) by means of external air entering through the side walls, and being warmed by passing over steam radiators placed in the window recesses. There are no receiving wards, the patient being examined at the main entrance, and passing thence to the wards.

The Northern Convalescent Hospital, Winchmore Hill [fig. 11, p. 291].—The Northern Hospital at Winchmore Hill is the convalescent hospital of the Metropolitan Asylums Board. It contains 480 beds upon an area of $36\frac{1}{2}$ acres, or about 13 beds to the acre. The administrative block stands free from the ward pavilions, and contains the official rooms, and the kitchen, stores, and laundry. There is also a residence for the medical superintendent. There are 16 separate ward pavilions, all of the same plan (except in two instances), 14 containing 32 beds each, and two containing 16 beds each. The ground floor of each pavilion contains a day-room, a dining-room, kitchen, charge-nurse's sitting-room, stores, &c. The upper floor contains two wards, each for 16 beds, charge-nurse's bedroom, linen-store and baths, lavatories and w.c.'s. The wards are 26 feet wide, and the linear wall-space per bed is 6 feet, the floor-space 78 feet, and the cubic space 1,014 feet. The buildings of this hospital are all completely isolated, without connecting corridors or covered ways of any kind. Each pavilion is so arranged as to form, to some extent, a small hospital in itself. Two new pavilions are now in course of erection.

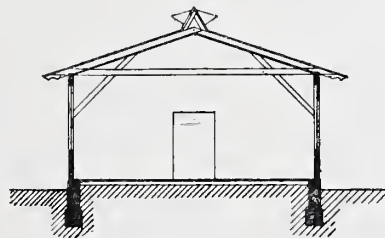
The Park Hospital, Hither Green, Lewisham.—The site of this hospital is about $19\frac{1}{4}$ acres in extent, of undulating ground, on which is a good deal of fine timber, of which as much will be retained as is possible. About one half of the periphery is bounded by main roads. The main entrance is opposite the end of the road from London. To the right are the porter's lodge and the residence of the medical superintendent. In front is the block of offices, committee-room, chaplain's room, &c. To the left is the block of discharging- and waiting-rooms. Beyond are the mortuary and the education block. The road then leads to the central administrative block, containing the residences for servants, the steward's stores and yard, and the kitchen buildings. This central block is flanked on the one side by the steward's house, and on the other by that of the assistant medical officers. Behind the central block rises the water and clock tower. To the east of this block are four pavilions for diphtheria, containing in all 120 beds; to the west are eight pavilions for scarlet fever, containing 368 beds; and to the south of these are six isolation pavilions, containing 60 beds—a total of 548. This will be the largest hospital for infectious diseases in the metropolitan area.

To the south-west, at the highest part of the estate, is the nurses' home, consisting of three buildings, connected by covered ways, one being reserved for night nurses, the others for day nurses, and for the mess-, sitting-, and writing-rooms, sculleries, &c. The sleeping accommo-

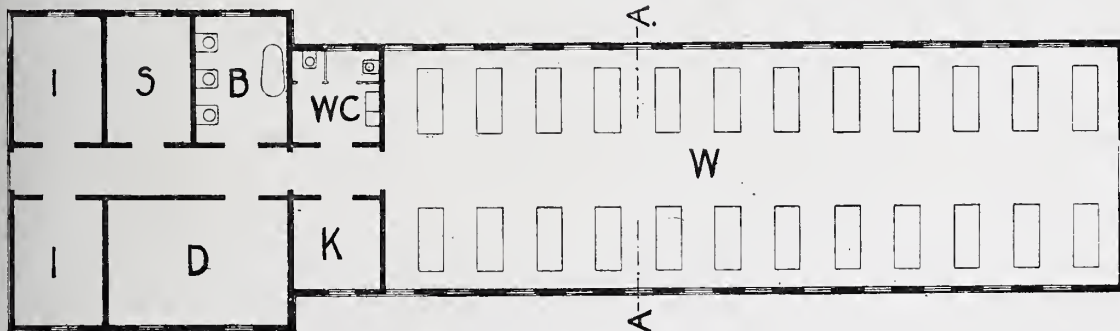


1 to 29, Ward Pavilions. 30, Isolation Block. 31, Administrative. 32, Kitchen. 33, Laundry. 34, Porter. 35, Fire Brigade. 36, Bathing-house. 37, Workshops. 38, Boilers. 39, Disinfector. 40, Stable; for Animals for Experiments. 41, Mortuary. 42, Operating. 43, Nurses' Home.

w, Ward. i, Isolation Ward. d, Nurses' Room. k, Kitchen. B, Bath. s, Stores. wc, W. c. and Lavatory.



SECTION A A.



Scale, 20 feet to 1 inch.

PLAN OF PAVILIONS.

FIG. 6.—THE MOABIT HOSPITAL, BERLIN [p. 276]. (The Municipal Architect.)

ation is for 192 nurses in all. To the south-east are the laundries for patients and staff, the artificers' workshops, the engine- and boiler-houses. All the pavilions are kept about 100 feet distant from the boundary, and a road is carried entirely round them. The various portions of the hospital are connected by covered corridors. The lighting will be by electricity generated on the premises; the heating will be by low-pressure hot water heated by steam. There

are telephones and electric fire-alarms throughout, and hydrants for extinguishing fires in every building. These are kept charged, and a steam fire-engine is also provided. The floors and partitions throughout the hospital are of fire-resisting construction, and there is no internal communication between any two storeys of the various pavilions. A separate airing-court is provided for each pavilion. There are also airing-balconies on each floor of every pavilion. The buildings are to be of brick, with terra-cotta and stone dressings, the roofs of slates. The architect is Mr. Edwin T. Hall, who has kindly lent me his plans for the evening.

Fountain Permanent Hospital, Tooting Graveney.—This hospital is one of the three new establishments now being erected by the Metropolitan Asylums Board, the plans for which have been prepared by Mr. A. Hessel Tiltman, who has lent me a reduced plan showing the buildings as they will be completed, and supplied me with the following particulars relating to them. The site is about 27 acres in extent, and gives accommodation for 520 patients, divided in the following manner:—8 two-storeyed pavilions for scarlet fever, accommodating 352 patients; 4 two-storeyed pavilions for diphtheria and enteric fever, accommodating 112 patients; 4 one-storeyed isolation blocks, accommodating 36 patients; 2 one-storeyed isolation blocks, accommodating 20 patients. Generally speaking, the ward blocks and all accessory buildings of an infectious character occupy one side of the site longitudinally, the administrative block being located somewhat centrally, and close up to the entrance gates. The homes for the nurses and domestic servants, together with their mess-rooms, are placed on the opposite side of the administrative central line to that of the ward pavilions.

The chief motives in the arrangement of the large ward pavilions have been the ranging them *en échelon*, with the longitudinal axes of their large wards pointing in every case due north and south; the isolation of the individual block of each class of wards; and the due separation of the blocks for the different classes of infectious diseases. The pavilions for diphtheria and enteric fever are those placed nearest to the doctors' offices and quarters; whilst those for scarlet fever are kept as far from the former as possible, the isolation block being placed parallel to and between these two sets of pavilions. For the convenience of the medical and nursing staffs, a wide roadway, leading directly from the entrance gates, has been formed, cutting centrally and transversely through the site up to the covered way leading to the scarlet-fever wards.

The scarlet-fever pavilions are two storeys in height, and all the eight blocks are precisely similar in plan and arrangement. There are on each floor one main ward for 20 beds, one two-bedded ward, ward scullery, linen-room, pantry, and all necessary sinks and bathrooms, w.c.'s, &c. The superficial area, wall-space, and cubical capacity per bed are those now ordinarily adopted by the Board.

The diphtheria and enteric-fever pavilions are similar in plan and arrangement to those for scarlet fever, with the exceptions only that the large wards hold 12 beds each, instead of 20, and that the cubical capacity, floor-area, and wall-space are increased to the extent of 25 per cent.

The isolation pavilions are one-storeyed buildings only, and are six in number. Four of these accommodate 9 beds each (two four-bedded wards and one one-bedded ward). The other two blocks each contain one six-bedded ward and two two-bedded wards. These all have the regulation cubical capacity and superficial area. The ground-floor line of all ward blocks is raised some 4 feet 6 inches from the ground line, so as to secure good circulation of air under the whole of the buildings.

The steward's house has been so placed as to overlook the main entrance and the entrance to the store-yard; whilst, for the purpose of exercising some supervision over the male staff,

the dormitories and mess-room of the latter have been attached directly to his house. It may be noted that all mess-room blocks are within a very easy distance of the kitchen.

The homes for the nurses and female domestics have been arranged so that their inmates, when off duty, may be as far from the hospital wards as possible. These blocks are arranged around three open courts respectively, each for charge-nurses, assistant charge-nurses, and the female servants. The separation of this accommodation into seven separate blocks, necessitated partly by the exigencies of the site, has some advantages in point of health and supervision, together with that of a greater freedom from the danger of fire.

The accommodation for nurses' dressing block has been provided in a somewhat new and extended form. The chief motive of the arrangement is the retention of the boxes, with the outer garments, &c., of the nurses and women servants, entirely away from their respective dormitories, and the better provision for their change of dress, &c., on entering and leaving the hospital. The box-room is on the ground floor of the block, and the dressing-rooms on the first floor, divided into departments for the three classes of users.

There are two reception-rooms, of much the usual arrangement and position.

The discharge blocks are close to the main entrance; and closely adjoining is the friends' general waiting-room block.

The education and mortuary buildings are connected, and closely adjoin the entrance gates,

so that hearses may enter and leave the establishment free from the observation of the patients.

The administrative block comprises the whole accommodation of the offices, medical officers' quarters, committee-rooms, dispensary, needle-room, kitchen, and general stores,

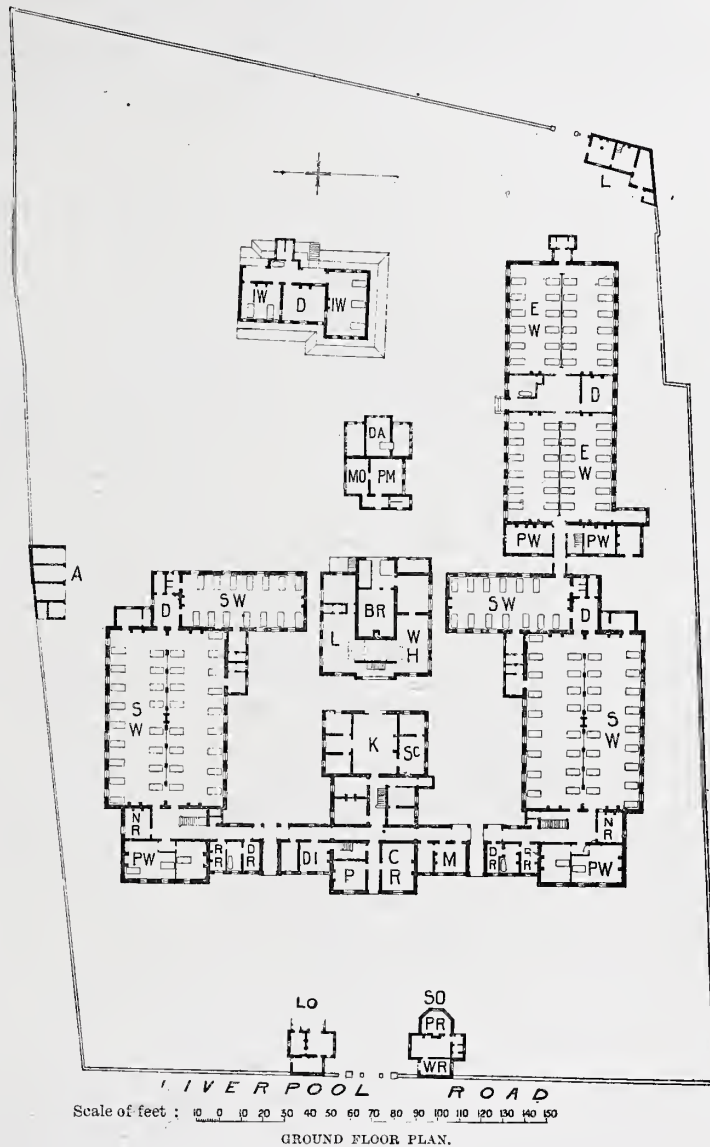


FIG. 7.—THE LONDON FEVER HOSPITAL, LIVERPOOL ROAD, N. [p. 277].

(Mr. Charles Fowler, Architect, 1848. Mr. Keith D. Young, present Architect.)

sw, Scarlet Fever Wards. fw, Enteric Wards. p-w, Private Wards. iw, Isolation Wards. D, Duty-rooms. RR, Receiving-room. DR, Dressing-room. NR, Nurses' Room. K, Kitchen. SC, Scullery. M, Matron. P, Physician. DI, Dispensary. WH, Wash-house. L, Laundry. BR, Boiler-room. MO, Mortuary. PM, Post-mortem Room. DA, Disinfecting Apparatus. so, Secretary's Office. PR, Private Office. WR, Waiting-room. LO, Lodge. A, Ambulance. CR, Committee-room.

together with the domestics' mess-rooms, &c. All are concentrated into buildings to a great extent only one storey in height, and so arranged as to facilitate the work of the several divisions of them.

The laundry and boiler-house block has the usual accommodation, and connected with it is a tower for the storage of 30,000 gallons of water.

Beyond the accommodation mentioned is a house for the medical superintendent, cottage and office for the porter at the gates, workshops, and storage for coal.

The buildings are intended to be warmed chiefly by hot water, low pressure, and the lighting will be by electricity.

The Brook Hospital, Shooter's Hill [fig. 12, p. 293].—This is one of the three large Fever Hospitals projected by the Metropolitan Asylums Board, and is now in course of erection. The number of beds will, at present, be 488, upon a site of 30 acres, or 16 beds to the acre. This site is one which fulfils nearly all the requirements of an ideal hospital site. It stands at an elevation of over 200 feet above the sea level, and facing northwards towards Shooter's Hill Road, the land falls rapidly towards the south, so that the buildings are grouped on terraces facing the south, and shielded from the north and east winds. In the front portion of the site are placed the several administrative buildings, such as the official block, the kitchen and stores, the matron's department, the medical superintendent's residence, and three separate homes, respectively for the nurses, the female servants, and the male servants. The main portion of the hospital proper, or the infected buildings, stands to the rear of, and well separated from, the administrative buildings, and comprises 8 two-storeyed pavilions for scarlet fever, 4 similar but shorter pavilions for diphtheria and enteric fever, 6 one-storeyed pavilions for isolation wards, and 2 receiving wards. There are two entrances from Shooter's Hill Road—viz. the "infected entrance" and the "non-infected entrance," both controlled from the same porter's lodge. The "infected entrance" leads to the receiving wards, ward pavilions, and laundry, and the "non-infected entrance" to the official block, store-yard, and staff quarters.

The nurses' home consists of three separate blocks, one being reserved for night nurses. The mess-rooms and general sitting-rooms face the south, and have open roofs. Each nurse has a separate bedroom, 12 feet by 8 feet, with a fireplace. This home also contains the matron's residence. The blocks for female and male servants respectively are arranged upon the same principle, except that cubicles are substituted for separate bedrooms. The house-keeper resides in the block for female servants, and the steward's residence adjoins that of the male servants, and also overlooks both the store-yard and the "non-infected entrance."

There are 8 two-storeyed ward pavilions for scarlet fever, all of the same type, their axes being north-east and south-west, while the average height of the ground floor is 6 feet above the yard level. The staircase communicating with the upper floor is quite cut off from the lower ward. Each main ward contains 20 beds, and each bed has a linear wall-space of 12 feet, a floor-space of 156 feet, and a cubic space of 2,028 feet. There is also on each floor a separation ward for 2 beds, with its own w.c. The duty-room or ward scullery is so placed that it overlooks both the main and the separation wards. The wards will be warmed partly by open ventilating fireplaces and partly by fresh external air introduced through openings in the walls underneath the windows, and warmed by passing over copper radiators (low-pressure water apparatus), enclosed in galvanized iron cases with open tops. There will also be hit-and-miss gratings in the external walls at the floor level at the back of each bed, and exhaust ventilation (in addition to the open fireplaces) by means of glazed brick vertical shafts terminating well above the roofs, in which an upward current is caused by means of copper steam coils. The wards for diphtheria and enteric fever will be of similar character, but for

12 beds each, and each bed will have a linear wall-space of 15 feet, a floor area of 195 feet, and a cubic space of 2,535 feet. The hospital will also comprise separate laundries for patients and for the staff, boiler- and engine-house, discharge wards, disinfector house, work-

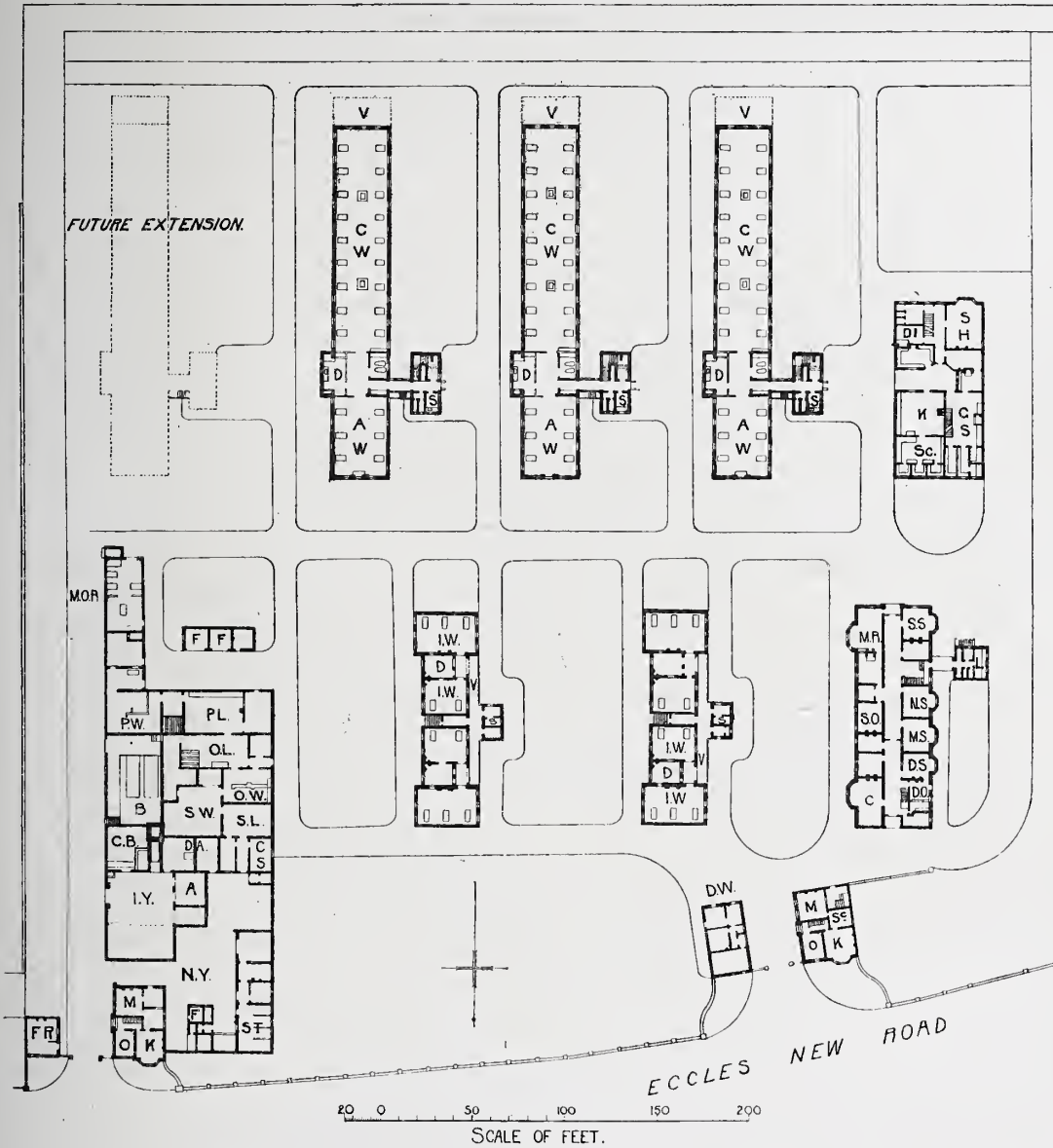


FIG. 8.—THE LADYWELL SANATORIUM, SALFORD [p. 278]. (Messrs. Maxwell & Tuke, and E. & F. Hewitt, joint Architects.)

AW, Acute Ward. cw, Convalescent Ward. iw, Isolation Ward. d, Duty-room. v, Verandah. s, Slop-siuk. iy, Infected Yard. ny, Non-infected Yard. st, Stables. o, Office. k, Kitchen. m, Men's Quarters. a, Ambulance. b, Boilers. pw, Patients' Wash-house. pl, Patients' Laundry. ow, Officers' Wash-house. ol, Officers' Laundry. sw, Sanitary Wash-house. sl, Sautary Laundry. fr, Mourners' Room. da, Disinfector. cs, Patients' Clothes Store. cb, Carpet-beating. f, Fuel. mor, Mortuary. dw, Discharge Ward. c, Committee-room. mr, Mess-room. so, Lady Superintendent's Office. ss, Sisters' Room. ns, Nurses' Sitting-room. do, Doctor's Office. ms, Lady Superintendent's Sitting-room. ds, Doctor's Sitting-room. cs, General Store. sh, Servants' Hall. sc, Scullery. di, Dispensary.

shops, and mortuary. The buildings will be lighted throughout with the electric light. There will be a complete system of telephonic and electric-bell intercommunication. The whole of the floors throughout will be of fireproof construction, and it is proposed to use terrazzo as a

floor surface for all the wards, but this proposal is still under consideration. The whole of the main buildings will be faced externally with red Leicestershire bricks.

Having given illustrations of the various types of existing Fever Hospitals, I propose that we should now consider in some detail the requirements of the infectious hospital of the immediate future, more particularly in reference to the two larger classes of hospital, leaving the very small hospitals, as we may safely do, to be governed by the already described Memorandum of the Local Government Board; and for this purpose I think that the most convenient course, and the one most likely to convey to our minds the working of such an institution, will be to follow the patient from the time of his or her arrival at the hospital until the period of discharge or burial.

Entrances.—Upon this principle we will commence at the entrance gate. Now, there should be two entrances to an infectious hospital, each controlled by the same porter's lodge, which should, in fact, stand between them. One, to be called the "infected entrance," leads to the hospital proper; and the other, to be called the "non-infected entrance," leads to the official department, stores, and staff quarters. This arrangement, while perfectly convenient in actual working, is protective to the outside public, as it enables outsiders having business with the hospital—as, for example, the delivery of stores—to transact their business without coming into contact with the infected parts of the hospital. It is important that this entrance should be as near as possible to the administrative department and staff quarters. On the other hand, the infected entrance should be as near as possible to the receiving wards, in order that the passage or transit of ambulances upon the hospital premises may be as limited as possible.

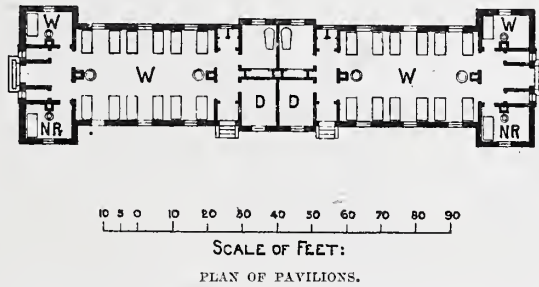
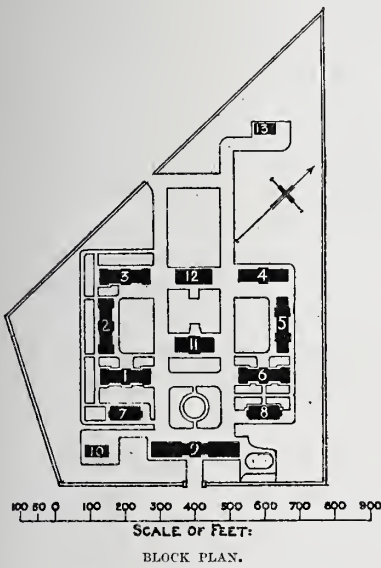
Porter's Lodge.—The porter's lodge should contain an office of good size and well lighted, opening on to both entrances, with a glass verandah on both sides. This verandah should lead, on the non-infected side, to a waiting-room, where outsiders can remain until their business has been ascertained and dealt with. The lodge should also contain a living-room, scullery, two bedrooms, pantry, coal-store, and *w.c.*

Receiving Wards.—There should be two receiving wards, one for scarlet fever and one for diphtheria and enteric fever. These two wards should not adjoin, but should be as near as possible to the wards of their respective diseases. Each receiving block should contain a good-sized and well-lighted receiving and examination room, with a bathroom adjoining (the doorways to these rooms being wide), together with a room for the ambulance nurses, to which should be attached in each case a warmed store for blankets and gowns. There should also be a waiting-room for friends of patients, where they put on a wrapper and cap before visiting the wards, as also a lavatory where they can wash before leaving the hospital. There should also be a small room properly fitted up for bacteriological examination in connection with the reception of patients. In this connection I may mention that, at the Belvidere Hospital, Glasgow, there is a very interesting provision in the nature of an inquiry room for patients' friends. This room is placed near the entrance, and quite unconnected with any infected buildings. There is a raised platform about 4 feet high round two sides, divided from the remainder of the room by a glazed screen, having casement windows with numbers painted on them corresponding with the number of each ward in the hospital. Cards of admission are issued to the friends for stated hours (different hours for the various diseases). The friend attends at the stipulated hour, the nurse is sent for from the ward, and from the raised platform and window, and without any contact with the visitor, can answer questions relative to the patient.

In many hospitals, particularly on the Continent, receiving wards are not provided, the

patient being *seen* by the doctor at the entrance (the word "examination" scarcely applies), and the patient is then taken direct to the ward. The necessity for a careful examination of the patient in a properly appointed receiving ward is, however, fully recognised in this country, if only as a safeguard against errors of diagnosis on the part of the certifying practitioner; and it is, moreover, most desirable, in the case of many of the poorer classes, that their clothes, for obvious reasons, should be removed before they enter the hospital wards. The patient then, having been bathed, is taken to the ward, and his clothes are disinfected, then washed, and afterwards placed in the patient's own clothes stores, which should adjoin the discharge-rooms.

Ward Pavilion.—The patient having reached the ward, we will now describe the typical ward pavilion. There will be, generally, two main groups of ward pavilions in an average-sized Fever Hospital, viz. one group for scarlet fever and another group for diphtheria and enteric fever. The proportions will vary. For instance, diphtheria is more prevalent in London than in the provinces, and a larger number of beds proportionately have therefore to be provided. But there will be no variation in the plan of the ward pavilion for either disease, except that, as will be seen later on, a larger cubic space per bed will be allotted to diphtheria and enteric fever.



1 to 6, Ward Pavilions. 7, Observation Pavilion. 8, Officials' Quarters. 9, Administrative. 10, Stables. 11, Kitchen. 12, Laundry. 13, Mortuary.
W, Ward. D, Duty-room. NR, Nurses' Room.

FIG. 9.—THE EPIDEMIC HOSPITAL, COPENHAGEN [p. 278]. (From Burdett's *Hospitals and Asylums of the World*.)

The first important question to be decided in connection with the ward pavilion is whether there should be one main ward to include convalescing cases as well as acute cases, or whether there should be two separate wards for the two classes. Where there is a separate convalescent hospital, as in London, the question does not arise. But these rarely exist, and in the great majority of infectious hospitals the patient must be discharged as cured and free from infection from the hospital in which he has been treated. Of the hospitals, the plans of which you have seen this evening, three have convalescent wards, viz. the Grafton Street Hospital, Liverpool; the Belvidere Hospital, Glasgow; and the Ladywell Sanatorium, Salford; but the remainder have not. It is undoubtedly an advantage for the convalescing patient to be removed from the disturbing surroundings of an acute ward as soon as possible, although in all properly ventilated wards the air ought to be as pure in an acute as in a convalescent ward; but it must be borne in mind that the multiplication of wards increases the number of ward adjuncts, such as lavatories and water-closets, and increases the duties of nursing. It is also difficult when the ward pavilion is so divided to find a suitable position for a properly lighted and ventilated separation ward. Again, if we assume—as we may naturally do—that the cubic space in a convalescent ward can be safely reduced

from the standard of 2,000 feet, it is evident that an acute ward, containing none but acute cases, must necessarily have a larger cubic space than the standard referred to.

On the whole, therefore, there would appear to be good reason for adhering to the single ward type, and in our description of the typical ward pavilion we will proceed upon that assumption, although the main principles of ward construction will apply in either case.

The ward pavilion, then, whether of one or two storeys, would comprise the following upon each floor:—The main ward and the separation ward. The ward adjuncts, viz. the duty-room; the water-closets and sinks; the bathroom and lavatory; the linen-store; the larder; the nurses' w.c., lavatory, and robing-room. If there be two storeys, the staircase leading to the upper floor should be completely isolated from the lower ward and its appurtenances, and there should always be a second or escape staircase in connection with the verandah at the distal end of the ward.

The Main Ward.—In dealing with the main ward, we come first to the number of beds which should be placed in each ward. For the purposes of economical administration it is obviously advisable to have as many beds in a ward as is consistent with efficient nursing, as the multiplication of wards not only increases the number of the ward adjuncts (the most costly part of hospital construction), but also increases the number of nurses employed. On the other hand, diseases such as diphtheria and enteric fever require more nursing attention than, say, scarlet fever, and such a consideration must necessarily govern the number of beds to be attended to by one charge-nurse and her assistants. It may assist us to a conclusion to know that the specially appointed committee of the Metropolitan Asylums Board, after a most exhaustive inquiry, and after taking the opinions of those members of the medical profession most competent to advise upon the subject, came to the conclusion that the maximum number of beds to a ward should be 20 for scarlet fever and 12 for diphtheria and enteric fever, and I think we shall be justified in accepting these numbers as a satisfactory basis upon which to design the fever wards of the future.

The next point to be considered is the size of the ward, and here we must first deal with the cubic space per bed. In the Memorandum of the Local Government Board, already referred to, the suggested cubic space is 2,000 feet (apparently for all types of infectious disease), but I believe that most medical authorities are in favour of giving a larger cubic space to diphtheria and enteric fever, and I think that we shall be justified in allotting 2,500 feet to these two diseases. It will be found that this increase resolves itself into a question of increased floor-space, as the height of the ward is not varied. From the point of view of ventilation, the increase of cubic space is of little value, as fresh external air must be supplied to the ward in a fixed quantity per bed per hour, irrespective of the cubic capacity of the ward. There are three items to be arranged in connection with the cubic space, viz. the linear wall-space per bed, the floor-space per bed, and the height of the ward. There is now a general consensus of opinion against very lofty wards. In fact, a height of 12 feet would be sufficient were it not that with that height a long ward would present a somewhat dwarfed appearance, and I think that we may consider 13 feet as the most suitable height.

The next point to consider is the width of the ward. It is the general practice, at the present time, to design infectious wards with a width of 26 feet, that being an increase of 2 feet upon the accepted width of a few years ago; but I must plead for a greater width in the future, say 28 feet at the least, as floor area in a ward is of great value. The width now suggested will not be considered excessive when it is mentioned that the wards at the celebrated Eppendorf Hospital at Hamburg are 28 feet wide; at the Frederikshain Hospital, Berlin, 30 feet wide; at the Urban Hospital, Berlin, 32 feet wide; and, to take a most excellent example of modern hospital planning, the wards of the Derbyshire Royal Infirmary are 29 feet wide. None of these are

infectious hospitals, which makes the case even stronger. Ample width in a ward leaves room in the centre for fireplaces, tables, &c., without obstructing the passage-way at the foot of the beds, and, what is also highly desirable, admits of the beds being placed 12 or 18 inches clear of the walls, and thus clear of hot-water pipes, air-gratings, and draughts from windows. Assuming, however, that for the present we must be content with a width of 26 feet, and taking the height as 13 feet, we find that for scarlet fever a linear wall-space per bed of 12 feet will give a floor-space of 156 feet, and a cubic space of 2,028 feet, and that for diphtheria and enteric fever a linear

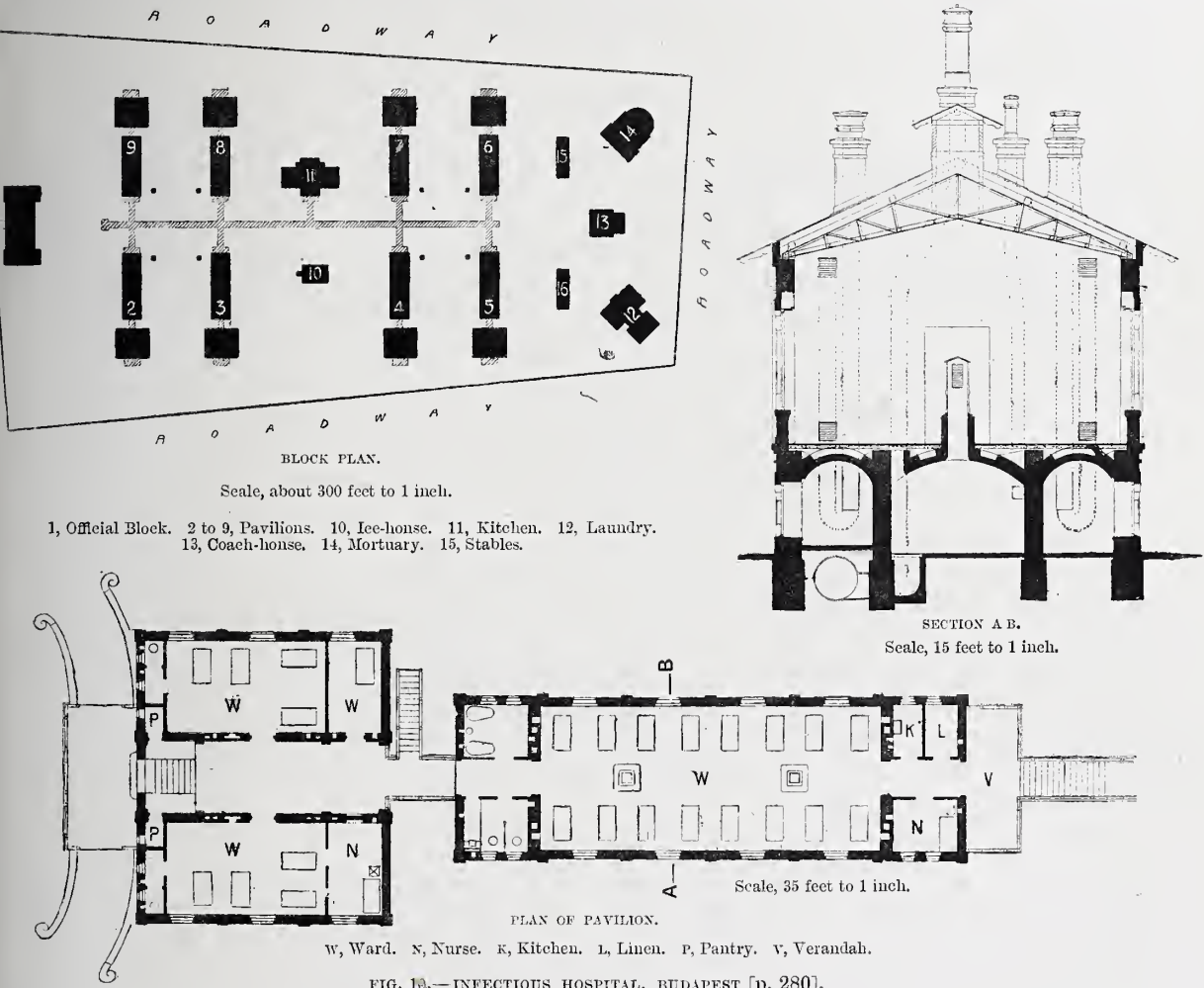


FIG. 10.—INFECTIOUS HOSPITAL, BUDAPEST [p. 280].

wall-space per bed of 15 feet will give a floor-space of 195 feet, and a cubic space of 2,535 feet. This will make a ward for 20 scarlet fever beds 120 feet long, and a ward of 12 beds for diphtheria or enteric fever 90 feet long. These dimensions and numbers of beds are, of course, for fairly large hospitals, but the wall-space, floor-area, and cubic space will be fixed quantities, applying to wards of any size. I may add that so long ago as 1882, in a Paper read before the Epidemiological Society, Mr. P. Gordon Smith, the architect of the Local Government Board, advocated a width of 26 feet for the wards of infectious hospitals.

The dimensions of the ward having been determined, some of its details may now be considered. The windows (which should be double-glazed to prevent loss of heat) should

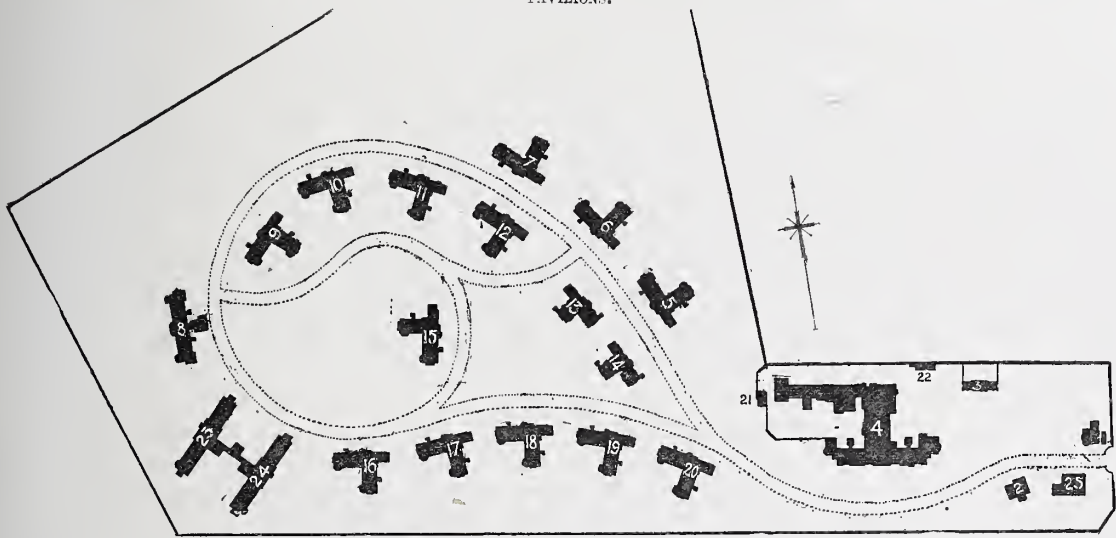
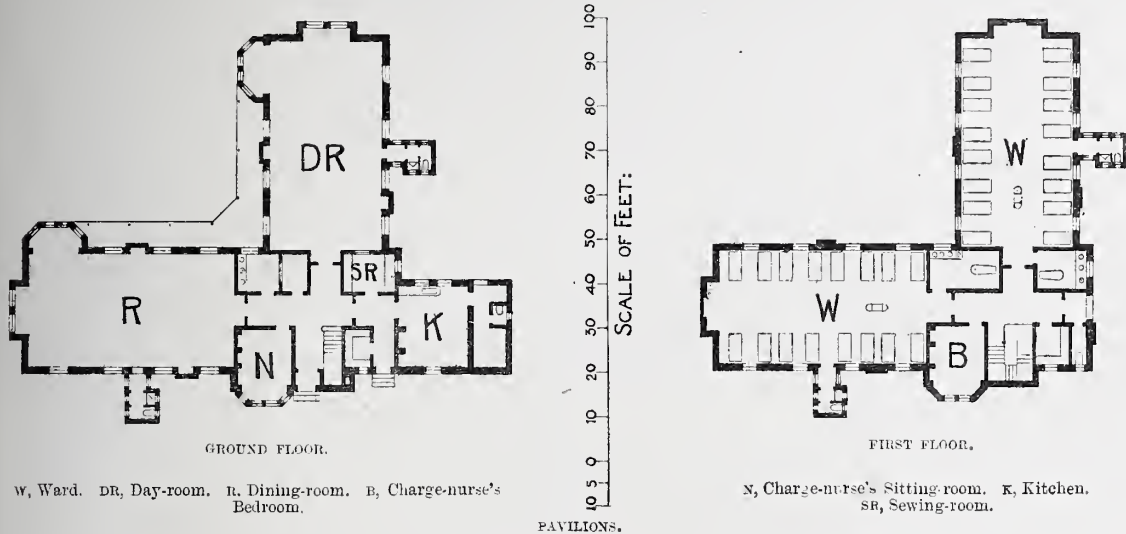
have an area of not less than 1 foot for every 70 cubic feet of ward-space. The wall-space of 12 feet admits of a window of ample size being arranged between each pair of beds, and it is also most desirable that there should be a window in each corner of the ward, between the last bed and the end wall. If the distal end of the ward can be arranged so as to face the south or south-west, so much the better, and there should then be glazed doors leading to a verandah. It is almost unnecessary to say that all internal angles should be rounded, and that, in fact, recesses, sinkings, and all arrangements involving internal angles should be avoided as far as possible. With this object in view, it is advisable to keep the window frames flush, or as nearly so as possible, with the internal face of the wall. A 9-inch external reveal in a 14-inch wall will ensure this.

The walls and ceilings of the ward should be finished with Keene's cement, and this, after an interval, should be painted and varnished. (All woodwork, also, should be varnished as well as painted.) A ward thus finished internally can be easily and frequently cleansed, without repainting. The importance of the frequent cleansing throughout of the wards of an infectious hospital cannot be overestimated. The floor of a ward is a subject upon which there is much difference of opinion. The requirements which a ward floor should fulfil are, that it should be impervious in character, should be capable of being easily cleaned without the application of much water, and should be cheerful in appearance. In this country wood floors are in general use, the preference being given to oak or teak wax polished. One great objection to wood floors is that they are necessarily full of joints, and as the wood shrinks, as it always will, these joints open and become the receptacles for impurities. On the score of brightness of appearance, oak is preferable to teak, but it is easily stained. Teak is undoubtedly by far the best of all wood floors, being hard, durable, and unaffected by moisture; but it is dark and dull in appearance, and detracts from the cheerfulness of the ward. I am inclined to think that a terrazzo floor is the most suitable for infectious hospitals. Such floors need not be considered as being in the experimental stage. I have seen them at the Eppendorf Hospital, Hamburg; the Moabit Hospital, Berlin; the Frederikshain Hospital, Berlin; the Urban Hospital, Berlin; and, to come nearer home, at the Derbyshire Royal Infirmary; and the testimony of the authorities of these hospitals is very strongly in favour of these floors. A well-laid terrazzo floor presents an even, polished, and impervious surface, bright and cheerful in appearance, and easily cleaned with a small quantity of water. No objection on the score of coldness is made by those who have used these floors, which indeed need only to be seen in order to be fully appreciated.

Ward Furniture.—It is very important that the furniture of a ward should be of a character not likely to harbour infection. For this purpose the most suitable materials are iron and glass, the use of wood being avoided as far as practicable. There should be a bedside table to each bed. This should be of galvanized wrought-iron light framing, with glass top. It will be convenient to have two medicine cupboards (one for poisons), and these should run on castors and should stand at least 6 inches clear of the floor. These cupboards should be of iron lined with glass. There should also be a doctors' testing and writing table fitted with drawers. Two good-sized tables will be required for ward use. It will be a convenient arrangement to provide a linen-wagon, in order that a suitable quantity of linen may be removed from the linen-store, and be available in the ward for immediate use. This should run upon iron wheels with rubber tyres. Movable screens are also required for ward use, of two sizes, the larger one about 5 feet high. These screens, which must be necessarily of very light construction, are best made of yellow pine skeleton framing covered with a washable textile material fixed with tapes. Coal bunkers should be provided to run upon wheels with rubber tyres. A variety of chairs should be provided, such as easy-chairs, rocking-chairs,

and plain chairs of different sizes for children, and all these are most suitable when of the plain bent-wood type. Wicker chairs harbour dust.

The Ward Adjuncts.—The ward adjuncts are the duty-room, the w.c.'s and sinks, the bathroom and lavatory, linen-store and larder. It is a convenient arrangement for the w.c.'s and slop- and scalding-sinks to be placed together in a turret separated from the



1, Steward's House. 2, Gardener's House. 3, Stables. 4, Administrative and Laundry. 5 to 20, 23, and 24, Pavilions. 21, Mortuary. 22, Workshops. 25, Doctor's Residence.

FIG. 11.—METROPOLITAN ASYLUMS BOARD CONVALESCENT HOSPITAL, WINCHMORE HILL [p. 280].

(Messrs. Pennington & Bridgen, Architects.)

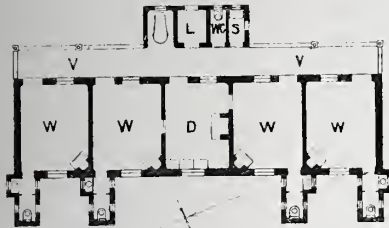
ward by an intervening lobby having windows on opposite sides. This lobby should be large enough for convenience of access, but not so large as to admit of ward chattels or refuse being placed there. This turret is placed in various positions by architects, some placing it at the distal end of the ward ; but for convenience of administration I prefer to place it on the east side of the ward, about midway in the length of the ward. In this central position it is

more easily reached by both patients and nurses. This turret should have abundant cross-ventilation by means of windows in opposite walls, and also by means of brass or galvanized iron gratings placed in the external walls at the floor level. (The radiators of the warming apparatus can, with advantage, stand in front of these gratings.) The floor should be of terrazzo, laid with a fall to a glazed open shallow channel, discharging into an external vertical waste pipe, in order that the floor may be frequently flushed down with water. For the same reason the w.c.'s, sinks, and all other fittings should be of the "bracket" type, standing well clear of the floor, and the w.c. partitions and doors should be at least three inches above the floor, the former resting upon galvanized iron shoes. The walls of the turret and lobby should be lined throughout with light-coloured glazed bricks, all internal angles being rounded. Two w.c.'s will be sufficient for a ward of twenty beds, but one of these should have a smaller seat, and be placed at a lower level for children's use. A very good type of "bracket" closet is made by Messrs. Dent & Hellyer.

Two sinks are required in this turret: a slop-sink and a scalding-sink. A very excellent slop-sink has been designed by Professor M'Hardy and patented by Messrs. Dent & Hellyer [fig. 13A, p. 296]. This sink not only serves the ordinary purposes of a slop-sink, but it is formed and fitted to enable bed-pans and urine-bottles to be easily washed and cleansed therein, without manual cleansing and unnecessary handling of the utensils, particularly valuable when it is desirable to reduce the risk of matter from such vessels, such, for instance, as the excreta of enteric-fever patients, coming into contact with the nurse's hands. The sink is made of strong glazed fireclay, with a cast lead "anti-D" trap, and has a flushing rim for the purpose of flushing down the sides and bottom of the sink, and cleansing the trap and charging it with clean water. The body of the sink is shaped conically to take bed-pans of various sizes, and is fitted with three ribs or strips of rubber for supporting the bed-pans in position while being cleansed. At the bottom of the sink a perforated inlet or rose is fixed, through which water is forcibly sprayed into the interior of the bed-pan, whilst the latter is resting in an inverted position, for dislodging the contents of the bed-pan, and thoroughly flushing it without splashing the surroundings. When it is required to cleanse urine vessels, a tinned metal cradle is hung upon a couple of hooks secured to the rim of the sink, upon which the vessel to be cleansed is placed, with its mouth opposite a metal jet fixed through the side of the sink, and provided with a separate supply for forcibly injecting hot or cold water, or a mixture of both, into the vessel to be cleansed. This sink is, however, very expensive, and, moreover, stands upon the floor, thereby interfering with the "bracket" principle. It has also a large amount of internal surface requiring to be kept clean.

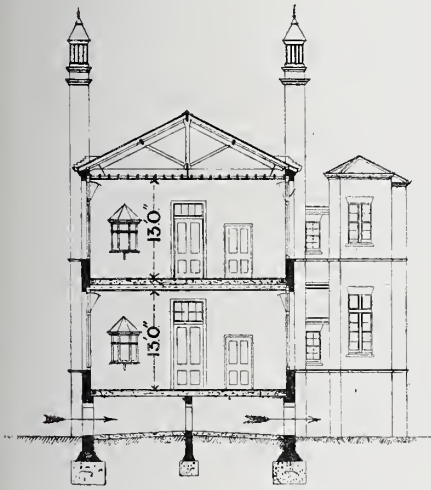
With a view to reducing the cost, and also of carrying out the "bracket" principle throughout, Messrs. Dent & Hellyer have, at my suggestion, quite recently produced another sink, to be much less costly, and for use where a separate scalding-sink for cleansing urine vessels and other articles is provided [fig. 13B, p. 297]. In this sink the metal cradle and jet for cleansing the urine vessels are omitted, which enables the sink to be made much shallower than the M'Hardy sink, with this advantage, that there is considerably less surface liable to be soiled and requiring to be kept clean; the shallower shape, moreover, admitting of the sink being fixed as a bracket clear of the floor. There will be a flushing rim, and a jet at the bottom, in much the same way as in the M'Hardy sink: but instead of the sides of the sink being made conical, with rubber ribs, the back and front of the sink are bulged inwards to form a small ledge on each side of the flushing jet, upon which bed-pans of different sizes can be placed in an inverted position, when they are required to be cleansed, and the bottom of the sink around the jet and between the ledges is channelled and sloped towards the outlet, so that the matter from the bed-pan can readily escape when the flush is applied.

1 to 8, Scarlet Fever Pavilions. 9 to 12, Diphtheria and Enteric Fever Pavilions. 13 and 14, One-bed Isolation Wards. 15 to 18, Four-bed Isolation Wards. 19, Scarlet Fever Receiving Ward. 20, Diphtheria and Enteric Fever Receiving Ward. 21, Matron's Office and Sewing-room. 22, Nurses' Home Main Block and Matron's Residence. 23, Night Nurses'. 24, Assistant Day Nurses'. 25, Female Servants'. 26, Male Servants'. 27, Steward's Residence. 28, Kitchen and Stores. 29, Official Block. 30, Medical Education Rooms. 31, Laundry. 32, Boiler-house, &c. 33, Diphtheria and Enteric Fever Discharge Ward. 34, Scarlet Fever Discharge Ward. 35, Water Tower. 36, Porter's Lodge. 37, Doctor's Residence. 38, Mortuary. 39, Ambulance Station. 40, Pumping Station. 41, Workshops. 42, Rain-water Tank.



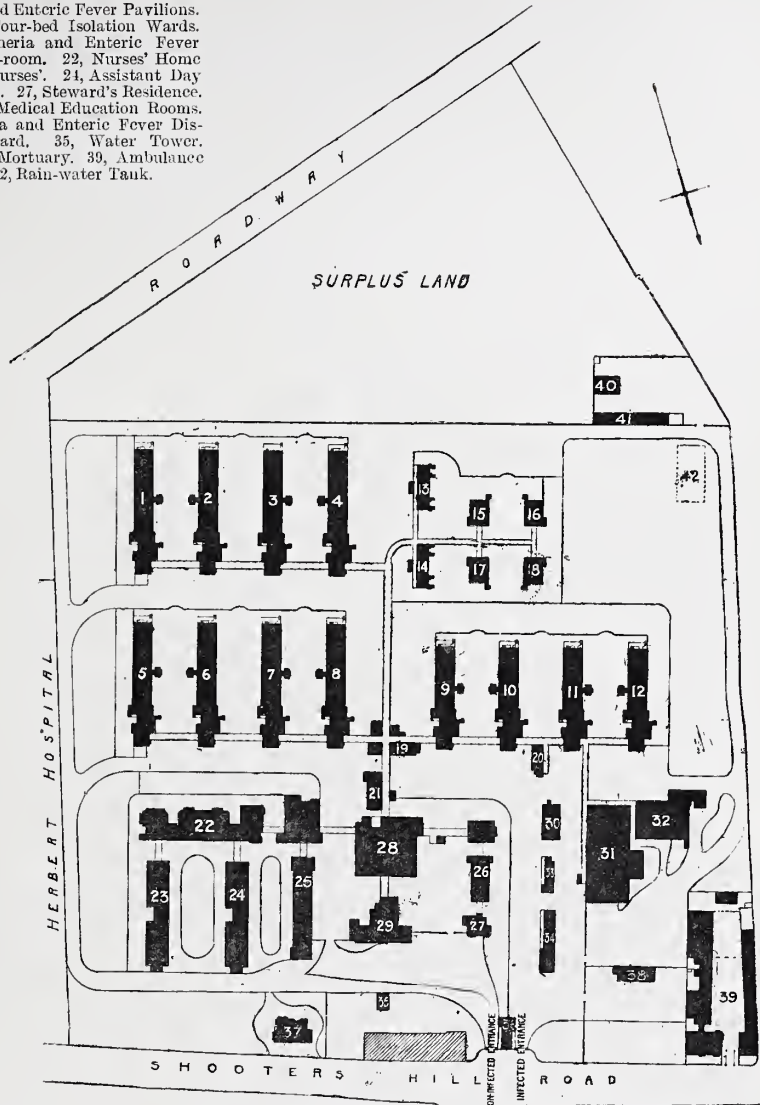
SINGLE-BED ISOLATION WARDS.

Scale, 28 feet to 1 inch.

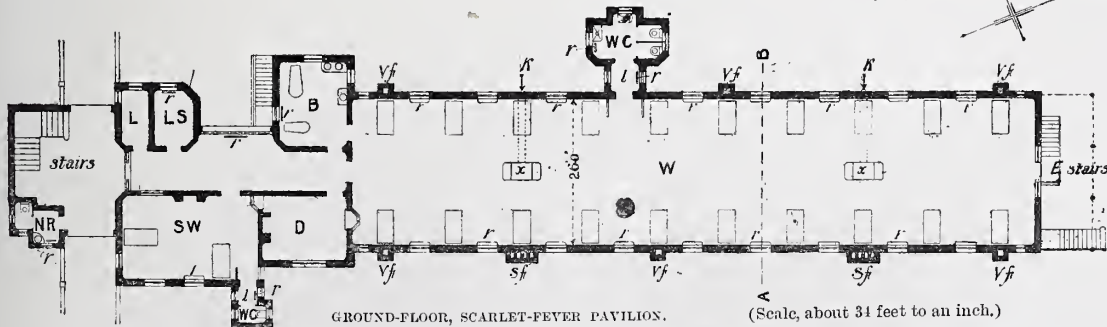


SECTION A. B.

Scale, 28 feet to 1 inch.



Scale, 300 feet to 1 inch.



GROUND-FLOOR, SCARLET-FEVER PAVILION.

(Scale, about 34 feet to an inch.)

w, Ward. sw, Separation Ward. d, Duty-room. b, Baths and Lavatory. wc, W.c.'s and Slop-sink. s, Slop-sink. l, Larder. ls, Linen Store. nr, Nurses' Robing-room. stairs, Stairs to First Floor. E. Stairs, Iron Escape Stairs. v, Verandah. l, Lobby. vf, Ventilating Flues. sf, Slop-sink. r, Radiator and Fresh-air Inlet. x, Double Fireplace (Ventilating). k, Fresh-air Inlet to Fireplace.

FIG. 12.—THE BROOK FEVER HOSPITAL, SHOOTER'S HILL [p. 284]. (Mr. T. W. Aldwinckle, Architect.)

The other sink required in the turret, to be called the "scalding sink," should also be of strong glazed fireclay, and be about 3 feet long, 2 feet wide, and from 10 to 12 inches deep, and should be fitted with metal rack, for the purpose of cleansing urine bottles. The general use of this sink will be for scalding the ward utensils and also for cleansing the mackintosh sheets. All slop and scalding sinks, and, indeed, sinks of all kinds, should not only rest upon galvanized iron brackets clear of the floor, but should stand at least 3 inches clear of the wall in order to prevent the lodgment of dirt between the sink and the wall. There should be placed over this sink a rack on which bed-pans can be placed to drain after cleansing, handle downwards. As bed-pans are uncomfortable to a patient when used quite cold, it will be convenient to make this rack of galvanised iron piping, forming a branch or extension of the hot-water warming apparatus, in order that the bed-pans can be warmed before use. There should also be in this turret a cupboard open at the back to outer air, for chamber utensils kept for examination.

Bath-room and Lavatory.—It is convenient to combine the bathing and lavatory work in one room of ample size, which can lead direct from the ward without an intervening lobby, although there should also be a doorway from the ward corridor. This room should be lined throughout with light-coloured glazed bricks, and the arrangements of floor ventilation should be similar to those in the water-closet turret. There should be two glazed fireclay baths, standing clear of the floor upon glazed feet; one of these should be of smaller size for children. There should be also one bracket lavatory basin for adults, and two on a lower level for children. It is a convenient arrangement to put the towel-rollers upon projecting brackets over the radiators of the warming apparatus. The bathroom is frequently placed at the distal end of the ward, forming a companion turret to the water-closet turret; but for working purposes I think it is preferable to place it at the administrative end of the ward.

Linen Store.—The linen-store should lead, not from the ward, but from the ward corridor, and should be well lighted and warmed.

Larder.—A larder is required for keeping milk, butter, cheese, eggs, cold beef-tea, and other cold daily food. It should have a north light and cross-ventilation. The walls should be lined with glazed bricks.

Duty-room.—The duty-room, or ward scullery, should directly overlook both the main ward and the separation ward. The floor should be terrazzo or tiles, and there should be a glazed-brick dado. This room requires a gas cooking-stove, a dresser, washing and rinsing sinks, and a cupboard for tea, sugar, &c.

Separation Ward.—There should be a separation ward on each floor for one or two beds. The use of this ward is for cases which, from special causes, require to be separated from the patients in the main ward, such as suspected onset of intercurrent infectious diseases; and it must not be confused with the isolation wards, to be afterwards described. The separation ward should adjoin, and be overlooked from, the nurses' duty-room; should have cross-ventilation, and its own separate and distinct w.c., and slop-sink with hot and cold water supply, with a ventilated lobby between these and the ward. The internal appointments to this ward should be similar to those of the main ward, and it should be so arranged in all its details as to be a separate, distinct, and fully equipped ward, as otherwise its value will be lost.

The Ward Corridor.—The corridor is necessary as a means of access to the ward, duty-room, bathroom, separation ward, &c., and should be arranged as short in length as possible, and should be well lighted, great care being taken to avoid dark corners, where ward refuse could be deposited. It is convenient to arrange a large bay-window on one side of this corridor. The corridor should be cut off from the main covered way and staircase by means of a glazed partition and door.

Nurses' w.c., &c.—In connection with each ward pavilion there should be a w.c. for the nurses, as also a lavatory and robing-room. These should have cross-ventilation, and lead from the covered way or staircase, or from the open air, but not in any case from the ward corridor. The robing-room is to enable nurses to change their home dresses for the ward uniforms, and *vice versâ*, so that the ward uniforms are never taken into the nurses' home.

Warming and Ventilation.—The warming and ventilation of the ward must be considered together as one operation. This subject must also be dealt with in close relation to climate. Ours is a temperate climate, and is free from those extremes of temperature which exist in, say, Germany and the United States. I mention these two countries because they possess some very complete systems of warming and ventilation, suitable doubtless to their own climates, but the application of which to our own surroundings would not necessarily be successful. The key to the whole position *here* is that for at least 300, if not 330, days in the year it is possible for us to open the windows of a hospital ward without danger or discomfort to the patient; and we must keep this fact prominently in view when dealing with the question of ventilation.

In considering the warming and ventilation of a ward pavilion, it is essential to begin with the principle that the wards and their adjuncts (except, of course, the larder) should all be kept very much at the same temperature, in order to avoid draughts being caused by the opening of doors. It is also necessary at the outset to decide as to the nature of the heating apparatus to be used, and whether the warming medium shall be water or steam. My own experience is most strongly in favour of low-pressure water apparatus, the water circulating from a steam-heater placed in the basement of each ward pavilion. The wards, then, should be warmed (*a*) by open ventilating fireplaces, and (*b*) by the diffusion of fresh external air, warmed by passing over hot-water heating surfaces in the wards. Objections are urged against open fireplaces on the ground that it is a wasteful means of producing heat; but I think that this drawback is much more than compensated for by the cheerfulness of the open fire, and by the very important fact, too frequently overlooked, that an open fireplace, with a fairly good draught in the chimney, is about the best exhaust ventilator that can be found, and one that acts near the floor level. These fireplaces should, in large wards, be placed back to back in the centre of the ward, and should have descending flues, so as not to obstruct the nurses' view down the ward. They should also be of the ventilating type—admitting, warming, and diffusing fresh external air, which should be brought in through glazed channels. A ward for twenty beds should have two pairs of these fireplaces.

The warming by open fireplaces should be supplemented by the admission of warmed external air at the sides of the ward. The external air is admitted through glazed channels in the external walls (by preference under the windows), passed over heated copper radiators, through a cast-iron case with movable front, and thus enters the ward. The inlet both of cold and warm air should be capable of regulation. These inlets should be further supplemented by galvanized-iron hit-and-miss or valvular gratings placed in the external walls at the floor level at the back of each bed. No attempt need be made to warm the air passing through *these* inlets. The main inlet of external air will, however, be by means of the ward windows. The ceiling of the ward should be flat, without beams projecting below. The windows should run close up to the ceiling line, and the upper portion (about one quarter of the full window height) should consist of a hopper-hung sash, the hopper sides being glazed and fitted close up to the ceiling. There should be means of regulating the width to which this sash will open. If these windows are thus opened on both sides of the wards, those on one side will act as inlets, and the opposite ones as outlets, in normal conditions of the wind. Any excess of wind pressure can be regulated by reducing the window opening.

The exhaust ventilation already described—viz. that by open fireplaces and open windows—can, with advantage, be supplemented by vertical shafts, carried up well above the roof ridge, and covered with some kind of terminal to prevent down-draught. These shafts should be of brick, glazed internally and with rounded internal angles, and a good upward current can be created by the insertion of a coil of steam or hot water. These shafts should each have two valvular openings leading from the ward—one at the ceiling line and one at the floor level—and these should be so adjusted in relation to each other that when one is open the other is closed. These ventilating shafts will be of considerable value when it is not possible to open the windows.

The warming apparatus should be capable of maintaining in the coldest weather a temperature of 60° Fahr. in the scarlet-fever wards, and 65° Fahr. in the diphtheria and enteric wards. In Germany and America a somewhat higher temperature is usually maintained. It is important that the apparatus be so arranged that it can be regulated and controlled from within the ward. The ward adjuncts and the ward corridor should be warmed by means of

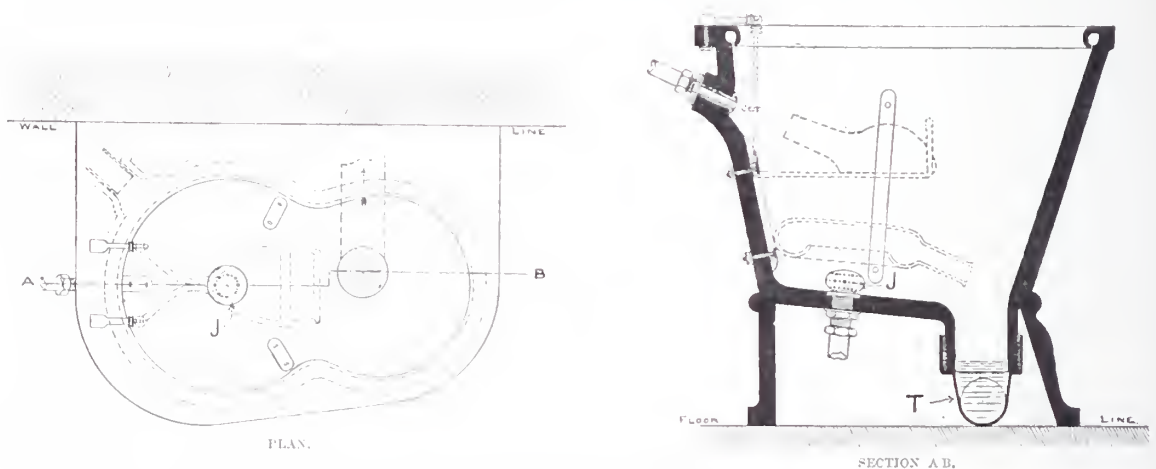


FIG. 13A.—THE "M. HARDY" BED-PAN-SINK AND SLOP-SINK (Hellyer's Patent) [p. 292].

f. Lead "Anti-D" Trap. J, Jet.

radiators placed against the external walls, and with air gratings at the back of them, so that fresh air can be freely admitted and warmed. It is very important that all ducts or channels for the supply of external air should be as short and direct as possible, and that they as well as the exhaust flues should be lined with glazed bricks.

In connection with the subject of the warming of wards, it may be useful to notice one of the methods adopted at the Eppendorf Hospital, Hamburg. This is supplementary to the general system of warming, which consists of fresh air warmed by passing through steam radiators. The method referred to is that of floor heating, and is based upon the principle of the ancient Roman Hypocaustum. Flues or channels about 30 inches square are constructed beneath the floor, and in these channels are placed steam-heating pipes. By this means the air in the channels is thoroughly warmed, as is also the ward floor, thus preventing a loss of ward temperature at the floor level. No air passes from these channels into the ward. The floors consist of terrazzo laid upon thin fireproof construction. This system of warming is extremely interesting in relation to the question of terrazzo floors. One possible objection to these floors in an infectious hospital is this, that the majority of cases being children it might be prejudicial to their recovery if they ran about with bare feet upon the (presumably) cold surface of the terrazzo floor. I am not prepared to admit that in a well-

warmed ward this floor need necessarily be cold, but if we can apply this system of floor warming all possible inconvenience would most certainly be avoided.

In connection with the subject of the ventilation of the wards of an infectious hospital, it will be interesting to bear in mind that so long ago as 1882 the Royal Commission appointed

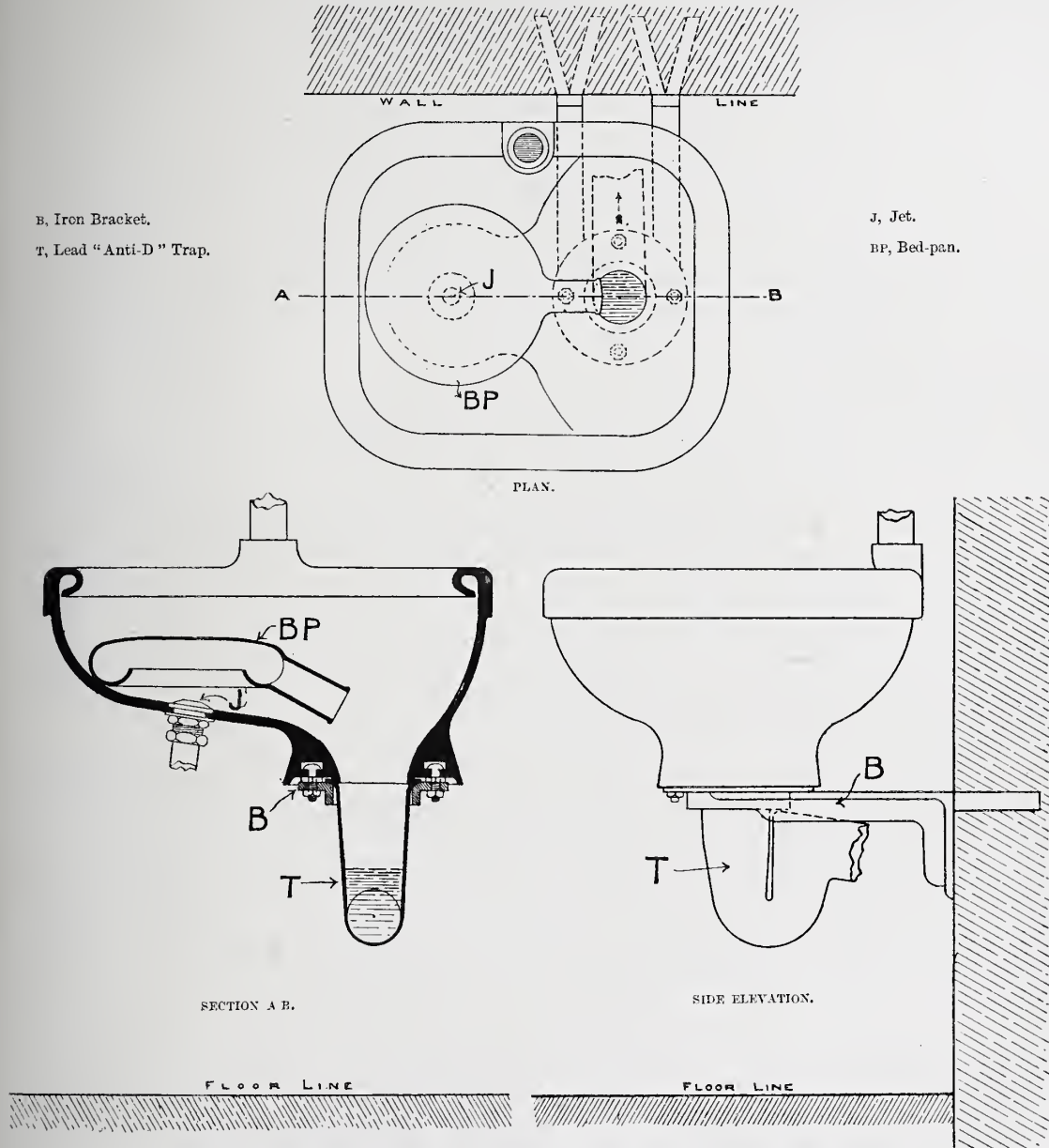


FIG. 13B.—THE NEW BRACKET BED-PAN-SINK AND SLOP-SINK (Hellyer's Patent) [p. 292].

to consider the accommodation for fever and small-pox in London suggested that hospital wards might be so constructed as to enable the air, after it has passed through the ward, to be subjected to a high temperature or some other means of destroying whatever dangerous properties it may possess, as recommended by Dr. Burdon Sanderson; but it was not until 1889 that any endeavour was made in that direction, when a small-pox pavilion was erected

at the Kendray Hospital, Barnsley, where the exhaust air was subjected to gas flame. Again, in 1890, a small-pox pavilion was erected at the Bagthorpe Hospital, Nottingham, where the outgoing air is sterilised by means of a large Bunsen gas burner in a central shaft. But by far the most interesting experiment has been made at the Bradford Small-pox Hospital, Bradford, erected in 1891-92 [fig. 14, p. 299]. The hospital comprises two wards, each 72 feet by 15 feet, placed back to back, but separated from each other by a central air-chamber 3 feet wide. This central air-space is divided, by means of horizontal partitions, into three chambers, one above another. Of these the two lower ones are placed below the level of the ward floors, and contain an arrangement for passing air into the wards after warming it, whilst the upper chamber is intended for the withdrawal of vitiated air from the wards. All the windows are hermetically sealed, and the fresh air is admitted solely by means of three shafts leading from the external air to the lowest compartment of the 3-foot space between the wards. Above this compartment is the second one, along which low-pressure hot-water pipes are laid for the purpose of warming the incoming air. From this compartment flues are carried to six openings in the floor of each ward, the openings being at the foot of each bed, and covered with gratings. In addition, flues from this compartment are carried to three openings in each ward, placed at the floor level in the wall of the ward opposite to the windows. Into the upper or vitiated chamber openings are provided at the ceiling level of the ward wall over each bed. A powerful furnace is placed in the cellar at one end of the ward, for the purpose of drawing the air out of the wards. The furnace is so arranged that a considerable portion of the vitiated air is used to promote the combustion of the fire, the remaining portion being passed through the furnace and exposed to a temperature of 800° F. before passing into the open air through the chimney. The rooms containing the bathrooms and water-closets are also connected with this system of exhaust. By this method it is considered that the exit air from the wards will be completely sterilised before reaching the open air.

A most interesting report upon the sterilising arrangements at these three hospitals—namely, Barnsley, Nottingham, and Bradford—has been made to the Local Government Board by Dr. F. W. Barry as the result of experimental tests made by him, from which the following extract will fairly describe the conclusion to which he arrived:—

In all the hospitals hitherto referred to in this Memorandum the action of heat is depended upon for the extraction of the vitiated air along certain definite channels, and for the subsequent sterilisation of this air. At Barnsley and at Nottingham gas was employed for these purposes, but at both these places, as I have already noted, the process adopted failed to secure either of these results in a satisfactory manner. At Bradford, where the heat of a furnace was employed, it was found that, whilst the process adopted *failed to secure satisfactory results as regards sterilisation of the ward air*, a considerable measure of success was obtained in respect to the withdrawal of the vitiated air along certain definite channels at the time of experiment, when the working of the apparatus was under the careful control of the designer. It is, however, scarcely necessary to point out that, quite apart from the question of sterilisation, it is essential to the success of any method of artificial ventilation that its action shall be uniform at all times by night as well as by day, and when, as at Bradford, the system is dependent upon the efficiency of a stoker, uniformity in this sense cannot be regarded as secured.

In spite of this apparently unfavourable report, it is sincerely to be hoped that further attempts will be made to successfully sterilise the air escaping from small-pox wards. The subject is an important and interesting one, and ultimate success would be of great benefit to the community.

It is important, in the administration of a Fever Hospital, that foul linen and ward refuse should be placed in galvanized iron receptacles *outside* the ward pavilions, and that as frequently as possible the foul linen should be removed to the laundry, and the ward refuse to

the destructor, in order that these two sources of infection should never be deposited within the ward or its adjuncts.

Isolation Wards.—Isolation wards form a very important department of a Fever Hospital. They are required for the isolation of concurrent infectious diseases, such as scarlet fever and diphtheria, scarlet fever and chicken-pox, measles and diphtheria; for the isolation of intercurrent diseases which may occur during convalescence; for the isolation of single diseases,

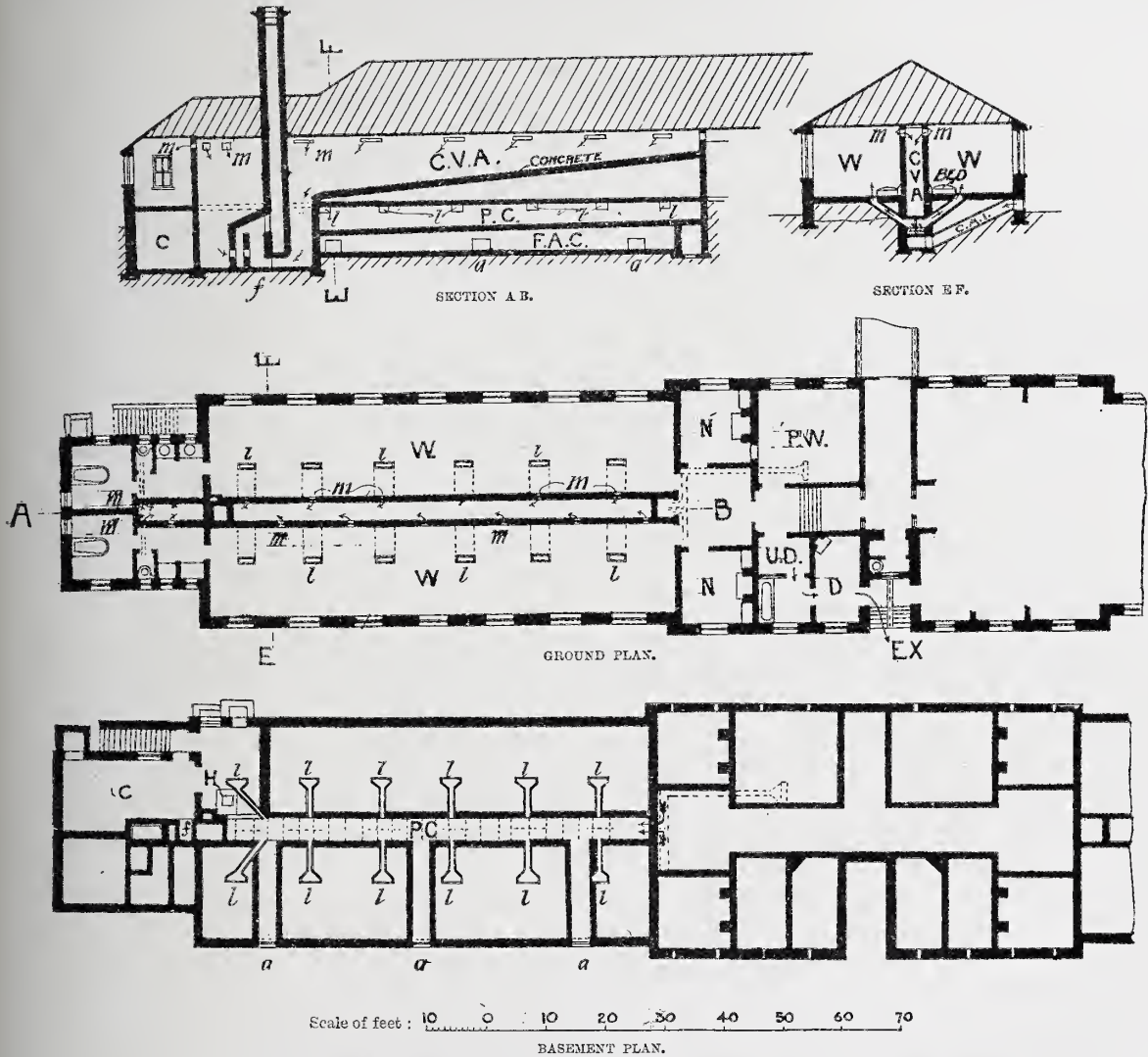


FIG. 14.—BRADFORD FEVER HOSPITAL: SMALL-POX PAVILION. (Messrs. Morley & Woodhouse, Architects.)

C.V.A., Chambers for Vitiated Air. P.C., Pipe Chamber. F.A.C., Fresh-air Chamber. CAI, Cold-air Inlet. c, Cellar. f, Furnace. a, Cold-air Inlets. l, Fresh-air to Wards. m, Gratings at ceiling level for extract of Vitiated Air. H, Heating Apparatus. P.W., Private Ward. w, Ward. N, Nurse. D, Dressing-room. U.D., Undressing-room for Convalescents. EX, Exit for Convalescents.

such as measles, of too severe a type to be sent back from the hospital; and also for the isolation of cases of doubtful diagnosis.

In the smaller hospitals one isolation block will be sufficient, arranged somewhat upon the lines of plan B in the 1892 Memorandum of the Local Government Board [fig. 1, p. 271]; but in the larger hospitals it will be advisable to divide these isolation wards into two classes,

viz. those having wards for one bed, and those having wards for four or more. But, whatever may be the number of beds in a ward, it is imperative, even in the case of the one-bed wards, that each ward should have its own w.c., with the usual intervening corridor. Each isolation block should also contain a duty-room, covered space for movable bath (with means of emptying), larder, linen-store, slop-sink, and nurses' w.c. The internal finishings of these wards should be precisely the same as to the main wards, and each should have an open ventilating fireplace. In the case of the one-bed wards a verandah is useful to cover the access from the duty-rooms to the wards, and this should face towards the west if possible.

Airing-courts.—It is very important that all airing-courts should have ample sunshine, and should, as far as possible, be protected from the north and east winds. They should be paved with tar paving, with occasional flower-beds in the centre. It is important that the paving of these courts, where abutting against the walls of the ward pavilions, should be of impervious material, and not of grass, nor, indeed, flower-beds. The airing-courts should be so arranged that the patients of different diseases do not mix. This consideration will, of course, also govern the grouping or isolation of the ward pavilions.

Discharge Wards.—It is very important in a Fever Hospital to take all necessary precautions to prevent the spread of infectious diseases by patients who are leaving the institution. For this purpose discharge wards are provided. They comprise an undressing-room, where the patient removes the hospital clothes previous to bathing; the next room is the bathroom; and the third room is the dressing-room, in which the patient resumes his own clothes, which during his illness have been disinfected and kept in the clothes store adjoining. There should also be a waiting-room for friends of patients. These wards should be lined throughout with light-coloured glazed bricks. Two separate wards are required, one for scarlet fever and the other for diphtheria and enteric fever, and both wards should be as near as possible to the porter's lodge.

Mortuary.—The mortuary should be as near as possible to the entrance, so as to avoid the parading of funerals on the hospital premises. In addition to the mortuary proper there should be a post-mortem room, with a north light, and a room from which (through a glazed partition) friends can view the body placed in a small chamber leading from the mortuary. The walls throughout should be lined with light-coloured glazed bricks, and the floor should be of terrazzo or asphalte.

Having followed the patient through the hospital from entry to departure, we now deal with the administrative department, which may be described as comprising all buildings which are not occupied by patients. The *personnel* of the administration will vary with the size of the hospital, but, except in the case of the smaller institutions, there will always be a medical superintendent, a matron, a dispenser, a steward, an engineer, a cook, a laundry mistress, and a staff of trained nurses, and male and female servants, and all these must be housed and fed. But, whatever may be the size of the hospital or the number of the staff, it is equally important that the staff quarters should be placed in a position free from, and unsurrounded by, the ward pavilions or any other infected buildings. This is especially necessary in the case of the nurses, as they pass a considerable time in the vitiated atmosphere of the wards, and it is therefore most desirable that when off duty their surroundings should be healthy and cheerful. A high percentage of sickness amongst the nursing staff is wasteful, as it necessitates the employment of a large number to take the place of those who are ill, and thus maintain working efficiency.

The Medical Staff.—In the smaller hospitals the medical superintendent can reside in the official block, but in the larger institutions he should have a separate house, placed as near as possible to the boundary. His office should be in the centre of the hospital, near to those

of the matron, dispensary, and night superintendent nurse; in fact, this should be the working centre of the institution, and the centre of all electric bell and telephonic communication. If there be assistant medical officers, their sitting- and bed-rooms can conveniently be placed in the official block.

Kitchen and Stores.—The kitchen and stores should be as centrally placed as possible, and the matron's department, which is a very important one, comprising linen-stores and needle-rooms, should be of ample size and well warmed.

The Nurses' Home.—In a small hospital the nurses can be provided for in the administrative block, but in the more important institutions it is requisite to provide a distinct and separate nurses' home. The number of nurses in proportion to patients varies considerably; but the tendency at the present day is to raise rather than lower the proportion. At the Grafton Street Hospital, Liverpool, there are 15 nurses to 69 patients, or less than 1 to 4; while at the new Ruchill Infectious Hospital, near Glasgow, it is proposed to have 202 nurses for 440 patients. In each of the three new hospitals of the Metropolitan Asylums Board there will be 194 nurses for about 500 patients, or about 2 to 5.

It is convenient to divide the home into three separate blocks. The first, or main block, should contain the mess-rooms, general sitting-rooms, and recreation room, the matron's quarters, and also the bedrooms for the day charge-nurses. The second block should contain the bedrooms for the day assistant nurses, and the third block should contain the bedrooms for the night nurses, both charge and assistant. The mess-rooms, sitting-rooms, and recreation room should have a southern aspect if possible, and there should be no rooms over these, in order that they may be lofty and have open roofs. The block for the night nurses should be placed as far as possible from all noisy surroundings. Each nurse should have a separate bedroom, size about 13 feet by 8 feet 6 inches, with an angle fireplace. As these bedrooms will most probably be arranged on both sides of a fairly long corridor, it is a good arrangement to omit, say, two bedrooms on the sunny side of the corridor, and to put in their place a large bay window for light and air to the corridor. It is also well to make the windows at each end of this corridor the full height and width of the corridor. It is advisable to have a few spare bedrooms, to be used as sick-rooms as occasion may require. Each block should have a fireproof staircase at each end, so as to ensure escape in case of fire. Baths should be provided in the proportion of 1 to 8. The whole of the corridors and staircases should be thoroughly warmed.

In connection with the subject of accommodation for the nursing staff, there arises the question as to what provision should be made for the nurses when they are ill. Slight cases of indisposition can be dealt with in their own bedrooms, but cases of longer illness must be separately dealt with. It is useful to have two or three spare rooms in a nurses' home, of good size, for ordinary sickness; but cases of infectious disease must, of course, be removed. There are objections, possibly somewhat of sentiment, to placing nurses in the ordinary wards, and it may therefore be desirable, in a large hospital, to arrange a nurses' infirmary in, say, three small blocks, one for scarlet fever, one for diphtheria, and one for enteric fever. These wards should, of course, have the same adjuncts as the hospital wards, and should obviously be far removed from the home, and preferably near to the isolation wards.

Male and Female Servants.—The female servants should also have a separate home, under the resident control of the housekeeper, and the male servants a home under the resident control of the steward. These, however, can sleep in cubicles. It is important that the stewards' quarters should be so placed that they overlook the store-yard.

Laundry.—The laundry is a very important department in a Fever Hospital. In position it should be well removed both from the wards and from the staff quarters. It must be

divided into two separate and distinct departments, one for the staff and one for the patients. The staff laundry should be the ordinary type of a high-class steam laundry, with all the usual appliances. But the patients' laundry requires more serious attention. The infection of the hospital is virtually concentrated here. In some hospitals all articles coming from the wards are put through the steam disinfector, but such a course would appear to be unnecessary and destructive. In a well-arranged hospital steam laundry the ordinary clothes can be boiled under steam pressure in revolving washing-machines, and this should suffice. But the articles which are soiled by excreta must, in the first instance, be separately dealt with. These should be placed in steeping tanks adjoining the patients' wash-house, arranged somewhat after the manner of those in a tanyard. These tanks should be classified for "scarlet fever," "enteric fever," "diphtheria," "isolation," and "special," and there should be two tanks of each class, one for linen and cotton articles, and the other for woollen articles. Each tank should be separately warmed and drained.

The patients' wash-house should be large and well lighted, the walls lined throughout with glazed bricks, and the steam should be extracted by means of a fan. The floor should be paved with terrazzo or asphalt. The floor channels to carry off the waste water should be wide, with a good fall, with glazed inserts and sides, finished at the floor level with galvanized iron open gratings. These channels should discharge into one or more large grease traps just outside the building, *as there should be no closed drains within the wash-house*. It is a good plan to provide means for flushing out these channels with a rapid volume of water, and also to provide a hydrant and hose for flushing down the wash-house floor. The steam washing apparatus required comprises washing-machines, boiling-coppers, rinsers, and wringers, hydro-extractors, soap-boilers, &c. In drying the articles, either by means of drying-horses or of drying-chambers, the heating power must necessarily be by steam, and the principal consideration is to pass a sufficient quantity of dry air through the horses or chambers by means of a fan. All ironwork in connection with the horses or chambers should be galvanized, and the walls should be lined with salt-glazed bricks. The use of steam machinery enables us to economise space in the wash-house, but in the ironing-room a large floor-space is very desirable, as here the operations of steam-ironing, mangling, sorting, folding, and issuing are carried on. The room should be well lighted, the walls should be lined with light-coloured glazed bricks, and ventilation should be obtained and the steam removed by means of a fan. It is of the utmost importance that the whole of the laundry buildings should be well lighted and ventilated, so as to ensure the most absolute cleanliness, and that the several departments be so arranged that the foul linen shall pass in at one end of the laundry and the cleansed linen pass out at the other end, no articles returning through any room through which they have once passed. It is also convenient for the purposes of supervision that there should be large windows between the wash-house and the ironing-room, and also between the staff laundry and the patients' laundry.

Disinfecting Apparatus and Destructor.—All the patients' own clothes, together with a good deal of bedding, &c., from the wards, require to be disinfected. A very efficient apparatus is the steam disinfector patented by Mr. J. Washington Lyon. It is made in several sizes, but the largest size is required for an infectious hospital; superheated steam is generally used. The apparatus stands in the centre of the disinfecting house, a cross-wall of brick dividing the house into two rooms, half of the apparatus standing in one room and half in the other. The room in which the clothes are received is called the infected chamber, and the other the disinfected chamber, there being no communication between the two chambers except through the apparatus. The officer who places the infected articles into the apparatus has no further dealings with them, the disinfected articles being received on the other side by another

attendant. This house is sometimes provided with a bathroom for the use of the attendants. This bathroom must lead from the outside, and not from either of the chambers.

It must be obvious that the ordinary dust-cart can have no transactions with an infectious hospital. Clinkers from the boilers and ashes from the fireplaces can be safely removed from the hospital, but with these exceptions all refuse must be destroyed. For this purpose a destructor is required, in which everything can be burned. These require to be very carefully designed and constructed, or they may become very offensive, and care must be taken to produce a powerful draught for the furnace. This can be accomplished by placing the destructor in connection with the boiler chimney shaft. The disinfecter and the destructor should adjoin, in order that one attendant may work both, and, as a matter of hospital administration, they should both be near the laundry.

Students' Department.—It is now a part of the medical curriculum that the student in medicine must study for a certain period in a Fever Hospital, and it is therefore necessary to make the proper arrangements for the same. There should be a well-lighted lecture-room, a room for the student's own clothes, and a room for the overalls which have to be worn when visiting the wards, together with lavatories and w.c.'s.

Drainage.—A complete, perfect, and efficient system of drainage is an essential for every hospital, whether infectious or not, so that all that one need do is to emphasise the importance of good flushing and good ventilation. One point, however, can be mentioned. As enteric fever is capable of being communicated by means of the excreta from enteric patients, a disinfecting apparatus is sometimes arranged to separate and disinfect the soil drainage from the enteric fever wards before it connects with the remainder of the drainage system of the hospital. This has been done at the Northern Fever Hospital, Winchmore Hill, but there appear to be mechanical difficulties in its working. One other point is this: there is always a large volume of hot soapy water draining from the laundry. This, if it enters the general system of the hospital, has a tendency to raise the temperature inside the drains and manholes, and it is therefore as well, when practicable, to run a separate drain direct from the laundry to the public sewer. This is being done at the Brook Hospital, Shooter's Hill.

Lighting.—The artificial lighting of a ward deserves careful consideration. The use of the electric light is now becoming so general in public buildings that we need scarcely discuss gas except as a reserve. The lighting of a ward can be divided into two sections: (*a*) the light necessary for the proper administration of the ward by the nurses; and (*b*) the light necessary to enable patients to read or otherwise occupy their time. Section (*a*) can again be subdivided. Central lighting is necessary for the general illumination of the ward, and side lighting is necessary for clinical and other purposes. The central lighting should consist of incandescent lamps suspended about five feet below the ceiling, fairly distributed down the length of the ward, the concentration of light into brilliant points being objectionable to the patients. Two or three of these central lights should be capable of being lowered close down to the doctors' or nurses' tables. For clinical purposes lights should be arranged on the side-walls, say one to each pair of beds, and each should be capable of being turned on and off. The general lighting of a ward should be so arranged that during the night all lights could be switched off, except a few points sufficient to enable the nurse to perform her ordinary ward work. As regards the remainder of the hospital, it will only be necessary to point out that the covered ways and yards, and all means of communication between the several buildings, should be well lighted.

Telephonic and Bell Installation.—A complete and well-planned system of electric inter-communication between different parts of the institution, by means of telephones and bells, is of the highest importance to the efficient administration of any large Fever Hospital.

Telephonic communication should be established between all departments which are constantly associated in their working. The same means of inter-communication should be provided between the principal officers, each of whom should be enabled to summon, by means of a bell, the subordinate officials who are directly responsible to him for their section of the work. Also, as far as can be, each member of the subordinate staff who is localised in any particular part of the buildings should be able to summon his subordinate chief in case of necessity. This is most important as regards the charge-nurse of each ward and the superintending nurse, and as regards those in charge of the boilers, kitchen and laundry machinery, and the engineer.

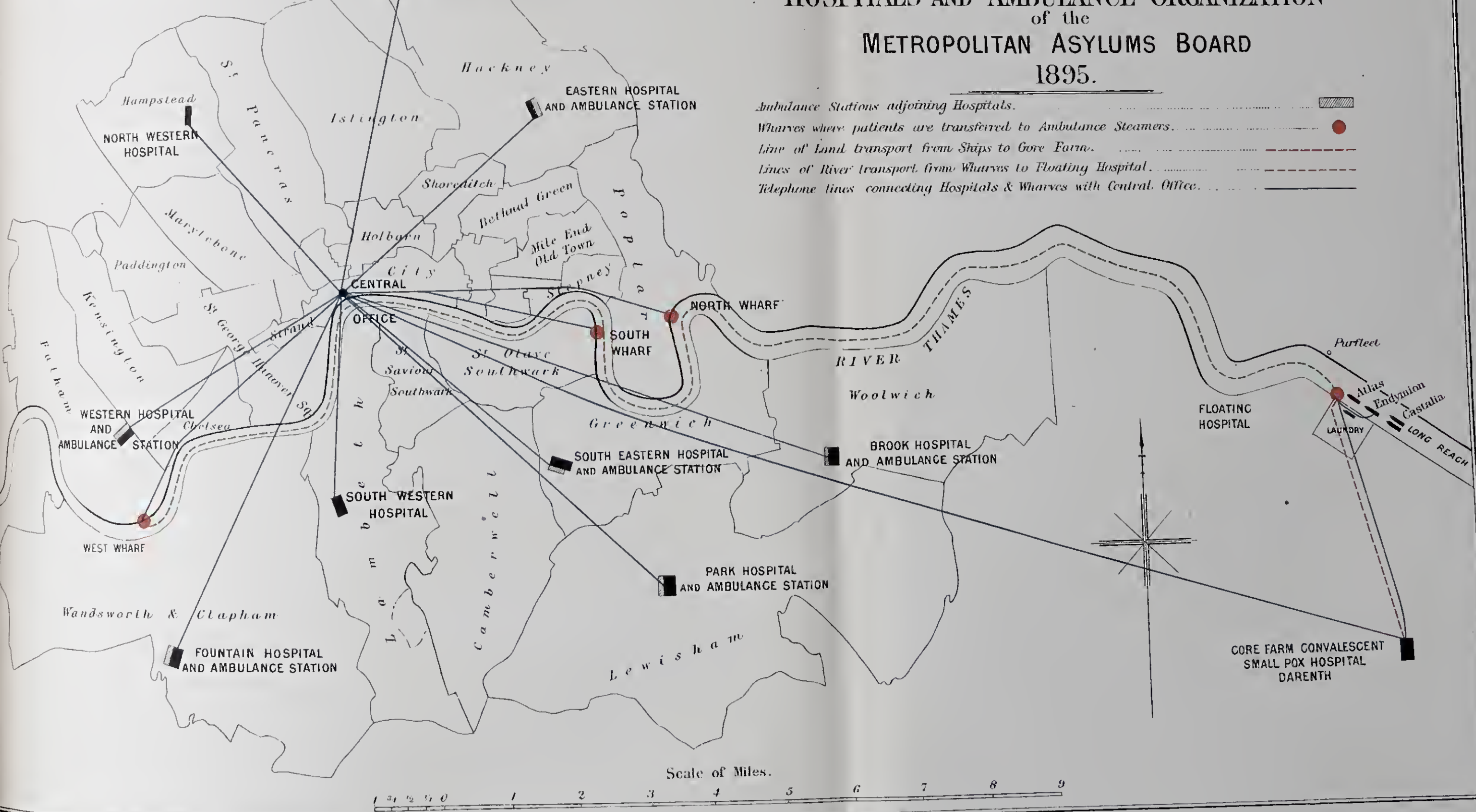
In order to effect the administrative facilities referred to, the medical superintendent's office should be connected by telephone with the steward's office, the matron's office, the assistant medical officer's quarters, the gate porter's lodge, and the receiving-room, close to which is placed the superintendent nurse's office. Now it is most desirable that the telephonic installation should be on the inter-communication system rather than by means of a central exchange, as the latter method necessitates the constant employment of an extra person to work the exchange, having in view the frequency with which the officials at some of these points will need to communicate with each other, particularly the receiving nurse or night superintendent with the assistant medical officers, the steward with the gate porters, and matron with the steward. The installations laid down by the Private Wire and Telephone Installation Company, and recently by the National Telephone Company, have been found to work admirably in practice. A bell-call should be provided from the medical superintendent's office to the porter's quarters, the engineer's residence and the housemaid's pantry; from the matron's office to the housekeeper's quarters, the kitchen, the laundry, the needle-room, and the housemaid's pantry; from the steward's office to the stores, the engineer's residence, and the porter's quarters.

The receiving-room and superintendent's office being the centre for the ward supervision, in addition to its telephonic communication with the medical superintendent's office, the assistant medical officer's quarters and the gate porter's lodge should be provided with a bell-push connected with each separate ward, and also a bell, with a clearly marked indicator board, which can be rung from each of the wards, for the purpose not only of answering the bell-ring from the receiving-room, but also to enable every charge-nurse at night to summon the superintendent night nurse. A bell-call should also be provided in the laundry and kitchen to ring in the engine-room or boiler-house, the code of signals in reference to the supply of steam or motive power being previously arranged. It is desirable, moreover, that a switch should be provided in the medical superintendent's office by which the telephone and bell-pushes can be switched on to his house when desired, and another switch by means of which the receiving nurse, on going to her meals, can cause the bell-pushes outside receiving room and inquiry room to ring in the mess-room for such time as she may be there. An installation laid down on the lines above suggested will fully meet the requirements of a large Fever Hospital.

Cost.—The cost per bed of a Fever Hospital is a subject upon which much definite information cannot very well be given, as the standard of hospital requirements has been considerably raised of late years and is apparently still rising. One important element in this connection is the largely increased accommodation provided for the hospital staff as well as the largely increasing proportion of nurses to patients. The Salford Sanatorium cost £375 per bed; the Heathcote Infectious Hospital at Leamington cost £8,400, or £385 per bed; the Willesden Isolation Hospital cost £16,000, or £380 per bed; while the three new hospitals of the Metropolitan Asylums Board will not cost much less than £400 per bed, and the new

MAP SHOWING THE HOSPITALS AND AMBULANCE ORGANIZATION of the METROPOLITAN ASYLUMS BOARD 1895.

NORTHERN CONVALESCENT FEVER HOSPITAL,
WINCHMORE HILL
3 Miles due North from this Boundary



Ambulance Stations adjoining Hospitals. [hatched rectangle]
Wharves where patients are transferred to Ambulance Steamers. [red dot]
Line of land transport from Ships to Gore Farm. [dashed line]
Lines of River transport from Wharves to Floating Hospital. [dotted line]
Telephone lines connecting Hospitals & Wharves with Central Office. [solid line]

Scale of Miles.
 0 1 2 3 4 5 6 7 8 9

FEVER HOSPITALS. BY THOMAS W. ALDWINCKLE, [F.]

Infectious Hospital at Ruchill, Glasgow, is estimated to cost a little over £400 per bed. These figures are exclusive of the site in each case. Large cubic spaces per bed in the wards and the necessarily complete sanitary arrangements of all well-designed Fever Hospitals account largely for their high cost as compared with general hospitals; but these are fixed and definite requirements which cannot be reduced if the efficiency of the hospital is to be assured. It cannot, however, be too strongly pointed out that, as the internal requirements of an infectious hospital are necessarily so costly, the architect should studiously avoid unnecessary expenditure upon architectural display, either external or internal.

Ambulance Stations.—In provincial fever hospitals, stables, coach-houses, and the usual appurtenances have to be built in connection with the ambulance service.

In London the ambulance system of the Metropolitan Asylums Board is the most complete and fully equipped institution of the kind in the world, and no Paper dealing with the provisions for the infectious sick would be complete without a description of its origin, development, and present administration.

Attention had been frequently drawn in the earlier days of the Board's work to many defects in the arrangements for the removal of patients from their homes to the Board's hospitals. The duty of this removal rested with the several Boards of Guardians, and the methods adopted by these authorities naturally differed in important details. The vehicles were in some cases the property of the Guardians, in others of the Vestry or District Board, and in other cases were hired for the occasion. They were generally defective in construction, and unsuitable for the safe transport of persons prostrate with infectious disease. In many instances the carriages were, after use, housed in a manner most dangerous to the public health, as, for example, where a carriage, after having been used for the removal of a small-pox case, was returned to the job-master's yard. Frequent complaints were also made as to carriages conveying infectious patients stopping outside public-houses, into which the drivers and the patient's friends went for refreshments. Moreover, difficulty was frequently experienced in obtaining a carriage when required, and the delay thus caused was a serious evil in itself. Nurses to accompany the sick were seldom provided; in most cases the patients travelled alone, and occasionally reached the hospital in a dying condition. Not infrequently they were accompanied by friends, not always sober, who returned home in public conveyances. These circumstances were, in due course, brought to the notice of the Local Government Board, with the result that the Asylums Board, by an Act passed in 1879, were authorised to establish an ambulance system of their own. In 1881 the Board commenced tentatively by opening an ambulance station at London Fields, Hackney, for the removal of small-pox cases only. This was eminently successful, and was subsequently removed to the present premises adjoining the Eastern Hospital, and by degrees the system was extended to the whole Metropolis and to all dangerous infectious disease. All the hospitals, ambulance stations, and wharves are in telephonic communication by private wire with the head office at Norfolk House, from which also the National Telephone Company's Exchange system is connected.

In this connection I now show you a large diagram map [*see plate*] showing the ambulance system in London. In this diagram the ambulance stations are shown by "hatching," the wharves by the small red disc; the telephonic lines connecting the hospitals, ambulance stations, and wharves with the central office in Norfolk Street, Strand, are shown by blue lines, the lines of land transport from the hospitals to the wharves are shown by a red dotted line, and the lines of river transport from the wharves to the floating hospital are shown by a green dotted line.

The ambulance arrangements may be conveniently considered under the following heads:—

- (1) Land service; (2) river service; (3) removal and distribution of patients.

1. LAND SERVICE.—There are at present three permanent ambulance stations—viz. adjoining the Eastern, the Western, and the South-Eastern Hospitals, and a small temporary station at Tooting. Another station is in course of erection adjoining the Brook Hospital at Shooter's Hill, and stations are also to be built adjoining the Park Hospital, Hither Green; and the Fountain Permanent Hospital, Tooting.

Each ambulance station contains a residence for the superintendent and housekeeper, who are man and wife, sleeping accommodation and mess-rooms for nurses and for the male and female staff, a kitchen, a laundry, general stores and equipment room; also stabling for from fifteen to twenty horses, and coach-house for from twenty to thirty carriages, omnibuses, and an accident cart.

2. RIVER SERVICE.—This is exclusively for cases of small-pox, and consists of three wharves for the embarkation of patients—viz. the West, at Fulham; the North, at Poplar; and the South, at Rotherhithe. There is a floating pier at each wharf, approached by a bridge, and so placed that there is sufficient water to allow the steamers to come alongside at all times of the tide. On each wharf there is a covered shed into which the ambulances drive, with an examination room. If the medical officer of the River Service considers the patient to be in a condition to bear the journey to the floating hospital, he is placed in bed on board one of the steamers. The wharf at Rotherhithe (South Wharf on map) is the headquarters of the River Service. Here is the office of the river superintendent, and here are moored the ambulance steamers, the *Red Cross*, the *Malteser Cross*, and the *Albert Victor*; a fourth steamer, the *Genera Cross*, has recently been built. In all these steamers there are separate cabins for the nurses, and the requisite appliances for the treatment of severe cases, as well as for the supply of appropriate nourishment. On deck there is a cabin for the medical officer. The speed of the steamers is about ten knots, and the journey to the floating hospital occupies from one and a half to two hours.

3. REMOVAL AND DISTRIBUTION OF PATIENTS.—Under this ambulance system, the removal and distribution of patients are as follows:—In order to obtain the removal to a hospital of a case of small-pox, fever, or diphtheria, the medical practitioner in attendance, finding that the patient cannot be safely isolated and treated at home, certifies to this effect. Application is then made to the ambulance office at Norfolk House, by telegram or otherwise, stating the name of the patient, the age, sex, disease, and address. These particulars are immediately communicated by telephone to the ambulance station nearest the abode of the infected person, and within three minutes an ambulance with a nurse, and, if the patient be over ten years of age, a male attendant, is *en route* to remove him. On arrival at the house, the certificate of the medical practitioner is handed to the nurse, without which there is no removal, and the patient is carefully placed in the carriage. A "notice" is given to the relatives or friends, informing them to which hospital the patient will be taken, as well as a copy of the "regulations" relating to the information which will be given by the medical superintendent of the hospital as to the conditions and progress of the case, and also a copy of the "rules" for visiting patients when dangerously ill, as well as for their discharge when recovered. On arrival at the hospital, the patient is examined by the medical superintendent, and a notice of his or her safe arrival is sent to the friends. Plenty of blankets and a basket carrying milk and stimulants are sent in each ambulance, and in cold weather large hot-water foot-warmers are also supplied. Cases of small-pox are taken, in the first instance, to one of the wharves, where they are examined. If the diagnosis made by the "certifying" "medical practitioner" be confirmed, and if the patient be in a fit condition to bear the journey to the floating hospital, he is carried to the ambulance steamer, placed in bed, and conveyed to the ships at Long Reach. The managers of the Metropolitan Asylums Board, fully appre-

ciating the danger of an invasion of the Metropolis by epidemic disease at any time, and believing that the prompt removal of such cases as may occur is of the utmost importance, maintain an organisation in constant readiness by which they are able to place, at any hour of the day or night, with the least possible delay, a fully equipped ambulance in charge of a careful driver, and with an experienced nurse, at the door of any house within the metropolitan district—a district extending over an area of 120 square miles, and containing more than half a million dwellings, inhabited by a population of nearly four and a half million people.

Since the Asylums Board established this ambulance service, their vehicles have effected very nearly 200,000 removals (including transfers, &c.) without accident or injury to any patient, and this notwithstanding that the removals have been carried out in all weathers and throughout all seasons of the year, and, to a great extent, during the night hours.

The Brook Ambulance Station [fig. 15].—This ambulance station is now in course of erection on land adjoining the new hospital at Shooter's Hill, and comprises a superintendent's residence and offices, stabling for sixteen horses, coach-houses for twenty

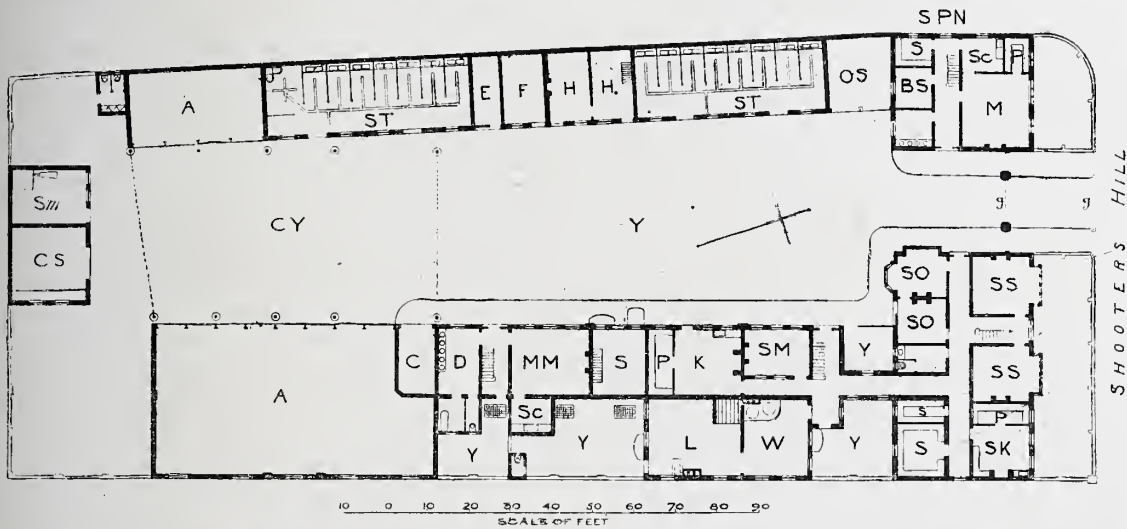


FIG. 15.—THE BROOK HOSPITAL, SHOOTER'S HILL: THE AMBULANCE STATION. (Mr. T. W. Aldwinckle, Architect.)

so, Superintendent's Offices. ss, Superintendent's Sitting-rooms. sk, Superintendent's Kitchen. w, Wash-house. l, Laundry. k, Kitchen. mm, Men's Mess-room. sm, Servants' Mess-room. d, Men's Dressing-room. c, Cleaning-room. spn, Small-pox Nurses' Quarters. m, Small-pox Nurses' Mess-room. a, Ambulance Sheds. st, Stables. os, Open Shed. cs, Carpenter's Shop. sm, Smithy. y, Open Yard. cy, Covered Yard. sc, Seulery. s, Stores. p, Pantry. bs, Blanket Store. e, Equipments. f, Fodder. h, Harness. g, Gates.

ambulances, a home for eight small-pox nurses, mess-room and cubicles for twenty male servants and drivers, mess-room and cubicles for five female servants, general kitchen and store, smithy and wheelwright's shop. The walls of the stables internally have a dado of blue Staffordshire bricks, and above the mangers are lined with glazed bricks. The whole of the yard will be paved with asphalte, and a portion will be covered with a roof of glass and iron for the convenient cleansing of the ambulances.

As indicating how important to the welfare of the community at large, and to the prosperity of the Metropolis in particular, is the provision of adequate accommodation for the prompt isolation of cases of infectious disease, I cannot more fittingly close this Paper than by quoting the following weighty words on this subject with which the Chairman of the Metropolitan Asylums Board (Sir E. H. Galsworthy) concluded his last Annual Report :—

Another matter in connection with this, the most important, part of the Board's work ought not to be overlooked—viz. the bearing it has upon the prosperity of the Metropolis, and the share it must necessarily have in conducing to the maintenance of its reputation as one of the healthiest cities of the

world. Should the Metropolis ever be allowed—either through indifference on the part of its citizens, or through unwillingness on the part of those responsible to them, to incur the expenditure necessary for the provision of isolation hospitals—to become a fever-stricken city, the result cannot prove otherwise than disastrous to its commerce and to the well-being of its inhabitants.

DISCUSSION OF MR. ALDWINCKLE'S PAPER.

The President, FRANCIS C. PENROSE, F.R.S., in the Chair.

MR. P. GORDON SMITH [*F.*] said the Paper dealt so largely with the gigantic hospitals of London, that it left a great deal to be said, if time permitted dealing with the smaller hospitals that exist and have yet to be built in all parts of England and Wales. Mr. Aldwinckle being so intimately connected with the isolation hospitals of London, it was only natural that he should have gone more particularly into the question of large hospitals. When the size of the Metropolis was considered, and its enormous population, it would be seen what an exceptional condition of things had to be dealt with in providing isolation hospitals for London. The hospital authority for London, again, was quite exceptional: it was unique in possessing among its members several eminent hospital experts. One therefore hesitated a good deal to criticise the hospitals they had built and were about to build. Again, in addition to the experts in hospital construction and management, who were members of the hospital authority of London, there was a staff of consultative medical superintendents of hospitals, possessing much experience in regard to these hospitals, and whose opinion must always carry great weight. There were so few large hospitals elsewhere than in London that he was rather sorry Mr. Aldwinckle should have dealt, almost exclusively, with the subject of large hospitals; but there was a good deal that he had referred to as being necessary and desirable in large hospitals which was altogether inappropriate and inapplicable in the case of small hospitals, and therefore he should be sorry if the Paper were accepted without caution by architects who were designing comparatively small hospitals of, say, 20, or 30, or 40 beds. Mr. Aldwinckle had recommended two entrances. He thought that, however desirable it might be to have two entrances to a large hospital, it was altogether out of place in a small hospital, and he himself should never recommend it. There were other points. The discharge rooms as a distinct block, for instance, in a large hospital were perhaps indispensable; but they had to bear in mind that small provincial hospitals were built by local sanitary authorities who had not the same grand idea of heroic provision for hospitals that was entertained in London, and who had to consider every item of cost most carefully. As regards the discharge rooms, there was a plan, illustrated in the Heathcote Hospital at Leamington, showing an arrangement by which patients are discharged direct from

the bathroom of the ward block by means of a casement window; and this, as a rule, answered every purpose fairly well; but in the case of a large hospital, where it was more worth while to provide a separate building for the purpose, it was desirable to do so. Then the maximum size of a hospital had been referred to; that, he thought, was hardly a question for architects to discuss, although he should like a limit to be fixed. The Asylums Board had decided on 500 beds, but even that they exceeded, and he felt confident that 500 was too high a maximum. Coming to the question of cost, the architects of the great London hospitals were fortunate in having for clients a body having practically unbounded wealth, and a strong desire to provide everything that there could be any excuse for saying was necessary. It was, of course, totally different when they had to provide a large hospital which was to be paid for by voluntary contributions; in such hospitals they had to be satisfied without a great many things that were considered indispensable in the large public institutions in London; and yet they got on very well, and their statistics showed that the condition of the patients was found to be fairly satisfactory, and to compare favourably with those in hospitals built at a cost which Mr. Aldwinckle put at £450 per bed, but which, he thought, was an exceedingly modest estimate. Mr. Aldwinckle explained that the large cost of those hospitals was due in a measure to the amount of cubic space that was found necessary, and the enormous staff. Undoubtedly, an efficient staff, however expensive it might be, was a very important matter in a hospital; and certainly the cubic space, or, rather, he would say the distance apart of bed from bed, was all-important in hospital arrangements. But there were a good many things which it would be well to pay attention to in the large hospitals with a view to reducing the cost. Many years ago he (the speaker) had strongly advocated the omission of corridors and connecting covered-ways, at a time when Mr. Aldwinckle seemed to consider them necessary; at any rate he had provided them in the two big hospitals he had built. He was glad to see that Mr. Aldwinckle had changed his views, and now advocated in his Paper the omission of the corridors. For his own part, he should like to see them omitted altogether; he believed them to be not only unnecessary, but extremely undesirable. If they were omitted at

the outset, and were found afterwards to be indispensable, they could easily be added, and he strongly urged that their erection should at least be postponed. Over and over again they saw that hospitals, even large hospitals, could be successfully carried on and administered without those corridors; therefore he did not see why an expense of several thousands should be incurred in providing them. Another item he should like to see saved, though he feared many would differ from him, was the staff laundry. The provision of a separate set of laundry offices for the staff of a big hospital was, in his opinion—and he was supported by several others whose opinion was entitled to some weight—unnecessary, even if it were desirable; it increased greatly the difficulty of management, and it was certainly a great expense. Mr. Aldwinckle had described what he considered an essential feature in a laundry—that there should be steeping tanks arranged like a tanyard, with tanks in duplicate for each of the five or six diseases, and each tank to be separately warmed and separately drained, and so on. That was a refinement which he considered wholly unnecessary, and certainly it added very materially to the cost. Mr. Aldwinckle, again, recommended a bathroom in the disinfecting-room in order that the man employed in disinfecting the linen and clothing should have his bath. Surely he might go to the general bathroom in the male staff block. Then there was the porter's lodge, which was a little cottage containing two or three bedrooms, a bathroom, and a w.c. upstairs. Surely that was far more accommodation than was wanted for the gate porter of a fever hospital! In the first place, they did not want a man with a family, and if he must be a married man one bedroom was not only enough, but far better than two or three; if he had more, he would probably take in a relative, or possibly let lodgings. For his part he would have the gate porter's lodge simply one room—not a bedroom—and an office, and let the gate porter when not on duty go into the male staff quarters. Again, on the question of economy, he thought it altogether unnecessary to provide one w.c. for every one-bed isolation ward. That ward was in the nature of a private bedroom, and he was quite sure that the expense of providing a w.c. to each such ward ought not to be incurred—at all events, not in all of them; if it were desired to provide the w.c. in one or two of them, well and good; but where they had a dozen such rooms, he was sure it was an unnecessary expense. With regard to the size of the nurses' rooms, 13 feet by 8 feet 6 inches had been suggested, and Mr. Aldwinckle, he thought, was building them 12 feet by 8 feet 6 inches. If they had 190 of those rooms, it added considerably to the cost of the building containing them. Then, when the nurses were ill with an infectious fever, it was said they must not be

put in the same wards as the general patients, but must occupy the isolation wards. He thought, however, the general wards ought to be good enough for everybody not requiring separation for medical reasons. In conclusion, he should like to be allowed to propose a vote of thanks to Mr. Aldwinckle for his most interesting Paper, which would be in the records of the Institute a most valuable document, and also for the excellent diagrams he had prepared, illustrated by the lantern.

DR. McCOMBIE, Medical Superintendent of the South-Eastern Hospital, said he had listened with the greatest pleasure to Mr. Aldwinckle's Paper, which contained a vast amount of reliable information and suggestions of the highest value. One point that struck him as worthy of notice was the striking condemnation he showered upon the covered-way. The covered-way, he was sure, was an inoffensive thing; he knew many who objected to it, but he had never heard anyone who lived inside a fever hospital object to it; it was only those who lived outside, and who were unacquainted with the practical working of the institution, who objected to it. It was all very well to save a couple of thousand pounds over it, and let the officers of the institution straggle about in the cold and wet from one ward to another. He had tried both systems, and he had no hesitation in saying that, for the comfort and convenience of nurses and other officers, the covered-way was a very great advantage; he had never heard a valid objection to it, and sincerely hoped that the Asylums Board would not in any way interfere with the covered-ways which were proposed to connect the wards of the new hospitals. He was glad to see that Mr. Aldwinckle had paid such attention to steeping tanks. He thought they were very important things. The soiled linen that had to be removed from the patients ought certainly to be placed in the tanks; and for his part he had found these most useful, not only for the comfort of the laundry people, whose health had to be studied, but also for the health of the patients afterwards. He was glad to see that he had recommended a separate laundry for the staff. It was all-important that the infected linen of patients should be dealt with by itself, and not where the officers' linen was washed. The officers of a fever hospital went out, and, mingling as they did with the outside public and with their friends, if their linen were to be washed in the same laundry and same washhouse, and dressed with the same mangle as the patients' linen, there would be an outburst of indignation all over London. With regard to the terrazzo floor Mr. Aldwinckle had mentioned, he thought that might be the solution of one of the drawbacks of the wards of fever hospitals, where the floors must be kept scrupulously clean. If the floors were of deal they had to be scrubbed frequently, and if of

oak or teak to be polished, and a vast amount of work was involved, and he was afraid they were never as clean as they ought to be. If terrazzo could be proved not to be a dangerous floor for children, and if it could be properly warmed, he thought it well worthy of a trial in an infectious hospital. Of course, so far as the administration was concerned, they could be kept more easily clean than wood floors, and with much less expenditure. With regard to the gate porter's lodge, Mr. Gordon Smith had said that it ought to consist of one room instead of two or three, and that the gate porter when off duty should go to the common place of the men. Now, the gate in any hospital, especially a large hospital, was a very important part of the institution: it was through the gate that abuses crept in; and if the gate porter mingled and made himself familiar with the other subordinate male officers, he at once lost that control which it was necessary for the man at the gate to have; and he could not but think that in every hospital the gate porter should be a married man, and should have a house to himself.

Dr. GOODALL, Medical Superintendent of the Eastern Fever Hospital, said he had listened with the greatest pleasure to Mr. Aldwinckle's Paper, and had gleaned a great deal of information from it. One or two points suggested in the Paper occurred to him as being unnecessary in a hospital. For one thing he could see no reason for having two entrances. The idea was, he supposed, that anybody coming to the hospital on business, such as delivering goods and so on, might possibly come in contact with a patient; but then no patient in an infectious state came in at the gate except in an ambulance; and surely there was no necessity to have two gates, one for the ambulance and one for others. He was very much surprised to hear Mr. Aldwinckle say that there should not be any covered-ways at all. He could quite endorse every word that Dr. McCombie had said on that point. The weather lately had been very severe; but in ordinary weather it was quite bad enough to have to go from the medical officer's or nurses' apartments into the open air. The pathways to the different wards might be covered with snow at night; one might be called up to a case in a hurry, and put on a pair of slippers, one's boots not being handy, and run off to the ward. Imagine what that was like in the snow! Besides, where was the objection to covered-ways connecting groups of wards or blocks in which the same disease was being dealt with? There could be no harm. Possibly there might be some objection to covered-ways connecting two different blocks where different diseases were being dealt with, but he had really never heard any valid objection to it—in fact, during last year he persuaded the committee of his hospital to convert a way that was not covered between the blocks of the hospital into a

covered-way, and that had been a great advantage to them the past few weeks.

MR. EDWIN T. HALL [F.] had the very greatest pleasure in seconding the Vote of Thanks. He wished, instead of his speaking, that they had had the opportunity of hearing the opinion of other doctors besides the two gentlemen who had risen. There were a few points which had only been partially dealt with about which he should like to speak. He should like to know from Mr. Aldwinckle why he thought a hospital of 200 beds was preferable to one of larger size; because he would venture to remind him of another part of the Paper where he said that it was the administrative buildings of the hospital which so largely added to its cost; they must have a certain number of administrative buildings, and although they would of course be smaller for small hospitals, yet relatively their cost would be greater for 200 than for 500 beds. Therefore he should think that on the ground of economy it would be more desirable to have a larger hospital—within limits, of course. But, again, he believed that the managers of the Asylums Board had found that a very useful unit, from the administrative point of view, was to deal with a population of 50,000 people; and, taking Mr. Aldwinckle's standard of one bed per thousand of population, it would follow that, administratively, their experience had led them to think that a hospital of about 500 beds was the most economical, taking it all round, the best to work from an administrative point of view—and consequently the most economical. That, probably, was one of the grounds upon which they had come to the decision to make their new hospital for about 500 beds; but he believed they had never laid down any actual limit of 500; in some cases and in some sites it might be desirable that it should be 450, and in other sites and upon other planning it might be desirable to make it 550. As to two entrances, he could not see what difference it could make whether they had one or two. Why there should be one labelled, "This is infectious," and one labelled, "This is not infectious," he could not see; because whether they passed within five feet or within fifteen feet of an ambulance could make no difference whatever. With regard to the porter's lodge, he thought the doctors had answered the objections as to size. He believed the theory of the managers of the Asylums Board was that which Dr. McCombie had mentioned, that the gate porter should be a man superior in class altogether to the ordinary man-servant of the hospital, and that he should have home comforts, so that he might be kept to his own home, and not mix up with the male staff. For that reason they suggested that he should not only have a bedroom himself, but should have one or two for grown-up children, so that he might enjoy the comforts of home. Mr. Gordon Smith suggested that it was

extravagant to give him a bathroom. They must remember there was scarcely a £20 house in the suburbs that had not now its own bathroom, and, that being so, the managers' view was that the gate keeper should have a house equal to any house that he might pay £20 for in the suburbs. Then as to corridors. They could not ignore the fact that covered corridors to hospitals had been done away with abroad, and there were hospitals in England where they had been done away with; but their neighbours abroad lacked that consideration for their dependents that they in England had. Irrespective of doctors and nurses, there were the servants to be considered; and when it was considered that in a big hospital there were 190 or 200 nurses alone, and something like 120 servants, the question had been discussed whether they should not be protected—at all events in the way that the doctors said they ought to be. The managers of the Asylums Board took the view that there should be these covered-ways—that it was necessary for the comfort of their staff—and where the hospitals existed without them, if they asked the staff themselves and the doctors, there was but one opinion, and that was in favour of the covered-way. Mr. Aldwinckle had showed them the arrangement of sanitary appliances abroad which no one in England would tolerate. They had even seen water-closets between the single-bed wards and the main wards, and opening directly into corridors through which all the patients and the staff and all the meals went. Mr. Aldwinckle appeared to suggest that hot-water pipes should pass round the wards. He himself thought that such an arrangement was very objectionable indeed; they were simply lodgments for dust. It seemed to him that it would be much more satisfactory to put the heat where they wanted it, to check radiation from the windows; and if instead of hot pipes along the walls they put coils underneath the windows, and warmed the air through them, and sent up a current of hot air which neutralised the cold air from the windows, they would get a much better result. The covering of walls, again, was a matter of great consideration. Cement was used generally, and recommended by Mr. Aldwinckle. He (the speaker) had been trying to bring out something different; he had, in fact, patented a new covering by means of which he hoped to cover all his ward walls with large sheets of coloured glass; a material absolutely impervious to disease germs, and a permanent decoration. Mr. Gordon Smith spoke of hospitals being built at a cost of £500 a bed. He hoped sincerely they were not going to cost that. He thought that the highest cost so far had been £400 a bed, and he hoped they were not going to exceed that. He agreed with Mr. Gordon Smith that it was quite unnecessary to have one water-closet to each single-bed ward. If the case were so serious and

acute that a person had to be put in a single-bed ward, he would probably be too sick to use the water-closet, and all that was necessary was that the nurse should have access to a water-closet close by, as bed-pans would almost always have to be used. With regard to an infirmary for nurses, in the Park Hospital the managers had decided to abolish the infirmary for nurses; and he thought it was abolished in all the three hospitals. They must remember that there was a great deal of sentiment about it: it was said that the nurse lost the necessary caste and control if she were treated by the side of patients whom she was usually nursing. The compromise arrived at in the Park Hospital had been to put a separate bedroom close to the main ward; the sick nurse could there be separately nursed, and yet be under the care of the nurse in charge of the big ward. The last point was that of a separate laundry for the staff. The doctors had dealt with that, and he could only say that the managers' views had up to the present been in accordance with theirs. Whether or not the fact that the infirmary had been given up would cause them to give up the staff laundry he could not tell. Mr. Gordon Smith had spoken strongly against it, but the doctors were strongly in favour of it.

DR. DOWNES, Medical Inspector to the Local Government Board, said he had listened with great appreciation and interest to Mr. Aldwinckle's valuable Paper, and, although some of the points in it were not altogether new to him, he was bound to say that he had heard a good deal that had been instructive. One of the first and most important points was as to the size of the hospitals. He did not think that was an architectural question altogether. Everybody would admit that the larger the hospital, the greater the economy of its construction and administration. But that was not all; they had to consider the efficiency of that administration; and he thought that the Asylums Board had gone quite far enough in their concession to economy when they took 500 as a figure on their Instructions to Architects, to which reference had been made. He hoped they would resist, as far as possible, the pressure which was sure to come upon them to increase the accommodation beyond that limit of 500. He did not think that any medical superintendent could give the individual attention, which was so necessary and important, if his hospital for acute cases, as most of those hospitals were designed to be, were to exceed that figure. With regard to the question of the number of beds per acre, Mr. Aldwinckle quoted some figures; but that was a very fallacious basis to go upon, because a good deal must depend upon how the buildings were distributed. They might have 100 acres, but might crowd their hospital into one corner of the 100 acres, and have all the defects of overcrowding on that side. He would rather see laid down (as the

Metropolitan Asylums Board had done in their Instructions) some definite minimum limit of distance and size between the constituent blocks of hospitals as being the governing principle that should be looked to. As to points of structure, he would speak with great deference in that room. One great principle, he thought, should always be looked at, and that was to enclose as little as possible. With a perfect climate they would be better without walls at all; patients would be in the open air, where they would probably be under the most favourable conditions for recovery; but such a perfect climate England could scarcely be said to possess, and therefore they must have walls to the hospital; but he begged them to think twice always of every enclosure which they made—every cupboard which was enclosed, every recess, every dark corner. The less enclosures, the better, from a medical point of view. Coming to the vexed question of corridors, he had observed that if he went to a hospital where they had corridors they told him that they could not do without them; and if he went to a hospital where they had not corridors, they told him that they did not want them; therefore he was at a loss to know where the truth lay. He supposed it lay somewhere between the two—they were not wanted very seriously. He could quite understand the pressure put upon the superintendent by his staff to have all the communications between the different blocks made as comfortable as possible; but he was not sure that comfort was always conducive to health; he was not sure that a closed corridor was always the most healthy for the staff. When he had charge of a large general hospital they had no corridors, because they were all in one block; but the staff were never very healthy! Of course there was the question of cost: corridors were costly, and every economy, although it might be a small one, must be considered. It was not so much the germs in walking down those corridors that he should be afraid of, but it was the increased enclosures—the increased facilities for accumulation of dust and dirt, and dark nooks. He was surprised to hear Dr. Goodall advocating corridors; for only the other day he was looking at the gloom of his central corridor and wondering how far he could see up it. There was all that to be considered. And, then, although one sympathised with a superintendent who was called up at night, he knew what it was years ago when he had parish practice: he had no corridors to protect him when visiting his patients, but he put on a waterproof or an overcoat, and he did not think his health suffered. He was sure that many medical men would give them the same experience. Another vexed question was the porter—whether the porter should be a family man. He was quite prepared that he should be, but he thought Mr. Hall had proved too much when he said that the porter should be a family man, and should

keep aloof from every man on the staff of the hospital. If he were not to mingle with the staff, why not let him be a non-resident officer? There was no risk of infection. They had a day porter and a night porter, and he agreed with Mr. Gordon Smith that the porter's lodge should be more of the nature of an office than of a residence. The width of the ward, Mr. Aldwinckle had pleaded, should be an increased width. He was somewhat conversant with the circumstances under which the width of 26 feet was adopted by the Asylums Board, and it was then urged, even with that increase of 26 feet, as compared with 24 feet, that the greater the increase of width of ward, the greater the difficulty of ventilation; and he thought that should always be borne in mind in hospitals; and, although he pleaded for the width of 26 feet, and was not sorry that 26 feet was settled, he should be sorry to see any greater width. It would increase the cost; and if the size of wards were to be increased, he would rather have greater lineal bed-space than the cross-section of the wards increased.

MR. T. W. ALDWINCKLE [F.] said that he naturally went into the question of large hospitals rather than small ones because the small hospitals were so admirably provided for by the plans issued by the Local Government Board, and, as the architects designing small hospitals generally copied those plans, it was scarcely necessary for him to enlarge upon that subject. With reference to what he was inclined to consider the important question of two entrances, he did not quite agree with Mr. Hall. In his opinion there was a distinct and definite reason why they should arrange that outsiders who had business in the hospital, not necessarily connected with the infectious part, should have the choice of an entrance which should take them without question into the non-infected part, and that they should therefore have no occasion whatever to come in contact with the infected part of the hospital. It was not a question of cost; it was only a question of a pair of gates. It could not be objected to on that ground, and surely that small amount of isolation, even if it were small, at a trifling cost was better than nothing; it was a step in the right direction. So far as cost was concerned, Mr. Gordon Smith and a good many other people thought—and he himself thought—that the hospitals cost a great deal of money; but it was of no use pointing out that the Asylums Board were spending more money than other people, when at Glasgow they were about to build a hospital that would cost just as much as the London hospitals. The isolation hospital at Leamington cost £385 a bed—that was, he thought, for 20 beds—and there was a small hospital for 50 or 60 at Willesden that cost £380 per bed; so that the hospitals of the Asylums Board of London were not such marvels of extravagance, but they compared very favourably with those in the

provinces. And that also had some bearing upon what Mr. Hall had said with regard to large hospitals; he seemed to imply that large hospitals would be cheaper than small ones. He (the speaker) did not think they were, as he thought they would find by actual facts. They must compare things similar with each other; they must compare good hospitals in London with good hospitals in the provinces; and he did not think they would find there was much difference. Some eighteen months or two years ago, when he brought in an estimate of something like £440 a bed for a hospital, the Asylums Board were very much astonished, and so were the rest of London at the time; but the Asylums Board made careful inquiries throughout the country and obtained a good deal of valuable statistical information; and, after carefully analysing it, they found that a good deal was done in the provinces that cost nearly as much, and that the Board were not to be considered as extravagant. As regards the covered-ways, he had become a convert for the simple reason that he had visited hospitals, not only on the Continent, but numerous hospitals in England; and he was justified, he thought, in saying that, so far as modern isolation hospitals were concerned in England, covered-ways were the exception rather than the rule. For instance, the climate of London was not more severe than the climate of Glasgow, and yet the Belvidere Isolation Hospital in Glasgow had no covered-ways, and they told him there they did not want any, and, what was more, they were perfectly happy and contented as they were. So far as steeping tanks were concerned, he had acted upon the advice and information of Dr. McCombie, and had already constructed steeping tanks upon that principle at the new laundry of the South-Eastern Fever Hospital, and it was a matter more of medical experience than anything else. Dr. McCombie had told him that they were very satisfactory—it was what he wanted and what he had got. He was surprised to hear Mr. Gordon Smith object to a water-closet for each isolation ward. An isolation ward was a ward for isolation, and not to be mixed up with any other ward; and it was immaterial whether it was for one bed or for four beds. If the value of a ward as an isolation ward was to be maintained, it should certainly have its own water-closet. Mr. Hall appeared to be under the apprehension that he had been advocating hot-water pipes round the wards. In his remarks Mr. Hall exactly described what he (the speaker) wished, viz. inlets of fresh air warmed in proper appliances coming in under the windows. He was sorry Dr. Downes had arrived at finality in regard to the limit of width of wards; he should have liked him to have kept an open mind a little longer, so that they might possibly have done a little better; but he admitted that one argument that he used was greatly against increased width, and that was that it seriously increased the expense.



9, CONDUIT STREET, LONDON, W., 28th Feb. 1895.

CHRONICLE.

The late Ewan Christian.

Ewan Christian died at his residence at Hampstead on the 21st inst. At the funeral, which took place at Hampstead Cemetery on the 25th, a large assemblage of mourners testified their respect for his memory, the Institute being represented by the President, the ex-President, Mr. Brooks, Mr. Alex. Graham, Mr. Aston Webb, Mr. Ingelow, and others.

Mr. Macvicar Anderson writes: But one feeling—a feeling of unaffected sorrow—pervaded the profession on learning of the death of Ewan Christian—a name which for very many years has been universally regarded as the synonym of all that is high-minded and straightforward, not only by architects, but by the outside world. As architect to the Ecclesiastical Commissioners his place will indeed be difficult to fill. All who came in contact with him in this relationship can testify to the rare ability and conscientious devotion with which he unremittingly discharged his duties. Not a few architects will sadly miss the kindly courtesy with which he was wont to offer suggestions, that never failed to be of practical value and to elude grateful acknowledgment. In the exercise of private practice the confidence and esteem he inspired were such as can only be created by the man of integrity and the architect of ability. With him age was accompanied not so much by weakness as by undaunted energy. In harness almost to the last, with but a few days of illness, who could have wished for a more merciful or a more appropriate close to a prolonged life of exceptionally earnest work? Simple-minded, true, and kind of heart, self-reliant, generous, full of enthusiasm such as is rarely to be found unaccompanied by youth, of wide experience and extensive knowledge, the veteran of whom we were proud, and whom we all regarded with real affection, has passed to his rest, leaving to the profession and to many besides the heritage of a noble example, none the less valued because tinged, as for the time it must be, by the deep feelings of regret and sorrow which all experience who survive him.

The Ninth General Meeting.

Among the unusually large number of visitors present at Monday's meeting were several members of the Metropolitan Asylums Board, including Mr. Acworth, Mr. Hensley, Mr. Boden, Mr. Crockford, Lieut.-Col. Myers, Mr. Brass, and Mr. Duncombe Mann. Sir E. H. Galsworthy and Sir Douglas Galton wrote expressing their appreciation of Mr. Aldwinckle's Paper, and regretting that their state of health would not allow them to be present.



MINUTES. IX.

At the Ninth General Meeting (Ordinary) of the Session, held on Monday, 25th February 1895, at 8 p.m., Mr. F. C. Penrose, F.R.S., *President*, in the Chair, with 17 Fellows (including 5 members of the Council), 27 Associates, and 28 visitors, the Minutes of the Meeting held 11th February 1895 [p. 258] were taken as read and signed as correct.

The decease was announced of the following Fellows, viz.:—Arthur Lett, Thomas Edward Bridgen (Manchester), and Ewan Christian, *President* 1884–86, *Royal Gold Metallist* 1887. In reference to the latter, on the motion of the President, it was

RESOLVED, that a vote of sympathy and condolence with the widow and family of Mr. Christian in the loss they have sustained by his death be entered on the Minutes of the Meeting and communicated to them.

The following Associate, attending for the first time since his election, was formally admitted, and signed the Register—namely, Robert Alexander Reid.

A Paper by Mr. Thomas W. Aldwinckle [F.], entitled FEVER HOSPITALS, was read by the author, and, having been discussed, a Vote of Thanks was passed to him by acclamation, and the Meeting terminated at 10.15 p.m.

PROCEEDINGS OF ALLIED SOCIETIES.

MANCHESTER.

Combined Warming and Ventilation of Public Buildings. By J. D. Sutcliffe.

Read before the Manchester Society of Architects 5th February 1895.

Introduction.—The necessity of ventilation is universally acknowledged, but many people seem to think that a room is only ventilated when a draught can be felt. If it is really comfortable, the first person that comes in—probably with a heavy coat on, and after walking hard—says, “How close the room is! Can’t we have a little “air?” and proceeds right away to throw open a window. To say that to ventilate is to supply fresh air is only half a statement; not only should fresh air be supplied, but foul air should be extracted or forced out. The fresh air must also be pure, and of suitable moisture and temperature. The methods to produce ventilation may all be classed under three heads—namely, Natural, Mechanical, and by Aspiration. Natural ventilation depends upon the difference of temperature and the force of the wind. I need only remark that such ventilation will be as variable as the wind itself to throw it “out of court,” notwithstanding all that may be said in those curiosities of advertising that have lately been deluging architects.

Mechanical ventilation is produced by the action of fans creating an air movement, regular and unvaried, in stated volumes, removing the foul air as fast as it is vitiated, and forcing in fresh pure air to take its place.

By Aspiration is meant the extraction of foul air by heated shafts or chimneys. In the absence of mechanical means, this is to be preferred to natural ventilation. It is now recognised that warming and ventilating are twins, or, rather, a married couple, who should never be separated. But few persons seem to understand exactly how the air

in a room is warmed. It is generally thought the air in immediate contact with the burning fuel is warmed, and that this air warms more air, and so on until all the air in the room is heated. That is not so. In the case of an open fire the rays of heat dart in straight lines through the air until some solid object (such as floor, wall, or ceiling) is reached. This object quickly absorbs the heat, and slowly gives it up again to the surrounding air. The walls and furniture of a room are generally 8 to 10 degrees Fahr. higher in temperature than the air surrounding them.

The open fireplace is certainly a cheerful thing, and serves well if the room be supplied with a sufficient volume of fresh warm air from a register. Otherwise the fire will draw cold air into the room through every crevice and opening, causing intolerable draughts, especially along the floor, for the simple reason that the entering cold air falls and spreads along the floor, and the occupants suffer from cold feet. We see, therefore, that only a small part of the air in the room is warmed when an open fireplace is used. The heat is mostly spent on the air that goes up the chimney. Comfort will depend upon one’s nearness to the fire.

Warming by Direct and Indirect Radiation.—There seems also some confusion as to the meaning of direct and of indirect radiation. This confusion is worse confounded by the use of the term “direct-indirect radiation,” which is used by some American engineers for a combination of the two. A room is warmed by direct radiation when the air within is brought into contact with a hot surface, but not connected with the ventilation of the room—a feature which lays the system open to the very serious objection that the same air is warmed and inhaled over and over again. Warmth may be secured, but it is at the expense of health. The ordinary stove is an example of direct radiation, and so are steam and hot-water radiators as generally made use of. A room is said to be warmed by indirect radiation when outside air is passed over a heated surface before entering the room. This system, being necessarily connected with ventilation, is making rapid progress in public and industrial buildings.

Three Systems of Central Heating.—There are three different systems (speaking broadly) of central heating—namely, steam, hot water, and warm air. All cannot be alike successful, and the question is, what are the merits of each? The three systems have a single fire as their only feature in common. When steam is to be the heating medium, a boiler is placed in the basement of the building, and connected by steam piping to coils in a heating chamber or in the main air-ducts, supplemented possibly by radiators fixed in the rooms. Practically the same arrangement is employed for hot-water as for steam heating; the wrought-iron pipes are filled with hot water in place of steam, but the system of radiation remains the same. The antiquated hot-air furnace, with its limited surface made red-hot, which burnt all the air brought into contact with it, need not concern us. It is as dead as the proverbial door-nail. The modern air-warmer has abundant surfaces of tubes or gills exposed to the air as it enters fresh from the outside continually, and the heat of the fire, diffused as it is throughout the whole of the exposed surface, cannot make any of it intensely hot. It will therefore be seen that the air-warmer accomplishes the same result as the steam or hot-water boiler, and that it is not designed for direct radiation, but must necessarily be combined with ventilation, thus securing both.

Some Reasons for adopting the Warm Air System.—The cost is about one-third less than for good steam heating. The expense of fuel is from one-third to three-fifths less. Heat may manifest itself in two ways, namely, as temperature and as expansion. All the force generated by the burning fuel will appear in one of these forms or as part of both. Water at the nominal pressure can only be heated to 212 degrees Fahr. The energy given out by the burning fuel is not lost, but is transmitted to the water in the

form of expansion, and the water is converted into steam. Now if water be confined, its temperature can be raised almost to any extent. As it is necessary to force the steam through the pipes, this expansion must be resisted until sufficient force is accumulated to accomplish that result. This mechanical work is performed at the expense of fuel. On the other hand, air may be warmed in a well-constructed air-warmer, so that nearly all the energy developed by the burning fuel appears as temperature; scarcely any of it appears as mechanical motion: hence the economy of fuel.

There is no possible danger from explosions with air-warmers, whilst with steam there is constant risk, whether the pressure be high or low. There are no water pipes to freeze or burst and let the water through the building, ruining plaster and furniture. Repairs for steam boilers, pipes, and fittings will probably cost ten times what they would with an air-warmer, and in one case they must be carried out by a skilled mechanic, and in the other any caretaker can do them. Much less time is taken to warm a building after the fire is lit. The warming is easily, and, in fact, necessarily, combined with the ventilation; a vital condition which is not so easily secured in any other way. Before proceeding to give examples and explain in detail the systems of mechanical ventilation and warming, I wish to direct your attention briefly to—

Warming and Ventilation without Mechanical Power.—The air-warmer is always fixed in the basement. The air warmed by it at once rises through the various air-ducts, provided in the walls or otherwise, up into the rooms, driving before it the air which preceded it, but now become cool and more or less vitiated. The inlet window opens directly into the fresh-air room. The air passes thence to the air-warmer, and if it is to be warmed, the damper or valve shown in the duct is dropped down. If the fresh air is not to be warmed, the valve is raised, and the air passes under the air-warmer direct to the room. This valve is regulated from the room, and you will readily understand that any desired temperature may be obtained, but the air cannot be shut out.

I may mention two buildings warmed and ventilated on this system. One is the Friends' Meeting House, Birkenhead, designed by Messrs. Grayson & Ould, Architects, Liverpool, and the other is the Friends' Meeting House, Scarborough, designed by Messrs. Malcolm Stark & Rowntree, Architects, Glasgow. The buildings are about the same size, and a description of the warming and ventilating of one is practically a description of the other: the air enters the fresh-air room on its way to the air-warmer, and thence up the vertical ducts to the rooms above. The vitiated or cooled air is expelled or exhausted at the floor level, and passes under the floor to the exhaust ventilating shaft. This exhaust shaft has a small heater fixed at its base to accelerate the ventilation in summer. In winter the heat of the smoke flue is quite sufficient for the purpose.

There are limits to the successful warming and ventilating of buildings by the method I have described. In large towns the air is not sufficiently clear and pure to enable us to dispense with screens or filters. These offer so much resistance to the entering air that a fan is necessary. Then, again, where there are any horizontal air-ducts of considerable length, partial failure would result, as the air would not travel along those ducts with effect. For successful warming and ventilation without mechanical power the building should be compact, and in an open space where fresh, clean, and pure air can be obtained without filtration. Further, the rooms in the building should be small in size—say not more than 50 or 60 feet square—and should be so arranged that vertical or nearly vertical air-shafts could communicate direct from the warm-air chamber to each room.

Mechanical Ventilation.—With fans all difficulties of (I had almost said time and space)—all difficulties of filtra-

tion of air, direction of air-currents, and size of air-ducts and buildings are removed, and we get the air absolutely under control. It is not surprising that in the earliest attempts and the oldest practice of anything like positive ventilation the course taken was to exhaust from the building. The advantages of the exhaust system can be seen at their best in factories and workshops, where the object is generally the removal of heat, dust, steam, or some other floating nuisance, and not the ventilation of the building as a whole. The fan causes a very slight tension or rarefying of the air in the room, and therefore a constant tendency of the outside air to enter through the inlet openings, which are placed wherever most suitable for the air to traverse the space to be ventilated on its way from the inlets to the fan. On the exhaust system heating surfaces should always be provided at the inlets, which should be well distributed and of ample area, so as to reduce to a minimum all chance of cold air being drawn into the room through crevices at windows or doors.

When dealing with the complete ventilation and warming of a building, especially if its size be considerable, it is convenient, as a rule, to provide more fan power for the supplying of fresh air than for its removal after it has served its purpose. The ventilating engineer thus secures more control over the distribution of effect, and the maintaining of a "plenum," or very slight excess of pressure within the building, prevents any inrush of cold air through crevices or incidental openings. In buildings of moderate size it is generally not necessary to use additional fans for exhausting, especially if the foul air have no great horizontal distance to travel.

The question may be asked, should foul air be exhausted upwards or downwards? I maintain that it should be downwards, and for the following, besides many other reasons:—In the process of respiration fifteen cubic inches of carbonic acid gas per minute are given off from the lungs of each person. This gas in its pure state is so dense that it can be poured from one vessel into another. Carbonic acid gas is 52 per cent. heavier than air. Its tendency is therefore to sink below the level of the mouth, and occupy the lower portion of the room.

That the air has a tendency to rise as it becomes vitiated is often advanced as an argument in favour of upward ventilation; but Mr. Burney held before a Committee of the House of Commons that the downward propulsion which the breath received from the mouth and nostrils did not cease its downward course, so far as the impurities it contained are concerned, until it deposited them on to the ground.

Temple Chambers, Manchester.—The first example of a building warmed and ventilated by a mechanical system that I wish to call your attention to is Temple Chambers, Manchester. This structure is in many respects unique, and was designed by one of your Hon. Secretaries, Mr. Edward Hewitt. It contains about ninety separate offices, and is lighted throughout by electricity. There is not a fireplace in any room. The whole building is warmed from a single coke fire in the basement. The tenants see nothing of the means by which they are supplied with air warmed to a suitable temperature. The system of warming and ventilation is that known as the Blackman Single Duct system. It is one of the simplest systems known, but is not so complete, in my opinion, as the double-duct system I shall describe later on.

In the basement at one end of the building is fixed a Blackman air-warmer and a 54-inch Blackman fan. The outside air is drawn through a large canvas screen or filter on which jets of water play continuously. The whole of the air entering the building must pass through this filter, where it is washed and cleansed from impurities. The fresh air is then drawn through the air-warmer and propelled by the fan along a main air-duct fixed under the ceiling of the basement. This duct runs the whole length

of the building, and from it vertical air-ducts lead to every room.

The wall, or partition, on each side of the corridor is honeycombed from end to end with these fresh air-ducts, which deliver the air into each room through registers fixed about 7 feet from the floor. A register fixed in the bottom rail of each door allows the cooled or vitiated air to escape into the corridor, where it is laid hold of by a 42-inch electric Blackman (fixed at the head of the common staircase), and discharged into the open air. The temperature is under the control of the caretaker. By sending the air round the air-warmer, instead of through it, the temperature can quickly be reduced to the normal temperature outside.

Besides Temple Chambers there are several other buildings warmed and ventilated on this principle. These include, amongst others, a new school for the London School Board—Mr. Bailey, architect; the new Central Higher Grade Board School at Sheffield—Mr. Mitchell-Withers, architect; the Winsford Technical School—Messrs. Woodhouse and Willoughby, of Manchester, architects; the St. Helen's Technical School—Messrs. Briggs and Walstenholme, architects, Blackburn; and the Street Board School, Somerset—Mr. W. Reynolds, architect. The Street School Board, one of the smallest in England, was the first to adopt this system. The latest completed building is the John Street Board School, Pendleton, for the Salford School Board. This school has only been opened a week or so, but I made some tests before it was occupied, and found a fairly even temperature throughout the school of 58 degrees when the temperature outside was below freezing-point. The ventilating and warming apparatus was got to work as soon as the windows were in, and consequently floors, wall, and ceilings were dry on the opening day, and in a very different state for occupation from the usual new school. This school was designed by Mr. Henry Lord, and is the first school in the Manchester and Salford district to use a combined scheme of mechanical ventilation and warming. Let us hope Manchester will not remain long behind Salford in this respect!

Of course there are limits to all central heating. It is not well to transport warm air further than about 120 feet from the source of its warmth, or its temperature will fall too much by absorption in transit. If warm air be the heating medium, greater distances require more than one air-warmer suitably placed; and if steam or hot water, then auxiliary heating surface is fixed, generally in the main air-ducts.

In order to give an occupier independent control over the temperature of his own room, what is known as the Blackman Double Duct system is employed. Each main air-supply duct is made double, the passage for warm air being placed over that for cold air, and the branch ducts are so arranged that they can be connected instantly with either supply at pleasure.

The new Technical School, Salford (also designed by Mr. Lord), is warmed and ventilated on this system, and I shall have pleasure in pointing out its special features as detailed in the plans before you. This arrangement is necessarily more costly than the single-duct system as at Temple Chambers, but it has the advantage of allowing the teacher or occupier of any room to have the temperature he likes best. I know several authorities who claim that the teacher or occupier is no judge, and that the more scientific plan is to decide what temperature is best, and instruct the caretaker to see that this temperature is maintained in all the rooms. This is very well in theory, but it does not work out so well in practice. I happen to know the little lean man who wants his room at 70 degrees—nothing less will do for him. I also happen to know his stout neighbour who occupies the very next room, and he thinks 55 degrees is warm enough for any sensible man. At Salford both these men can be accommodated.

The ventilation has been arranged so that the student will have a minimum supply of 3,000 cubic feet of fresh air per hour, and the air will be changed from four times an hour in the drawing and similar room to ten times per hour in the chemical laboratories.

Factory Warming and Ventilation.—You know the practice was, and is, to warm a factory by running steam-pipes around the room, or, if the machinery interfered, then to fix the pipes just above the heads of workpeople. This is surely dead against the hygienic maxim of warm feet and cool head. Now I am pleased to notice that it is becoming recognised as essential that if the best results are to be obtained, it is as necessary that the employees should have a plentiful supply of fresh air warmed to a suitable temperature as it is for them to have good food.

A large employer of labour told me that during the severest weather the production of his factory went down 20 per cent. He attributes it to the fact that some of the workpeople would not come into the cold factory before breakfast, and when they did arrive the cold made them so miserable that they could not possibly get through the average amount of work.

The main building of the new factory recently erected at Coventry for the Pneumatic Tyre Company is a large one, measuring, roughly, 300 feet by 60 feet, and it is three storeys high. The two air-warmers are fixed outside the main building, and a 72-inch Blackman pulls the air through the air-warmers and drives it forward along the main air-duct at the rate of two million cubic feet per hour. This air is admitted on one side of the room, and in this instance (for special reasons) it is exhausted at the other side. Five 30-inch Blackmans are fixed for exhausting, and the wooden trunks surrounding the fan show that the air can be exhausted either at the ceiling or the floor level. This was necessary, as in the process of the manufacture of pneumatic tyres some very volatile chemicals are used, and the fumes from these rise quickly to the ceiling; whilst, on the other hand, the naphtha fumes drop quickly to the floor, and positively roll in blue clouds along it to the lower exits. The air is changed throughout the factory six times an hour, and a temperature of 65 degrees Fahr. is maintained in all weathers. At this temperature the solution used for attaching the canvas to the rubber dries very quickly, and the fumes are removed as fast as they are given off.

Practical Hints.—A practical word in conclusion. There is great difficulty in getting architects to provide air-ducts, as well as inlets and outlets, of sufficient area, and unless this be done, satisfactory ventilation is impossible. Even when promised I have known architects give the preference to the scheme using the smallest air-ducts. One instance is very fresh in my mind. I was asked to prepare a scheme for a large technical school. The conditions plainly stated the number of pupils likely to occupy each room, the cubic feet of air to be supplied to each, and the maximum rate of air motion through the registers into rooms. Here, I thought, was a fair chance. Judge of my surprise when the architect told me that we had lost the contract because of the largeness of our air-ducts! He said, "In fact, the successful competitor is only using ducts 'one-fourth the size of yours,'" and pointed out a room where I had shown an air-duct 12 inches square, but in the accepted plan the duct was only 6 inches square.

If I had not been afraid of hurting the architect's dignity I should have pointed out to him that with this difference one or two things must happen. If he were to have the same velocity passing through his 6-inch air-duct as through my 12-inch, he could only have one-fourth the volume of air; and if he were to have the same quantity of air brought in, then he would with four times the velocity have such a rush of it that an intolerable draught would be the result.

Now, you may ask, what should be the rule in estimating

the area of inlets for admission of fresh air, and the area of outlets for getting rid of the impure air? These must depend mainly upon the number of persons who will occupy the room, and not to any extent upon the size of the room. For instance, take a schoolroom occupied by fifty pupils: they each require not less than 30 feet of air per minute, or 1,500 cubic feet amongst them. The cubical contents of such a room (say 30 by 30 by 12) would be about 11,000 feet; dividing this product by 1,500 (the amount of air required per minute by the occupants of the room), we find as the quotient less than 8, which represents the number of minutes during which the air would be reasonably wholesome unrenewed. We should therefore supply, regardless of the size of the room, 15,000 cubic feet of air per minute if fifty persons occupied the room. Pupils from fifteen to twenty years of age should each be supplied with not less than 40 cubic feet of air per minute. One large firm of American ventilating engineers declared not long ago in their catalogue that it was not necessary to use exit ducts at all, and that if you only blow air enough into the room and at sufficient pressure it will find its way out again "somewhere"; and in a discussion on this subject at a meeting of the Manchester Society of Engineers one of the members supported this view, and illustrated it by saying that it was no use using two bolts where one would do. One might reply that if two are necessary it is suicidal to use only one. It must be apparent that if you do not provide exit ducts in their proper places, you cannot possibly have the fresh air passing freely through the room and taking the impurities with it.

In estimating the rate of air motion 5 feet per second, or 300 feet per minute, should be the maximum. First, then, ascertain the number of cubic feet of air to be passed through any opening, and divide it by this speed of 300 (or less), and the quotient is the maximum net clear area of the openings in square feet. To this, of course, should be added the area of the fixed bars of the grating or register to be inserted in the opening. This gives 5 square feet as the least net total of openings into or out of a room to be occupied by fifty persons.

A recent writer (Margaret McMillan) tells us how very difficult it is to get people to recognise the powers of the air. If the elements of which it is composed were only visible, and we could see the curious and original way each behaves, our conduct towards them would be very different. If we only knew each element intimately, and could shut out the injurious ones, how healthy we should all be. Take oxygen, for instance, which is the most abundant element in the earth. It is so necessary to life that the old chemist called it "vital air," and yet this royal element is "Hail fellow well met" with every other element except fluorine. It will marry the carbon you have breathed and give you a splitting headache, while the same carbon dioxide in solution makes an aerated water which relieves your headache. It will combine with sulphur to form a suffocating gas. It will join hands with alumina and become a priceless ruby. It will interlock itself with hydrogen and become a sparkling stream.

The royal element, active though it be, need never be other than our servant. Our great safeguard is to allow the royal element oxygen to enter our rooms freely. In pure air he is just sufficiently diluted with nitrogen to act quite healthfully; he then enters the lungs, sends the blood in a strong, healthy current through the veins, and only when he meets with artificial foulness does he fail in his health-bringing mission.

THE GLASGOW SCHOOL OF ART.

The series of lectures on "Mediæval Architecture" delivered by Mr. Alexander McGibbon [A.] for the Glasgow School of Art commenced on the 24th October 1894. By permission they were given in the Corporation Galleries,

and throughout were illustrated by limelight views. These lectures were in continuation of those delivered last session by Mr. W. J. Anderson [A.] on "Italian Renaissance Architecture" [Vol. I. pp. 126, 156, 243, 319, 363], and form part of the Architectural Curriculum of the School [KALENDAR 1894-95, p. 169], on the Governing Body of which are Mr. T. L. Watson [F.], President of the Glasgow Institute of Architects, Mr. W. Leiper [F.], A.R.S.A., and Mr. J. J. Burnet [A.], A.R.S.A. The epitome given below of the entire course of eight lectures has been kindly furnished for the JOURNAL by the lecturer himself.

In the Introductory Lecture Mr. McGibbon explained that the term "Mediæval" had been chosen as covering Romanesque and Gothic, emphasising the fact that Gothic is something more than merely developed Romanesque. The opinions expressed in the recent works of Mr. Moore and M. Corroyer were considered; these largely echo Viollet-Le-Duc's definition of Gothic as the embodiment of the principle of equilibrium, thrust resisted by thrust, rather than by *vis inertiae* of massive wall and buttress. It was shown that the definition, however true of French work, is only partially so when applied to ours, where time and again native methods have been broken in upon by new modes from Normandy, Royal France, and lastly by the Renaissance from Italy; and yet through all there has been preserved a continuity of sentiment with our earliest primitive Romanesque, while withal there seems no good reason to deny the title Gothic to even our modern work. What we lack in logical consistency has been balanced by our persistency of attachment. France at the Renaissance finally forsook Gothic, and to-day the style is not studied by her students, while with us it lives, and will live—in Greater Britain it has yet a future. Disclaiming for Mediæval architecture any position of supremacy among the world's architectural styles, particular criticism was directed to the unwished-for approval of the ecclesiologist, who finds dogma in every feature of the church building; of such as Mr. Morris, who, when last addressing the Glasgow School, tabooed the Italian Renaissance for the city's municipal chambers as a style, because associated with the lust and tyranny of its patrons; of such as Mr. Ruskin, who, in nature as expressed in field and flower, would find the prototype of Architecture as if it were a natural growth, rather than being what it is, the most artificial of arts. It was submitted that in poetry is to be seen a better analogy, where, as in the sonnet, rules the most rigid and arbitrary, of the poet's own devising, have been conformed to in the expression of emotions the most intense.

The second lecture was given on the 7th November, when Romanesque as practised in North Italy, Germany, and France, and more particularly in Normandy, was first considered. That Germany should so completely have discarded her native round-arched Gothic, or Romanesque, for the French Pointed must ever be regretted; only arrested, however, its features may yet be taken for modern development. Such information as can be had of our primitive Romanesque and pre-Conquestal Norman was summarised, and a review entered on of the work of the Anglo-Norman period between the dates 1080 and 1150. That the contemporaneous work in Aquitaine and other provinces of France should so slightly have influenced English models is remarkable. Romanesque may not equal Byzantine, which boasts that crowning architectural glory, the Dome; but just because of the necessary infrequency of that feature's employment in modern work, we may the better use Norman, for Byzantine without the dome is reduced to an architecture of decoration only. In respect, too, that in Norman practice vaulting of large span was not attempted, timber-roofing being considered quite sufficient and appropriate, we find that modern requirements have most happily been anticipated.

At the third lecture, given on the 21st November, the

work of the Transition was discussed, French examples briefly, English and Scottish more particularly. The style was commended for revival as possessing merits peculiarly its own; more elegant than the Norman, yet preserving the use of the semi-circular arch—though freely admitting the pointed—while richer in its decoration than the Early English; for its enriched arch moulds and door-jambes, even the later beautiful intricacy of moulded-profile, refined foliage, and general elegance, hardly compensate. The square abacus not only gave a beautiful type of capital, it did good service in permitting the emphasising of the Orders in an arch-mould that in succeeding periods sometimes degenerated into mere reeded planes. In describing the Northern examples it was said that of Scottish Mediæval work only its Transitional could stand comparison with English. In size and richness of its Norman, Early English, and Decorated architecture Scotland is far surpassed; but nowhere south of the Border can a finer door be found than that of Jedburgh west front. For us there seems special cause of interest in Transitional architecture as very largely the outcome of indigenous taste influencing the imported Norman. How far the assimilating process might have been carried cannot be said; the potentialities of the style were never fully tested. Even rightly to apportion the credit of the development is difficult: whether to Norman ecclesiastic or noble, influenced by the *genii loci*, or to Saxon craftsmen and native tradition reasserting itself. In any case the style, for revival, seems to promise better than when choice is made of a perfected style. The second part of the lecture was occupied with a brief account of the social economy of the cathedral, the abbey, and the parish church, so far as might explain the functions of the various architectural forms and arrangements met with in these buildings. Why the French cathedrals should lack the chapter-house that is such a distinctive feature with us is explainable by the different relationships of ecclesiastical and municipal authority in France. Of abbey and cathedral conjoined in Scotland there is but one example, St. Andrews, for Iona was only so from the fifteenth century.

The fourth lecture was given on the 5th December. The section treated of was Early Gothic in France and England during the first three-quarters of the thirteenth century. It was shown that much more than the general use of the pointed arch was implied in the new style; the resistance of thrust by thrust in the flying-buttress led to the concentration of weight on points of support rather than on walls. Other styles had largely used pillars—the Hypostylar Hall at Karnac and the Mosque of Cordova, for example—but in these styles the weight supported was directly overhead. On the Gothic principle weight could be dispersed among many supports through the flying-buttress. The broad classification, sometimes met with, of architecture into trabeated and arcuated, to take account of essential principles rather than mere appearance, should assign to the former division such arching as merely replaces the lintel. In French cathedrals the strange illogicality, noted by M. Corroyer, of buttresses of equal strength being employed to resist the unequal thrusts in a sexpartite vault is hardly more remarkable than the artistic blemish of their monotony; variety would at once be more rational and pleasing. The timber roofing over vaulting, it may be admitted, when of steep pitch, is largely to justify steep gables. The Italian examples, so often derided, of high-pitched gables that mask low roofs are no whit worse than Northern examples; where for a slate covering a much less acute rake would suffice, and for lead the rake of a Greek temple or Perpendicular church would be more reasonable. The use of principals would have permitted the rafters to have lain nearer to the groin, their feet coming well below the vault-ridge, and then small gables would consequently have resulted over each bay of the

clerestory. Only in the case of open timber roofs can the steep gables be justified, for then within and without effect is gained logically. A description was then entered upon of the principal works of the period in France, and English and Scottish examples were in turn analysed. The latter show that the Early English style was employed without modification to any material degree.

The fifth lecture, given on the 19th December, dealt with Decorated Gothic, which in its general application is common to many countries besides Britain; hence our English variety is deprived of the peculiar interest that attaches to the style that came before, and that followed after it; it has neither the severity of Early English, that shares most things in common with France, but is made distinctive by the lancet, or, on the other hand, the novelty of the quite dissimilar Perpendicular that is purely national. English Decorated has perhaps hardly received a due recognition, and is judged relatively, rather than on its merits. This is in part accounted for by the fact that its period, 1275-1375, was not one of great church building; Lichfield, the smallest of English cathedrals, is the most complete example. Even if it did nothing more than, as its name implies, embellish selected features that had established themselves in popular favour—while others, such as the disengaged shafts, were discarded—the style would commend itself. The arch had the ogival variation given it, the buttress was enriched with niches, and the parapet with tracery and battlements; but beyond these mere decorations, the development of the great traceried window and the open timber roofs were real architectural achievements. The octagon of Ely would alone confer distinction on any style. In Scotland the style endured until the Renaissance; so the work there, contemporary with English Decorated, may conveniently be called of the first period; that contemporary with Perpendicular, which, curiously enough, never got so far north, may be called the second period.

The sixth lecture, delivered on the 16th January 1895, had for its subject the Design and Arrangement of the Mediæval Church. The consideration of so extensive a field of architectural effort, in a general way, is a necessary complement to the particular analyses of the various styles met with in this historic fabric. If we would realise the progress or decline of artistic and constructive skill, or trace the development of features, such as the buttress, the window, mouldings, &c., we must pass in review all the architectural modes current during the five centuries of the Mediæval period. The relative sizes of Continental cathedrals was first compared with our own, then the various types of plan favoured by the different nationalities were considered. While the English cathedral may claim to be effective with the greatest economy of means, due acknowledgment must be made of the excellence of the French apse, and of the Italian dome, as seen at Florence and Siena—these last especially, for not infrequently Northern Gothic is conceived of as in every respect surpassing Southern work. The central tower, eastern and western transepts, and the chapter-house are features distinctively characteristic of the British cathedral, and these were in turn discussed. The well-lighted gallery over the aisle, that in France takes the place of our blind storey, is the better arrangement in a building where imposing ceremonies must frequently occur. In towers, both central and western, the limit of variation is in England restricted, the German open-work spire is unknown, and the open crown is a type worked out in Scotland, if not actually there originated. After successively reviewing the window, the buttress, stalls, &c., as an instance of how all this antiquarian knowledge affected modern architects, reference was made to the Liverpool Cathedral competition, affording illustration of what, to the competitors, appeared the excellent points of the ancient

models. The parish church was next passed in review, and those arrangements dwelt on that seem most adaptable to modern requirements. Here, too, it was insisted on that precedent should not be permitted to stifle original thought; acquaintance with past methods may, however, obviate wearying groupings in design, but it is necessary that we study not merely well but wisely.

The seventh lecture was given on 31st January; when the Perpendicular style was discussed. This style had the longest life of any, and hence the numerous examples extant, though none are of the first importance in scale; their survival may largely be attributed to the fact that no subsequent style has intruded, as Perpendicular itself had, upon existing work. The artistic motive in the new style was possibly a more self-conscious one than that attending previous developments; there was a desire for a superior beauty; before, architecture had rather expressed the Church's power. Whatever the merits of the style, it was quite an indigenous growth, the first and only real English Gothic. The vigour of the national life of the period should commend to us its architecture, but instead there is prevalent an unaccountable disparagement of both. How original Perpendicular was may be realised by a comparison with French Flamboyant that appears as the natural and inevitable development of Decorated; while Perpendicular shows in many points a quite unconscious recurrence to earlier principles. Thus: the more stone-like treatment of bar tracery that was in effect plate, but with a greater depth than Norman or E.E. ever had; fan vaulting in which extremes met, for when ribs became most numerous, in reality it was the vault surface that again, as in Romanesque, was the constructive necessity; the depressed arch, that was an invention artistically only less valuable than the pointed; for if the earlier form permitted of a greater height than the semicircle, without the objectionable stilting, so the later made possible a lesser height by other means than the equally unsatisfactory segmental arch. The flat timber roof, too, was again of the pitch best suited for its lead covering, and alike internal and external appearance was expressed by the gable. Even the all-prevalent panelling may be defended as decoration of the wall proper—Mr. Ruskin's "veil"—in more architectural fashion than mere rustication, however elaborate; for it can hardly be questioned that the wall is as worthy of embellishment as the fenestration that in Renaissance was the principal field of display; while in Roman practice there was an imposition of an Order that ignored both wall and window. The lacking feature in the style was the column; previously it had been minimised to the engaged shaft, but now even that was frequently dispensed with, and arch-moulds were continued to the ground. To persist in denying ourselves the use and enjoyment of this chief of architectural features is to provincialise the style, so in any revival of Perpendicular the column should certainly be reinstated; and to do this, in style, will provide scope for legitimate originality.

In the closing lecture, delivered on the 13th February, the first part was occupied with a review of late Scottish Decorated, principally of the sixteenth and first half of the succeeding century; of earlier work, the nave piers of Dunkeld Cathedral, that show the columns retained, were commended as suggestive. At the very close of the fifteenth century, in the crown towers of St. Giles and King's College Chapel, Aberdeen, appear the most distinctive feature that Scottish Gothic can boast. Her Decorated had more affinity with French Flamboyant than with English Perpendicular, and the cause that prevented the latter crossing the Border seems to have been the decline in the Church's influence, with the rise in social condition of the worker. The Church was still the chief patron of architecture, but the designer no longer followed, as matter of course, the fashion of the South. The Scoto-French political alliance of the times sufficiently accounts for the

Renaissance influence seen in baronial buildings of the period; still, it is remarkable how that style should percolate down to the humblest strata of buildings, and become, in time, the vernacular expression of taste, to the complete abandonment of every trace of Gothic tradition and practice.

The review of Mediæval architecture completed, a short notice of Mediæval builders was given. The "master-mason" was seen to be the functionary most nearly approximating to the modern architect, an office that dates from the Conquest, and one generally filled by a layman. Too often architectural credit has gone to bishop and abbot, for the title "Surveyor" and "Supervisor," frequently held by prelates, might better be expressed by the word Steward; they were cultured and munificent patrons of architecture, but only very rarely indeed actual designers. The limited variety in building and the almost constant type of church plan—further, that masonry and, later, carpentry were the crafts directed by the "master-mason"—show that his duties were by no means so multifarious as are those of his successor. The influence of the Freemason is now regarded as much less potent, even in the latest years, than was once imagined.

Geometric proportion and numerical ratios in building, if ever generally employed—which is very doubtful—have been so on a principle whose secret is now lost. Ingenious arrangements of triangles may be applied to sections, but we are hardly convinced that their rationale is understood. Mediæval mouldings, too, can hardly be thought of as most logical elaborations of profile to best insure subtle shadow when on north and south frontages they appear alike. True, this applies to Classic as well; but it is only of Gothic that this contention appears of its superiority in the philosophy of mouldings.

At the conclusion of the lecture Mr. T. L. Watson [F.], on behalf of the Governors of the School, expressed gratification at the interest and attendance the course had attracted. Its justification, however, did not lie altogether in monetary success; architecture as an art of first importance claimed the best attention of a School of Art, and in this and the preceding course there had been given information, historical and critical, complementary to that practical acquaintance to be gained by study of actual examples in the class-rooms and by design.

THE DUNDEE INSTITUTE.

Strenuous efforts are being made by the Dundee Institute of Architecture, Science, and Art to reach members of the profession practising in the extensive district north of the Forth, of which Dundee is the recognised centre, for the purpose of enlisting their sympathies in the cause of professional union and co-operation in the work of architectural education now being energetically prosecuted by the two allied Scottish Societies located respectively at Glasgow and Dundee. A circular letter just issued by the Council of the Dundee Institute calls attention to Mr. Macvicar Anderson's Presidential Address in 1893-94, in which a description is given of the architectural provinces then recently established, and the advantages likely to accrue to the profession from the new organisation, and quotes the terms of the resolution agreed to at the Conference of Liverpool in April 1893, in which the objects of the scheme are briefly enumerated. The Dundee Council proceeds that it is in no spirit of self-aggrandisement, but in loyal adherence to the Royal Institute in its desire to carry out the objects therein set forth, that it asks the cordial assistance of every practitioner, student, and lover of architecture, science, and art in the northern part of Scotland to join its ranks and assist in the consolidation and elevation of the architectural, artistic, and scientific professions, in the organisation and extension of classes and other means of instruction for the more efficient education of pupils and students in these professions.

The Council is fully alive to the fact that Aberdeen, with the northern counties, has within its borders a sufficiently large number of architects to form a Society of its own in alliance with the Royal Institute, and that it also has educational institutions of a very high order; but until such a Society is formed it would appear to be desirable that the existing local central body should embrace within its ranks those whose pupils may come up for examination, and also by the co-operation and consultation of its brethren in the northern counties to knit together more closely the architects, scientists, and artists of the northern part of Scotland.

In connection with the educational work of the Dundee Institute, a special section is to be opened, and special prizes awarded for competitive work submitted by persons resident beyond the Dundee district.

LEGAL.

Timber Structure, Temporary or Permanent [p. 263].

THE LONDON COUNTY COUNCIL *v.* GLICKSTEIN.

Mr. Henry Lovegrove [A.] writes:—Referring to the case, *The London County Council v. Glickstein*, reported on page 263, I should like to state that I discovered this building in course of erection in a remote part of my district, and went directly to the police court and obtained a summons against Mr. Glickstein, who, the foreman stated, was acting as his own builder. The same magistrate who tried the second case decided that I had not proved that Glickstein was the builder, although I produced a witness who had written down what the foreman told me. A son of the defendant swore that the foreman (Smith) was the actual builder, but it seems hardly likely that a timber merchant would employ a builder to erect a wooden building. The foreman Smith has disappeared, and cannot be found. The result is unfortunate, as there is in existence a large wooden building which, in the event of a fire, would do much mischief.

Under the 1894 Act the owner can be proceeded against.

Architects' Charges.

HILL *v.* KAPHAN.

On the 11th February, in the Southampton County Court, William Burrough Hill, surveyor, of Southampton, sought to recover from Joseph Kaphan, of Southampton, the sum of £22. 2s., made up as follows:—To receiving (in September) instructions, taking measurements and memoranda, preparing plans, elevations, and specifications for rebuilding, and submitting same to the defendant, £20; to preparing set of tracings and plans, and forwarding same with application to the Urban Sanitary Authority, £2. 2s.

Mr. C. Lamport appeared for the plaintiff, and Mr. A. H. Emanuel for the defendant.

It was stated by Mr. Lamport that the amount claimed consisted of the usual architect's charges for work done on the instruction of the defendant. At the time the defendant was under an obligation to carry out the repairs to the building in St. Mary's Street, and lay out a sum of about £800 on the premises. The plans were prepared and sent to the Urban Sanitary Authority, but they were returned to be amended in some slight particulars. The plaintiff wrote to the defendant reporting the result of the submission of plans, and asked him to call so that alterations could be carried out; but Mr. Kaphan, instead of going near the plaintiff, had other repairs of a different character, having purchased the freehold in the meanwhile. The defendant had declined to pay these usual charges.

Plaintiff gave evidence in support of his case, bearing out the statement made by Mr. Lamport, stating in reply to Mr. Emanuel that he was trying to do his best for the defendant in the plans, and the Council sometimes made concessions. He could very easily alter the plans to meet

the requirements of the by-laws, and would have done so free of cost.

Mr. Wheeler, architect and surveyor, having charge of that department for Mr. W. B. Hill, stated that the charges made were reasonable. He admitted that by the alterations of the plans two rooms would be cut off, but they could easily be put somewhere else.—Mr. Mitchell, jun., a member of the firm of Messrs. Mitchell, Son, & Gutteridge, gave evidence as to the fairness of the charges made.—Replying to the judge, Mr. Lamport contended that an architect would not lose his fees because the authorities did not sanction the plans, and especially was this the case when the architect was prepared to rectify the plans.

Mr. Emanuel, for the defence, urged that it was a novel situation for a surveyor to say he had made a mistake in his plans; that he had prepared plans which were useless, upon which the borough authorities would not allow him to proceed; and that he should write to the defendant asking him to come and show him what he was to put right. It was the duty of the plaintiff to send plans which could have been acted upon. He also contended that this was a contract to do the plans and carry out the work for 5 per cent.; it must be taken as a whole, and was not divisible.

William Henry Killick, assistant borough surveyor, spoke to the plans prepared not being in accordance with the by-laws, and if anyone persisted in building upon these plans, there would be a summons issued, and an order could be got to pull it down.

His Honour nonsuited the plaintiff without prejudice to an action in the future if the defendant ignored the plaintiff in his carrying out the building.—Mr. Emanuel assured his Honour that the defendant intended to build, but was waiting for the money.—Mr. Lamport said he was sorry he must appeal, as it was an important case to architects.

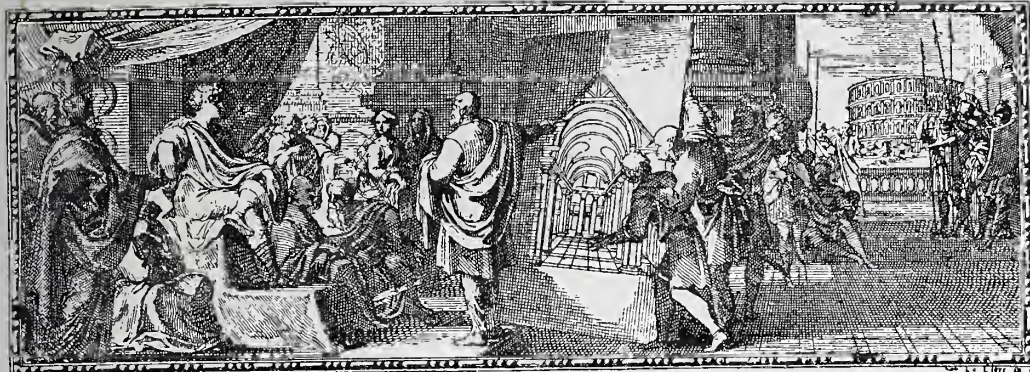
The London Building Act 1894.

WATKIN *v.* CROW.

On the 12th February Mr. Haden Corser, at Worship Street, heard a summons taken out by Mr. Charles Watkin, surveyor and builder, of 165, Feuchurch Street, against Mr. A. Crow, district surveyor for Whitechapel and the Liberty of the Tower, under section 150 of the London Building Act 1894 (57 & 58 Vict. c. ccciii.), complaining of the notice of objection by the district surveyor to works about to be carried out at 1, Church Street, Minories. From the notice of the case in the *Law Journal* it appears that a fire recently occurred on the premises in question, and it was argued on behalf of Mr. Watkin that he had a right to re-erect a party-wall of the same thickness as it formerly stood, as one-half of the cubical contents had not been destroyed. In this case only one-third had been destroyed by the fire, and it was contended that the district surveyor had no power to have it re-erected in accordance with the new Building Act. The onus lay on the district surveyor to show that it was a new building. This, it was argued, he could not do, as it was only a party-wall.

Mr. Berry, on behalf of the County Council, said the objection they took to the party-wall was that it could not be rebuilt except of the thickness required by the London Building Act 1894. Section 5, subsection 6, defines a new building as including a building which has been taken down for more than half its cubical extent, and section 208 provides that when a party-wall not in conformity with the Act is taken down or destroyed to the extent of one-half thereof measured in superficial feet, it must be rebuilt in conformity with the new Act.

Mr. Haden Corser said what he had to decide was whether the wall could be dealt with as if it belonged to a new building. That seemed to him to be a difficult proposition, and he would take time to consider the point. He asked that the Act bearing on the point might be left with him, as, although he was supposed to know all the Acts, this one was not supplied for the public service.



EDITIONS OF VITRUVIUS WANTING IN THE INSTITUTE LIBRARY :

AN APPEAL TO MEMBERS AND OTHERS BY THE CHAIRMAN OF THE LITERATURE COMMITTEE.

I VENTURE to address the members of the Institute in the hope that our collection of the various editions of Vitruvius may be made complete. Dr. Garnett, of the British Museum, was kind enough to have the list of the editions we possess collated with those in the British Museum, and I am happy to say that few are wanting. As the Institute represents the whole body of architects in the British Empire, its Library should, I think, possess all the known editions of this unique classic treatise.

A list of the seven editions of which the Library is deficient is here given :—

	LATIN		FRENCH
L. Vitruvii Pollionis, &c. } sm. fol.	Venetiis, 1497	Les dix livres d'Architec- ture, &c. 4o. Nouvelle } édition. 2 vols. and atlas	Paris, 1859
	LATIN AND GERMAN		GERMAN
M. V. P. de Architectura, } &c., 8o.	Gothæ, 1857	Baukunst. 2 vols. 4o. . . .	Leipzig, 1796
	LATIN AND POLISH		ENGLISH
Editio Princeps	2 vols. 1837, &c.	Editio Princeps	London, 1771
		,, 1860

For the sake of some of the younger members, and in the hope of converting those who take a purely utilitarian view, I shall trespass on your patience, and say something on the value of Vitruvius's work, and on the interest attaching to the various editions.

This book of Vitruvius' is the first treatise on architecture that has come down to us, and through it we know the names and works of many architects, both Greek and Roman, whose names would otherwise have perished, and whose works would be nameless. In Vitruvius we have an ideal picture of what architects should be, which gave occasion to Addison's essay, and to his controverting Martial's celebrated epigram :—

Si duri puer ingeni videtur,
Præconem facias vel architectum.—*Martial*, Lib. v. Epig. 57.

We learn from Vitruvius the antique method of duly proportioning, by means of the module, each member and each part to the whole building, which produced that harmony in antique buildings that has made them the admiration of the world. We learn the careful way in which

the structural operations were performed, which has saved for us so many superb monuments. We have arts unknown to us described, such as the vases in theatres for enabling the whole audience to hear the singing, and the curves for obviating optical illusion. We have a great deal of amusing and interesting information, of which we should otherwise be deprived, not to speak of the treatises on the machines used in building, on those for measuring the distance travelled in carriages and boats, on those for raising water and for grinding corn, and on the water organs, that are so often spoken of in the churches of the fourth century; while, in addition to these, there are the treatises on the artillery of the ancients; Vitruvius having been made by Augustus an inspector of the various engines of war—the scorpions, ballistas, catapults, battering rams, and tortoises; and in the earlier Latin editions there is an account of the Roman aqueducts by Sextus Julius Frontinus. I may add that the Elder Pliny took nearly all his particulars of building from Vitruvius.

Architects of purely utilitarian views may say, We have in the Institute Library, Rose and Müller-Strübing's Vitruvius with Nohl's Concordance, the best edition yet published, and we have the English translations of the learned Newton and of Joseph Gwilt. What more can you want? All the old editions are superseded, and merely occupy room which is greatly wanted.—I am not sure that a man could not be a great architect who had not only never read, but had never even heard of Vitruvius; but, as the great end of architecture is not only to meet wants, but to raise noble emotions, it hardly becomes architects to ignore the emotional side of things. Supposing we overlook the effect his work had on the buildings of ancient Rome, on Byzantine, on Romanesque, and on Gothic architecture, we can hardly ignore the excitement caused in the fifteenth century by Poggio's discovery of the MSS. at Saint-Gall about 1414, and the important influence Vitruvius has since had on architecture, even to our own day. His work, too, has been a favourite field of exercise for scholars, for antiquaries, and for architects; and, considering that it was not until 1812 that Wilkins found out the meaning of the "*scamilli impares*," and thus enabled us to discover the optical refinements of the Parthenon, which Mr. Penrose has measured for our benefit, we can be by no means sure that the treasures hidden in Vitruvius have yet been wholly discovered. The labours of such scholars and antiquaries as Sulpitius, Politian, Philander, Barbaro, Paulus Jovius, Galiani, Schneider, and others, and of such architects as Fra Giocondo, Palladio, Cæsare Cæsariano, Jean Goujon, Perrault, Newton, and Wilkins, cannot be without value and interest. That Vitruvius still exercises a fascination on architects, may be seen by that champion of Gothic, Viollet-Le-Duc, restoring his basilica at Fano.

I should like to make you feel the sort of rapturous delight that was caused in the world of culture when the Codex of Vitruvius was discovered; how his book was looked on as a talisman to enable anyone who possessed his precepts to build fine architecture, and how edition after edition was published to extend this boon to all. Baldassare Peruzzi is said to have made himself a copy; Raphael bought a translation; Michelangelo said if a man could draw, by the aid of Vitruvius he could become a good architect. Cardinal Ippolito dei Medici (1529–35) founded a club, which met twice a week in Rome, for the study of Vitruvius, and was known as *Le Virtù*.

At an earlier date Beccadelli called Panormita, the humanist, tells us the remark of Alfonso the Wise (1385–1458) about Vitruvius. Alfonso was about to rebuild the citadel of Naples, and ordered a Vitruvius to be brought to him. Beccadelli's own copy was given him, unbound and not illuminated. Alfonso looked at it and said, "It is not becoming that this "important book, that teaches us so well how to cover ourselves, should go about uncovered."

The *Editio Princeps* is supposed to have been printed in Rome by George Herolt in 1486, and during the century two other editions were printed, and nine other Latin editions in the

sixteenth century; and although Latin was the *lingua franca* of the learned, it was unable to make Vitruvius popular enough. The Italian *Editio Princeps* was published in 1521, the French in 1547, the German in 1548, the Spanish in 1582. In England we were forced to put up with a translation of Perrault, published in 1692, while our *Editio Princeps* did not make its appearance till 1771. The Polish *Editio Princeps* was published in 1837, and editions are still being published in Germany and France. I believe there is no Greek edition, and I never heard of one in Arabic.

I hope that the liberality of our members will supply our Library with the volumes still wanting to make our collection of Vitruvius complete, as most of those we have were presents.

GEORGE AITCHISON.

ARCHITECTURE AND THE ARTS OF THE NETHERLANDS: MONSIEUR VAN YSENDYCK'S GREAT WORK.*

By J. TAVENOR PERRY [A.] and J. STARKIE GARDNER.

I. INTRODUCTORY. By J. TAVENOR PERRY [A.].

THE Netherlands, embracing the modern countries of Holland and Belgium, are perhaps more visited and better known to the architect than any other country except France; whilst the draughtsman finds in them material for his pencil unequalled in any other part of Europe. The close connection between England and the Low Countries, which has existed from the time of the Normans, is familiar to all historical students; and to every Englishman the names of many of the Flemish cities recall memories of great events with which his countrymen have been associated. The exquisite examples of Flemish art with which the galleries of Europe abound have taught us to appreciate the artistic abilities of the Netherlanders, and they have impressed us with the talent that inspired them, and the affluence which made them possible. The ecclesiastical and civil buildings which fill the great cities of Belgium are of the highest order, and rank with the best of any other architectural province; while the domestic buildings exhibit a richness of finish and an amount of architectural display nowhere else to be rivalled. Although in the whole area of these countries only two buildings remain which were erected as cathedral churches—Tournai and Utrecht—many of the cities contain religious edifices of such extent and grandeur as frequently to be taken for cathedrals; and few remember that the great churches of Mechlin, Bruges, Antwerp, and Ghent were built long before the bishoprics of those cities were founded.† The architectural wealth of the Netherlands which has survived to the present time appears the more striking when one reflects on the political and religious revolutions through which these countries have passed. Few have suffered so much from the turbulence and destruction of their own citizens and the ruthlessness of their oppressors. In the troubles of the Gueux the great churches of Antwerp, Tournai, and Ghent were wrecked in a few hours;‡ in the suppression of the rising against Philip whole cities were destroyed by Alva and Parma; whilst at the French Revolution abbeys like Orval and Villers were ruined, and the cathedral churches of Saint-Lambert, Liège, and Saint-Donat, Bruges, were levelled to the ground.

An historical and critical description of the architecture of the Netherlands yet remains

* *Documents classés de l'Art dans les Pays-Bas du X^{ème} au XVIII^{ème} Siècle, recueillis et reproduits par J. J. Van Ysendyck, Architecte.* 5 vols. La. fo. Antwerp, 1880-89. In the Reference Library.

† The Bishoprics of Bruges, Ghent, Antwerp, Mechlin, Bois-le-Duc, &c., were only founded by a Bull from Pope Paul IV. in 1559.

‡ Motley's *Rise of the Dutch Republic*.

to be written. Schayes's History * is too superficial and perhaps inaccurate, and too slightly illustrated, to be of much value. The notice in Fergusson's History is necessarily too short and too general to do more than give an outline of the style or a catalogue of a very few of the works which are to be found in the province; and we therefore gladly welcome the great and invaluable addition made by Monsieur van Ysendyck to our knowledge of this subject by the completion of his volumes of illustrations of the Art of the Low Countries. Speaking only of the purely architectural portions of these volumes—for the whole work is illustrative of all technical arts of the country—they will do much to enable us to compare buildings but little generally known, and to draw, perhaps, correct and definite conclusions as to the true position of the architectural arts as practised therein, for comparison or contrast with the styles being worked out in surrounding countries at the same epochs.

The inhabitants of these countries were of a mixed race, Walloons and Flemings predominating in about equal proportions; nevertheless, in spite of such Celtic admixture, the earlier buildings are of a distinctly German character, and differ in all respects from contemporary works in France. The solid western screens of the churches of Bruges, Maestricht, and Liège are counterparts of those of Westphalia; the western towers, with their abutting turrets, of Nivelles, Celle, and Maestricht are merely reproductions of Magdeburg and Paderborn; while the towers of Sainte-Croix and Saint-Jacques at Liège and the triapsidal arrangement of Tournai Cathedral in no way differ from similar buildings on the Rhine. There is the same lack of an easy transition from the earlier forms of Romanesque to the complete Pointed Gothic as is found in Germany; and it has been remarked that in Belgium "there is in fact "no First-Pointed, in which the new principle may be seen struggling for life,"† and there is nothing in the crude wall-piercings of Villers to prepare for the complete tracery to be found in almost contemporary buildings. The intimate connection of the Bishop of Liège with the Empire would tend to continue the German influence on the buildings of his province, and we are therefore not surprised to trace so little similarity between the great churches of Saint-Jacques and Saint-Martin at Liège and contemporary buildings of the same class in France. In Flanders other causes led to a continuance of German influence. The establishment of a Kontor of the Hansa at Bruges brought the Flemings into close and continual communication with the German merchants, and although it was with the civil edifices that they were mainly concerned, we find that it was Jan Van de Poele, the architect of their own building and of the Franc de Bruges, who designed the apsidal chapels of Saint-Sauveur at Bruges the unmistakable German character of which is very evident. In Brabant the buildings showed a nearer approach, both in plan and detail, to French models, perhaps due to the residence of the Burgundian dukes in Brussels, as with the churches of Bois-le-Duc and Lierre, and the choir of Saint-Martin at Alost.

There is one peculiar phase of architectural art, however, almost peculiar to these countries, of which the palace at Liège and the old Bourse at Antwerp are the typical examples. The most noticeable feature in them is the remarkable series of decorated columns of eccentric and bulbous shapes, carved in blue stone in low relief, and recalling somewhat those in the Cortile of the Palazzo Vecchio at Florence.‡ It has been assumed that as such peculiar work is portrayed by Mabuse, Lambert Lombard, and other contemporary painters, it was to them and not to architects that this remarkable and undoubtedly picturesque treatment is due.

The period which synchronises with direct Spanish rule over the provinces, under the regents from Alva to Parma, was not a favourable one for architectural art; but the open galleries

* *Histoire de l'Architecture en Belgique.* A. G. B. Schayes. Brussels, 1863.

† *Continental Ecclesiology.* B. Webb.

‡ *Palast-Architektur. (Toscana.)* J. C. Raschdorff. Berlin, 1888.

with corbelled piers of the Hôtel de Ville at Antwerp* suggest Southern influences; while the corner shrines and niches and lamps still remaining throughout Flanders and Brabant preserve the recollection of the Spanish occupation.

In those churches which escaped the depredations of the Gueux may yet be found a vast quantity of rich furniture and accessories, of which Monsieur van Ysendyck gives a great number of the best examples, which even more clearly show the school to which the architecture of the Netherlands was allied. The tabernacles, stalls, pulpits, and altars recall the work of the Northern German churches, and nowhere in France, except in the city of Troyes,† is anything to be found to compare for richness with the jubés of Lierre, Aerschot, and Dixmude. The tabernacles were essentially a German feature, but no example remains in that country of so late and so rich a character as the one at Léau, a cast of which is in the South Kensington Museum.

In the wonderful series of town-halls, markets, and club-houses which abound in the Netherlands we see merely an extension of the same class of buildings found wherever the Hansa had sway,‡ but attaining in Flanders particularly an extent and a beauty only compatible with affluence and artistic skill; while in the more domestic buildings we often find the same lavishness of adornment and the same independence of treatment which indicated the character and position of their wealthy owners.

Of these houses in particular Monsieur van Ysendyck has given us a most varied and valuable collection, particularly from Bruges, Mechlin, and Brussels. Of the series at Mechlin he mentions the name of the architect, Rombaut Keldermans, as having designed the house for the Poissonniers on the Quay au Sol in 1519, as well as the palace for Margaret of Austria in the same city, and other houses there and at Veere. This same Keldermans was engaged on the work of the cathedral, and the examples of his work given are particularly interesting, as showing that, while capable of carrying on purely Gothic design, he perfectly appreciated Renaissance details.

The metal fonts from Hal, Dixmude, Huy, &c., although perhaps not so rich in sculpture as those of Germany and Scandinavia, whence doubtless their suggestion was derived, have a character of their own, and a graceful outline which makes them almost unique. The remarkable blue stone fonts, of which Zedelghem § and Winchester are the best examples, are only represented in Monsieur van Ysendyck's book by Termonde. As these are eminently characteristic of the arts of the country, and undoubtedly a local product—for they all seem to be of the blue stone of Tournai—it is a pity that more illustrations and better elucidation were not devoted to this branch of the subject.

The copies given of original drawings for the towers at Mons, Louvain, &c., are interesting, but would have been perhaps more valuable had some portions been produced in actual facsimile, to enable one to judge better of the method employed and the character of the line, &c., for comparison, for instance, with the sketch-book of Villars de Honnecourt; and it may be regretted that in the drawings || of the old gates of Bruges, most of which are still standing, no means were found to enable one to identify the drawings with the existing remains.

It may seem ungracious, after thus showing how valuable an addition has thus been made by Monsieur van Ysendyck to the literature of the Art of the Netherlands, to hint even that it is not as good as it might be. Its chief fault is unfortunately too common, and is one

* *Vide* Plate 14, litera A, and Plate 7, litera D.

† The jubé of the Cathedral of Troyes was made under contract, dated 28th October 1332, by Henri Soudan and Henri de Bruxelles, master masons.—*Les Tablettes Historiques de Troyes*, M. A. Aufauvre. Troyes, 1858.

‡ See the series of town-halls, &c., in *Denkmäler Deutscher Renaissance*. K. E. O. Fritsch, Berlin, 1891.

§ De Caumont, *Abécédaire ou Rudiment d'Archéologie (Architecture religieuse)*. Caen, 1859, with plate on p. 258. See also *Monographie des Fonts baptismaux de Zedelghem*. J. O. Andries. Bruges, 1853. || Plate 12, litera P.

almost invariable in books published the other side of the Channel—it has no index. Subjects, periods, and even buildings are all in confusion; and if, for example, one wishes to consult the views of Bois-le-Duc, all the volumes have to be searched to discover the scattered plates, of which there are no fewer than six under various heads or letters. Except for a few pages of text containing but little information, there is no attempt made to deal with the subject so well and so extensively illustrated, and one can only express a hope that Monsieur van Ysendyck may be induced yet to add another, however small, volume which may contain a copious and analytical index of this great work, and enable it to be used, as it deserves to be, as the most important addition made of late years to our knowledge of the Art of the Low Countries.

II. THE IRONWORK AND SMITHING. By J. STARKIE GARDNER.

THIS sumptuous work is mainly devoted to architecture, but comprises representations of the allied crafts. Of these, the matchless wood-carving of the Low Countries, almost rivalling in delicacy and refinement the contemporary painting of Memling or the Van Eycks, and the superb stone-carving in the rich Burgundian rood-lofts, towering tabernacles, and civic mantelpieces, claim the place of honour. Furniture, tapestry, and embroidery come next; pottery has but three plates; one example does duty for all the laces; leather-work is as badly off; only one of the many magnificent organs of the Netherlands is illustrated; while stained glass, table glass, pewter, clocks, dinanderie, peculiarly national and not unimportant industries, are conspicuously omitted. Full justice, however, has been done to other kinds of metal-work, and especially the work of the blacksmith; and since this, when collected together, is not only by far the finest, but indeed almost the only series of illustrations of this art in the Low Countries, I proceed to notice it in some detail. I say “when collected together,” since it is impossible to form an idea of it without turning over the whole of the pages of this immense work. The rather arbitrary alphabetical arrangement, duplicated as this is by the issue of the plates in two consecutive series, renders the study of any particular subject exceedingly difficult. Thus, if we look in the book for “*Ferrounerie*,” we find but two plates, and under “*Serrurerie*” not one; yet seventeen plates are devoted exclusively to iron objects; in fifty others ironwork is the most prominent feature, and altogether it appears more or less conspicuously in fully 200 plates. As the letterpress is unimportant and was discontinued altogether in the second series, those who want to make use of the work will find it far more convenient to eliminate the some 220 plates which are merely facsimiles of old drawings and engravings—for the most part already familiar—and to separate the rest into architecture proper and *meubles*. The architecture can be classified into ecclesiastical and lay, and further subdivided, and the groups finally arranged chronologically and handily for reference.

The ironwork—and, indeed, the arts generally—of the Netherlands appeal to us in no ordinary manner. The similarity of climate, the long-established bonds of trade, and some racial sympathy seem to have combined to harmonise the Flemish-Dutch building arts with our own; while the influx of refugee craftsmen during the Spanish rule and the advent of Dutch William to our throne seem to have completely united them. Hence the art represented in these pages satisfies us like our own. They, moreover, happily dispose of the calumnies of some recent French writers, who affect to believe that the Flemings were the mere chapmen of Europe, stealing what ideas they met with on the road and reproducing them at home. This was not the case, since no people have more often shown originality in Art than the inhabitants of the Low Countries. The fact that the arts of their next neighbours, France and Germany, were entirely opposite in character, yet both overflowed to meet on common

ground in the Netherlands, was undoubtedly a most happy circumstance for a people so well able to take advantage of it. They only received them, however, to melt and fuse them in their own crucible, minting them into something with their own stamp, to be returned broadcast, thereby often stimulating emulation and new departures in other countries. That the countrymen of the Van Eycks and Rubens were no mere copyists in their architecture and kindred crafts this work most amply demonstrates; and where great similarity exists an examination of dates disposes of the charge. When the Italian Renaissance came, no nation set itself to study its spirit so profoundly, or so quickly and completely grafted its beauties on to their own art. They were the masters who taught us how to adapt and fit its architecture and ornament to the needs of our damper climate without sacrificing its beauties, and helped its introduction into Germany, and even into France and Spain.

The pages of this book not only teach what to see in the Netherlands, but beget the desire to see it. A few hours will land us at Ostend, Antwerp, or Rotterdam. The presentation of an unmounted photograph at any Belgian station, an hour before the train leaves, will procure a season ticket, available *ad libitum* over all the Government lines of Belgium for a fortnight, for the modest sum of twenty-five, thirty-five, or about fifty francs, according to class. Hotels are cheap in Belgium, and in Holland much as in England. There are no royal palaces or feudal seats as in France, nor country seats of the nobility as in England, to divert attention from the towns, which are for the most part grouped in small compass. The mountainous country, which begins in Brabant beyond Louvain, has few towns which really must be visited; while the great desert stretch of the Campine and the three provinces north of Overijssel have none.

The chronicles of the Netherlands are singularly reticent with regard to ironworking; and if the history of the craft is obscure in most countries, it is an absolute blank in this. It is easy to see that it never ranked among the staple industries, and that the guilds of smiths and armourers were of small importance in the communities of Ghent, Bruges, Ypres, or Antwerp, if they existed at all in the latter. Brussels appears, according to chroniclers, to have been famous for armour, perhaps till it passed into the possession of the Duke of Burgundy; Louvain is frequently mentioned for locks; and Tournay was long famous for artillery. As an architectural adjunct, ironwork does not seem to have been produced till two or three centuries later than in England or France, and the oldest examples—vine-pattern stamped hinges at Liège—are clearly of French origin. Of undoubtedly native work there is nothing older than the straps fringed with trefoils which protect the principal doors of the Brussels Hôtel de Ville, and the magnificent stamped vine-pattern hinges of Notre-Dame at Hal, of which a cast is in the South Kensington Museum. Both are of the fifteenth century (see *Portail* and *Mauclair*).

The great font cranes are almost peculiar to Belgium, and of these an almost complete series is brought together, except that the Louvain example, the finest and earliest of all, is omitted. This is the more curious, as the invention may with some probability be attributed to old Josse Matsys, the reputed father of Quentin, and the Louvain crane is an authentic specimen of his handiwork. As blacksmith, architect, and clockmaker to the Municipality of Louvain, he is an interesting figure. Most of his work executed for the Hôtel de Ville has been allowed to disappear, but the famous Antwerp well-cover is undoubtedly by the same hand as the Louvain font crane, and hence really a work of Matsys. Our author repeats the common error of attributing it to the painter Quentin, as to whose early career much uncertainty exists. The last edition of the *Encyclopædia Britannica* identifies him with Quentin, second son of Josse Matsys, born at Louvain in 1466, and states that he removed to Antwerp when he was elected Master of the Guild of Painters in 1491. The Catalogue of the

National Gallery, published in 1890, scouts the whole story connecting him with the blacksmith's craft, and definitively states that he was born in Antwerp before 1460, and not in Louvain. In any case, as the well-cover is dated 1470, he could hardly have had a hand in its production. The enormous influence that this strikingly bold and original work had on the smithing of Germany in particular cannot be overestimated. It started a new school which spread over the whole country, and resulted in the thistle-work which became so characteristic of German smithing. The cranes illustrated are at Hal, Bois-le-Duc, Zutphen, Breda, Ypres, and Dixmude, and date between about 1470 and 1620.

In omitting the beautiful and unique chandelier also at Louvain, another of the five existing pieces attributed to Quentin Matsys, the author again seems a little unjust to this most interesting town. There is, however, an illustration of the fine chandelier in Saint-Bavon, surmounted by the dragon of Ghent, which still exists in its pristine glory of gold and colours; and also of a rich corona at Bastogne, of which several almost duplicate specimens are known. Nothing denotes more surely the high artistic level of a people than this willingness to lavish all their skill on a material destitute of intrinsic value, and to give it the place of honour in their noblest churches.

A very clean sweep has been made of iron grilles and tomb-rails, more complete even than in France or with us, perhaps because already as far back as the Renaissance they were being replaced by bronze and marble. No delineation even exists of the iron grille made by Gilles Wolghe of Bruges, in 1502, for the sumptuous tomb of Mary of Burgundy, which, by-the-by, has been unaccountably passed over by our author; nor of that made for the tomb of the third Duke of Guelders, reported to have been taken to the Tower of London. A strong grille from Saint-Bavon has actually found its way to the South Kensington Museum; and though glimpses of rich iron screens and grilles are often seen in the interiors of churches by Flemish and Dutch painters, nothing remains in the country in the least degree comparable to the screen reputed to have been made for the tomb of Edward IV. at Windsor, or even equalling the gate to Bishop West's chapel in Ely Cathedral, both of which tradition assigns to Quentin Matsys, while a critical examination of the work itself leads us to ascribe them to the atelier of the Matsys of Louvain. Perhaps the honour of the first introduction of railings on a large scale in the open air is to be credited to the Low Countries, for prior to 1555 the space in front of the palaces of the Dukes of Brabant in Brussels was enclosed by iron railings. The rails (see *Garde-corps*) in the market-place at Mechlin, by Jean de Cuyper, junior, blacksmith of that town in 1531, are fine specimens of mediæval forging. Windows at the same period were habitually grilled, some particular window in public buildings being often selected for a much richer treatment than the rest, perhaps as a kind of safe rostrum. Fine examples will be found under *Trarêes* (Town Hall, Kampen), and under *Hôtel de Ville* and *Porte* (Nimègue). Iron, or sometimes lead, finials surmounted all gables, turrets, and spires; the streets and public places were furnished with wells and fountains under iron canopies; and lamps or signs hung from iron brackets at every street corner. Little, however, of all this is left, the mediæval street ironwork having disappeared as completely as with us, and more so than in France or Germany. A few pieces are preserved in museums, and an occasional one remains *in situ*, like the exquisite sixteenth-century bracket holding the sign of the curry-comb in the *Marché du Vendredi* at Bruges (see *Enseigne*). The glorious school of Spanish smithing which arose in the sixteenth century was directly due to the connection with the Low Countries, and the extensive use made of ironwork in the cities of Flanders and Brabant at that period.

A feature almost peculiar to the Netherlands, or to brick cities inhabited by its refugees, is the use of highly decorative wall-anchors, working in the owner's initials,

merchants' marks, dates of buildings, or nature of the inmates' occupation. Examples abound all through these volumes, some dating as far back as the end of the thirteenth century. A Royal Commission published in 1866 as many as sixty-eight sets of these anchors then existing at Ypres, and by no means exhausted them. Few locks and handles are illustrated, and of these about half are foreign (see *Heurtoirs* and *Ferromneries*). Under *Coffres* we have a chest from the *Salle des Chartes et des Archives des Halles* at Ypres, an example of the *Coffres Flamands* which were such indispensable articles of household furniture in the days of Edward IV., many of which exist in our municipal and exchequer chests, and in parish churches. The *tire-liard*, or well-known hexagonal alms-box, of which so fine an example stands by the entrance to St. George's Chapel, Windsor, is not represented, though so typically Flemish. The whole class of richly-worked domestic ironwork, to which the expiring energies of the Flemish smiths seem to have been devoted when finally cowed by Spanish tyranny, is similarly unrepresented, with the exception of a couple of examples or so of the tall *landiers* shown incidentally under the heading *Cheminées*. Some good examples of cast-iron fire-backs and dogs occur under the same heading, the oldest dating from 1543, or posterior to our earliest specimens.

On the other hand, a remarkable series of domestic hinge-work, for which the Flemish were especially famous—a well-known class of hinge having indeed been universally known as the “Flamand” until quite recently—may be gathered under the headings *Fenêtre*, *Porte*, *Vantaux*, *Vantail*, *Volets*, *Sculptures*, *Armoire*, &c. It is quite obvious from a study of these and the specimens in the Bruges, Ghent, and Antwerp Museums that the whole of our Jacobean door- and window-furniture was but a rude imitation of the Flemish, and that the Germans were also repeatedly influenced from the same source. The rich tabernacle grille from the ancient chapel of the Counts of Flanders at Ghent, of which we have one half in the South Kensington Museum (see *Vantaux*), and another singular door (see *Vantail*) of the fifteenth century, and a third under *Ferromneries*, indicate that our somewhat rare flat ironwork grilles, &c., which disappear before Charles II., were also derived from the Low Countries. That we were so dependent on foreigners for art inspirations need excite no surprise, since until nearly the end of the seventeenth century we were exclusively an agricultural and a trading country, and in no way concerned in manufactures.

But a crowning glory will be shed on the Netherlands ironworkers if it prove that they were the first to adapt their work to the new Italian Jesuit architecture, commonly known as *Baroque*, which certainly, as imported from Italy, was destitute of any decorative ironwork at all. When Rubens, whose taste this style peculiarly suited, came back from his long stay in Italy, and built the Jesuit church in Antwerp in 1614, some ironwork was needed which had to be designed in harmony with the building; and in this way the full, curving, rich, and scrolly ironwork which suddenly captivated Europe may have originated. Nothing short of the immense influence of Rubens and his school can be believed capable of introducing a new style, which, with nothing to lead up to it, burst on France under Louis XIII., and on England a little later, and attained such immense proportions in France under Louis XIV. and Louis XV., and in this country under William and Mary, and under Anne. Few examples of this later style will, however, be found in this work. The ironwork of the Low Countries thus, if not rivalling that of France, Germany, or Spain in magnificence, holds its own in interest, and may claim to have repeatedly played the chief rôle in the evolution of the blacksmith's art as a whole. It was the latest to enter the field of rivalry, except Spain, but its sphere of influence was the most extensive, and its record must be studied in all the civilised countries of Europe.



9, CONDUIT STREET, LONDON, W., 14th March 1895.

CHRONICLE.

THE LONDON BUILDING ACT 1894.

The Tribunal of Appeal.

The following regulations as to the procedure to be followed in cases of appeal, and the fees to be paid, have been made by the Tribunal and approved by the Lord Chancellor, in accordance with Section 184 of the London Building Act 1894:—

1. *Generally.*—All communications shall be written, type-written, or printed on foolscap paper.

All drawings shall be on tracing linen and in duplicate.

Any further drawings or copies of drawings shall (if so required by the Tribunal) be supplied by the Appellant.

2. *Time and place for lodging Appeals.*—Appeals shall be addressed to the Tribunal of Appeal and shall be lodged and the fee thereon shall be paid at the office of the Tribunal, No. 13A, Great George Street, Westminster, S.W., by hand, within the period (if any) prescribed by the Act; and where no period is so prescribed, within fourteen days after notice of the decision, determination, certificate, requirement, or regulation appealed against has been given to or served on the appellant.

3. *Documents to be lodged with Appeal.*—The appeal, which shall specify the section and subsection under which it is made, shall be accompanied by copies of the original application and of the decision, determination, certificate, requirement, or regulation appealed against, with copies in duplicate, on tracing linen, of all plans or drawings relating thereto. These documents shall be supplemented by a short statement of the facts, setting out the grounds of the appeal, together with a list of the names and addresses of all parties to whom notices under the original application and of this appeal have been given.

4. *Notices to be given by the Appellant.*—The appellant shall also within the time limited for lodging the appeal give notice of such appeal to the London County Council, and in cases where

the original applicant is not the appellant, to such applicant; and in case of an appeal under any of the following sections also to the persons mentioned opposite such section.

Notices to be given other than to the Council and Original Applicant:—

Section	With Reference to	Persons to whom Notice to be given.
5 (8)	The Superintending Architect's determination as to the level of the ground.	The Superintending Architect. The District Surveyor. The Local Authority.
13 (3)	The Council's determination that the prescribed distance shall be greater than 20 feet from the centre of the roadway.	The Local Authority. The Owners and Occupiers of the nearest building on each side of the proposed building.
13 (4)	The Council's consent to the erection, &c., of any building, &c., at a distance less than the prescribed distance from the centre of the roadway.	The Local Authority.
19	The refusal or conditional grant of Council's sanction under Part II. to Streets.	The District Surveyor. The Local Authority.
19	The refusal by a District Surveyor of his Certificate to plans of a building or structure to be altered or re-erected under section 13.	The District Surveyor. The Local Authority.
25	The Certificate of Superintending Architect as to general line of buildings.	The Superintending Architect. The Local Authority and all other persons entitled under Sec. 24 to notice of the Superintending Architect's Certificate.
29	The Certificate of the Superintending Architect determining in what street or streets a building or structure is situate.	The Superintending Architect. The Local Authority and all other persons entitled to notice of the Superintending Architect's Certificate.
43 (i) & (iii)	The refusal of a District Surveyor to certify plans.	The District Surveyor.
44	The Council's determination in cases where a person desires to rearrange a cleared area.	The Local Authority.
46	The Superintending Architect's Certificate determining the front and rear of a building.	The Superintending Architect.
48 (2b) & (4)	The Council's refusal to allow a building to be erected to a greater than the prescribed height.	Such Owners or Lessees as the Council may under this section direct.
78	The District Surveyor's requirement respecting the construction of public buildings in case of disagreement.	The District Surveyor.
79	The District Surveyor's requirement respecting the conversion of any building into a public building in case of disagreement.	The District Surveyor.
122	The Council's refusal to permit, or any of the Council's regulations as to, or the decision of their Engineer, or conditions imposed on the Council's grant of a license for the erection of dwelling-houses on low-lying land.	The Council's Engineer. The Local Authority.
132	The refusal of a District Surveyor to grant a Certificate as to sky signs.	The District Surveyor.

5. *All Documents to remain deposited in the office of the Tribunal.*—All documents lodged with an appeal shall remain deposited in the office of the Tribunal as records of the case.

6. *Hearing of Appeals.*—After the lodgment of an appeal the earliest convenient appointment shall be arranged for the hearing of the appeal, and shall be communicated to the parties by letter. The fees in respect of the view (if any), the hearing, and order, shall be paid by the appellant before the hearing.

Appeals shall be heard at such place as the Tribunal may from time to time determine.

7. *Procedure at the hearing of Appeals.*—The hearing of appeals shall be open to the public.

The full Tribunal of three members shall sit to hear appeals.

The London County Council and the parties interested may appear before the Tribunal either in person or by counsel, solicitor, or agent, and the procedure at the hearing shall, subject to such variations as the Tribunal may think fit, be similar *mutatis mutandis* to that adopted on the trial of actions before the High Court, thus:—

Preliminary objections, if any, to be heard and disposed of.

Appellant to state his case and call his witnesses.

Respondent to state his case and call his witnesses.

Any other parties interested to be heard.

Appellant to reply.

8. *Decision of the Tribunal.*—The decision of the Tribunal shall be embodied in an order in writing under the seal of the Tribunal.

9. *Order and documents to be Filed.*—The original order and all documents relating thereto shall be filed and preserved in the office of the Tribunal.

10. *Office copies.*—Office copies, under the seal of the Tribunal, of orders and other documents shall be upon payment supplied to any party to an appeal, and shall be admissible in evidence for all purposes of the Act and Regulations to the same extent as the original would be admissible. All copies of orders or other documents appearing to be sealed with the said seal shall be deemed to be office copies without further proof.

11. *Documents open to inspection.*—The file of documents shall be open to inspection by any person at the office of the Tribunal between the hours of 11 and 3.

12. *Fees.*—The fees to be paid to the Tribunal by the appellants and other parties are as follow:—

	*Higher Scale.	†Lower Scale.
	£ s. d.	£ s. d.
Lodging Appeal	2 0 0	1 0 0
View	2 0 0	1 0 0
Hearing	5 0 0	2 0 0
Order	2 0 0	1 0 0
Stating Special Case	2 0 0	1 0 0
Inspection of an Order	0 1 0	0 1 0
„ File of Proceedings	0 2 6	0 2 6

Office copies 6d. per folio. Plans, &c., according to work involved.

Copies other than office copies, 4d. per folio. Plans, &c., according to work involved.

The preceding Regulations as to procedure and fees to be paid were made by the Tribunal of

* The higher scale shall apply to cases relating to lines of frontage, laying out of streets, open spaces about buildings, height of buildings, conversion of buildings into public buildings, and low-lying lands.

† The lower scale shall apply to all other cases.

Appeal in accordance with the London Building Act 1894, section 184, this twenty-first day of February 1895.

For and on behalf of the Tribunal,
ARTHUR CATES,
Chairman of the Tribunal.

Approved: HERSCHELL, C.

1st March 1895.

All communications to be on foolscap paper and to be addressed to the Clerk of the Tribunal, No. 13A, Great George Street, Westminster, S.W.

All payments to be made in cash; cheques will not be received.

Architects' Registration Bill.

A Bill to provide for the Registration of Architects, prepared and brought in by Mr. Atherley Jones, M.P., Mr. Coddington, M.P., Mr. Walton, M.P., and Mr. Ernest Spencer, M.P., was read a first time in the House of Commons on the 19th ult., and it is down for second reading on the 25th inst. The Bill is now printed, and appears to be identical with that introduced in 1893, which would have been smuggled through on the 11th May 1893, in the small hours of the morning, had not the late Sir Edmund Lechmere stayed in the House beyond the usual hour to oppose it—a favour that deserved and received from the representatives of the Institute the most cordial recognition.

Suffice it to add that the Architects' Registration Bill, now somewhat ancient history, is not promoted, nor is it in any way supported, by the Royal Institute of British Architects.

The late Ewan Christian,
President 1884-86, Royal Gold Medallist 1887.

The following memoir of Ewan Christian has been kindly written for the JOURNAL by one of his pupils, Mr. George H. Birch [A.], F.S.A., Curator of the Soane Museum:—

The passing away from among us, full of years and honours, of a man so distinguished in the profession as Ewan Christian deserves to be recorded fully, and his professional career traced systematically, while the recollections of his strong personality and his skill as an architect are fresh in our memory. Over fourscore years at the time of his death, age had not dimmed his eyesight nor impaired his judgment. Active and vigorous to the last, there were none of those symptoms which we look upon as inseparably connected with old age, when men arrive at that limit when their “strength is but labour and sorrow.” Of him it might be truly said, “He died in harness”; like Edward Barry, George Edmund Street, and William Burges, called away when the productions of their graceful fancy were being realised; and yet unlike them in one respect, for, while they were removed in the vigour and prime of life,

Ewan Christian had passed the allotted term and was still at work.

He was born on the 20th September 1814 in Marylebone. He came of an old Cumberland family—a family always intimately connected with the Christians of the Isle of Man, who, from the fourteenth century downwards, had given so many “Deemsters” to the government of that island. His early years and boyhood were passed at Christ’s Hospital—first at Hertford and then in Newgate Street—and it may be that he owed much of his good health and freedom from fatigue in after life, and his active and strong disposition, to the healthy surroundings, the open-air life, and almost Spartan fare of the school in those days. In every sense he remained an “old Blue” to the end of his days, always speaking of his school with affection, ever ready to help those who required his help and whom he had known in former years. He became a Governor afterwards, and up to the very last assisted the governing body of the Institution with his sound advice and mature judgment in the vexed question of the proposed removal to some place far distant from its old associations and historic site on account of the parrot-like cry of “insanitary surroundings.”

After leaving school he was articled to Matthew Habershon—this was in 1830—in whose office he was distinguished both for his industry and zeal in acquiring a knowledge of his profession. From Habershon’s office he passed to that of Brown of Norwich, who was surveyor to the Cathedral. Returning to London, he was for some time with Mr. Railton, with whom he worked on one of the competition sets of drawings for the Houses of Parliament—the busy record of a busy period. His close application to work injured his eyesight, and it became absolutely necessary for him to abandon for the time all fine drawing, so he became a Clerk of works, and superintended the progress of several buildings, especially St. Margaret’s, Lee, which, since then, has been largely altered and transformed by Mr. James Brooks. Another building which he superintended as Clerk of works was the large Union at Colchester. At this period he was also helping Habershon, and making sketches for the latter’s work on half-timbered houses. All this varied experience, undertaken and carried through with that devotion to duty, that complete mastery of all small details and minute attention to them which eminently distinguished him in whatever he undertook, made his advice and guidance in after life so valuable to those who had to submit to him in his official capacity the drawings and specifications of any building. His reports as a Clerk of works were perfect models in their way; nothing was forgotten or unrecorded, and no defect was unnoticed. Strictly true and upright himself, he looked for the same in others, and woe betide them if they were found wanting.

In 1841–42 he went abroad, studying for a time in Italy, his travelling companions being Professor Hayter Lewis, happily still surviving, the late Sir Horace Jones, and the late Arthur Green, a nephew of the late Sir Wm. Tite. Very beautiful and accurate were some of the sketches he made. The writer remembers on one occasion being shown a minute sketch of some lovely Italian work which he took for a print. “Print! no print—look again; “you should use your eyes as I did when I made “the sketch.” It would astonish a good many to see these sketches and contrast them with the “scratch and splash” style of the present day.

On his return he commenced practice, taking part in several competitions, many of which he gained. About this time he built his first church at Hildenborough, near Tonbridge, Kent. The restoration of the old church of St. Mary, Scarborough, was the result of a competition in which he was successful. From that time his position as an architect was assured, and his works followed in rapid succession. His first two churches, Hildenborough, near Tonbridge, and St. Luke, Knutsford Place, show a distinct advance on the usual style of church at that period, although they may fall short of the high standard of the ultra-correct ideal of the *Ecclesiologist*. He had a thorough knowledge of old work, and how carefully he had studied it is exemplified in one of his published works, *Skelton Church, Yorkshire*. His hatred of all shams in architecture was proverbial; his church work was invariably honest and sound, and never in a single instance flimsy or unsubstantial.

He had become a student of the Royal Academy early in the “thirties,” and must necessarily have attended the lectures on architecture given by the then Professor of Architecture, Sir John Soane, with whose works he could have had but little sympathy. A fellow-student, older than Ewan Christian, still alive and hearty, who well remembers him, and who only recently renewed an acquaintance first formed sixty years before, when telling the writer of his interview, said: “I found “him just as enthusiastic in manner and conversation as he was sixty years ago.”

It would be a long record to give his works in their successive order, and one can only select the most notable. Among these was Carlisle Cathedral, then in a terrible state of disrepair: its choir had been covered with a plaster vault, which he removed, opening out the old oaken roof above; and subsequently he had almost to rebuild the short transepts and the only surviving bays of the nave. He also built a new church at Carlisle. The Collegiate Church of St. Peter, Wolverhampton, being much decayed, from the soft nature of the red sandstone of which it was built, was substantially repaired by him; while a ruinous chancel, which had usurped the place of the old one, was entirely rebuilt; and

so conservative was he that he rebuilt it as a long collegiate chancel, although the Deanery of Wolverhampton had for years ceased to exist. Another careful "restoration" in the best sense of the word was the fine old Minster at Southwell, now a cathedral church. As an instance of his extreme carefulness, when it was a question of rebuilding the leaden spires that once adorned it, he came across a sketch by J. M. W. Turner, R.A., showing these spires; he preferred to follow that sketch, rather than make them higher—which many would have preferred—because, he said, "Turner was always correct in his architectural drawings, and he sketched those spires as 'he saw them and as they undoubtedly existed.'"

In the year 1850 he was appointed Consulting Architect to the Ecclesiastical Commissioners—a most important appointment, though not a very enviable one, it being incumbent upon every architect to send in drawings and specifications of any ecclesiastical building, whether church or parsonage, requiring a grant from the Commissioners. On these drawings he had to sit in judgment, and sometimes, unfortunately, very severe judgment; confining himself principally to details of construction and plan, and never interfering much with the design, unless money were absolutely wasted on unnecessary ornament. Some of his professional brethren may have thought him "exacting and capricious"; but he was always "just," and his requirements were invariably dictated by sound common sense.

No one could have filled that position better than he did, without "fear or favour"; whether the drawings before him were the works of an intimate friend or a perfect stranger, it was precisely the same to him; he had a duty to perform to the Commissioners, and he did it. With regard to the churches and parsonages which he built for the Commissioners, where they found all the funds, the same rule he applied to others he applied to himself; he would rather spend money on sound work and solid foundations which did not show, than on external showiness of detail and ornament, which might have made his buildings more attractive, but at the expense of solidity. During the long period of forty-four years he held that position he built many large and fine churches, which are distinguished more for their quietness and repose than for architectural effect, although they are by no means wanting in that. Among the principal—for the list is too long to give in its entirety—are: All Hallows, Bromley-by-Bow; St. Benet's, Stepney; St. Augustine's, Stepney; St. Paul's, Clerkenwell; St. Mary's, Hoxton; Holy Trinity, Dalston; St. Thomas's, Finsbury Park; and others at Fulham, Poplar, Spitalfields, Kentish Town, and other populous and crowded suburbs of London. One of his finest and best churches, built by private munificence, was St. Mark's, Leicester. His various parsonages

are far too numerous to mention; but the group of houses for the minor Canons of St. Paul's, which form a little cathedral-close in themselves, with an entrance under an archway from Warwick Lane, deserve more than passing mention.

His domestic works were also very numerous, and among them are the large mansions or manor houses of East Lavington for the Hon. Pleydell Bouverie; Lillingstone Dayrell for Mr. Robartes; Woodbastwick for Mr. Cator; House in Cornwall for Mr. Vivian; and Burecote, Oxon., for Lady Crawford. In all these and many others there is the same feeling displayed—quiet repose, no straining after picturesque effects, genuinely English in character, with many mullioned windows and tall chimneys and red-brick gables, carrying on the tradition of the "stately homes of England," except in neighbourhoods where stone was procurable, for he never neglected local material.

Lastly, in London, bringing his long professional career to a close, his architectural taste and genius are apparent in a building for the Economic Life Assurance, Bridge Street, Blackfrairs, a façade where for once he allowed the results of his Italian studies of brick and terra-cotta to be utilised; reverting again to a more English type for the façade of Messrs. Cox's Bank at Charing Cross; and, last of all—virtually completed externally, and only lacking a few fittings internally, but which, alas! he was not permitted to see finished—the National Portrait Gallery. In this building there were difficulties to be overcome, and one may hope for a favourable verdict, when the hoardings are all cleared away, that he did successfully meet those difficulties. There was the existing National Gallery, with its returned front facing St. Martin's Church, and this Neo-Græco work of Wilkins' poor commonplace design—not so much the fault of Wilkins, but arising more from the fact of his having to use up the front of Carlton House, and the proportion of the Order used there regulating the proportions of his building. Now, again, this in its turn has influenced Ewan Christian's design, for in the new portion of the National Portrait Gallery this work of Wilkins' had to be continued and harmonised, and it is not until one arrives at the corner where that work could be shut out that Christian had a free hand. In this enumeration of some of the principal works of his long and busy life it is possible to give but a condensed account of them, and one can only mention such important works as the Convalescent Homes at Seaford and Folkestone.

He was one of the oldest members of the Institute, for he was made an Associate in 1840, became a Fellow in 1850, Vice-President, and President in 1884–1886. During his presidency the Institute celebrated its Jubilee. In 1887 he was the recipient of the Royal Gold Medal.

In addition to the post of Consulting Architect to the Ecclesiastical Commissioners, he was also

Consulting Architect to the Lichfield Diocesan Church Building Society and to the Carlisle Diocesan Society, and was one of the architects of the Incorporated Church Building Society—all three, however, purely honorary appointments. In 1887, in consequence of the passing of the Bill for the City of London Parochial Charities 1888, he was appointed Consulting Architect to the Charity Commissioners, in whom were vested all the funds derived from the various charities connected with the old parish churches in the City. In this capacity he had to visit and report on the actual state of each church, and what sum of money was necessary, not only for the repairs to each then needed, but also what sum was necessary to keep them annually in repair. Every report was accompanied with a plan of the church and a detailed estimate of repairs; and these series of reports, forming the most complete account of the City churches ever written, are a monument in themselves to his untiring zeal and business capacity.

His striking personality was remarkable; to many he might have appeared grim and unapproachable, but under that somewhat stern exterior there lurked the kindest and best of natures and warmest of hearts. Once strike a chord and the whole nature of the man blazed out in responsive echo; he would be carried away by enthusiasm, scarcely finding words to express the fulness of his heart. Boundless in his charity, many a recipient of that bounty will feel his loss. To those in his employ he was ever a kind and generous master; a terror to wrongdoers from that impatience of wrong which was so characteristic of him, yet withal he could be patient and forgiving. Of his private life it does not become one to speak, for “through all the track of years he wore the white flower of a blameless life.” But in his public capacity we never shall look upon his like again. Indeed, we can ill spare him, and his closing words in his Opening Address to the Institute in 1884 read like a legacy to his professional brethren:—“We have seen, I think, that the aim of the Founders of this Institute was high and noble; let our standard in the future be raised still higher. Their work was begun in weakness, let ours be continued in strength; and putting aside all petty jealousies, let us combine not for mere personal advantage, but in the truest and most liberal sense, for the advancement of our art, and the establishment of its practice on that broad basis of honourable principle which alone is worthy of the noble profession to which we belong.” This was no empty sentiment, but the guiding principle on which he acted throughout his professional life.

The late Edward Graham Paley [F].

Edward Graham Paley, of Lancaster, whose death occurred on the 23rd of last January, had

been a Fellow of the Institute since 1871, and had served on its Council in 1873 and 1874, and again during the four years 1881 to 1884.

Paley was born on the 3rd September 1823, the son of the Rev. Edmund Paley, Vicar of Easingwold, near York, and grandson of the eminent divine, the author of the famous *Evidences*. Educated at Christ's Hospital, London, upon leaving school he went to live at Lancaster, where he became a pupil of the late Edmund Sharpe, architect of that city. Devoted to his art, he early gave promise of making his mark in the profession, and at the age of twenty-one had inspired such confidence that he was entrusted with the entire superintendence of the improvement to the frontage of Hornby Castle, which was carried out according to his own designs. On the completion of his articles in 1845 Mr. Sharpe admitted him into partnership. The energy and enthusiasm displayed by the junior partner had their effect in a rapidly extended business, the firm acquiring a high reputation throughout the North of England for the excellence of their designs, and the thoroughness with which the works undertaken by them were carried out. Among their chief buildings were the parish church of Wigan, churches at Knowsley, Lever Bridge, and Rusholme; new halls at Capernwray near Lancaster, and Ince near Chester; and extensive additions to the County Lunatic Asylum and the Castle at Lancaster. The partnership endured till 1851, when Mr. Sharpe retired, and henceforth until 1868 Paley carried on the business alone.

Family traditions had bred in Paley a love for things ecclesiastical. Church architecture had always been his especial study, and his name at this time became widely known in connection with the building and restoration of churches in all parts of the northern counties. He designed and carried out the new Roman Catholic Church of St. Peter (with presbytery, schools, and convent) at Lancaster; St. Thomas's, Blackburn; St. Mark's, Preston; the parish church, Bolton-le-Moors; the Roman Catholic churches at Garstang and Yealand Conyers; St. George's and St. James's, Barrow-in-Furness, and others too numerous to mention; his restorations and enlargements including the parish churches of Winwick, Cartmel, Lancaster, Burnley, Easingwold, Crayke, Ulverston, and Kirkby Lonsdale. Among his public buildings during the same period were the Royal Albert Asylum, the Royal Grammar School, the savings bank, and the cemetery buildings at Lancaster; extensive works at Barrow-in-Furness, including stations and hotel for the Furness Railway Company; and a number of county mansions and halls, schools, parsonage houses, &c.

In 1868 Paley became associated with Mr. H. J. Austin. Since that date, in addition to a

large number of county residences—for such clients as the Duke of Devonshire, the late Lord Winmarleigh, the late Earl Bective, Sir J. Ramsden, and Sir Gilbert Greenall—public buildings, schools, offices, banks, &c., the firm have been responsible for the design and erection of over forty new churches, and an almost equal number of restorations. It is stated, indeed, that during his professional career Paley was connected with the building or restoration of no fewer than 250 churches, carried out at a cost which, roughly speaking, may be computed at £1,000,000. His was one of the firms selected to send in plans for the new schools of Christ's Hospital. A few years ago the firm was further strengthened by the inclusion of Mr. H. A. Paley [A.], the style of the firm being altered to Paley, Austin & Paley.

For many years Paley was Bridge Master for North Lonsdale, vacating the post when the control of the county bridges passed into the hands of the County Council. He was one of the founders of the British Archaeological Society, took a warm and deep interest in art education in Lancaster, was secretary of the Art School of that city, and a member of the Corporation Committee of the Storey Institute, which was founded for the development of art and technical instruction.

The late Thomas Edward Bridgen [F.].

The following notice of the late Mr. Bridgen, compiled from information supplied by his widow, has been forwarded by Mr. John Holden [F.]:—

Thomas Edward Bridgen, a Fellow of the Institute since 1888 and a Fellow of the Manchester Society of Architects, who died at his residence, Oak Lynne, Fallowfield, on the 15th ult., occupied a prominent position among Manchester architects. He was born in Wolverhampton in 1832, and received the first part of his education at Southampton, and afterwards completed his studies in France. He was articled to Mr. George Cottingham, of London, and after gaining experience in other offices, amongst which was that of Mr. Nathan Pennington, of Manchester, he entered into partnership with the latter, and the firm continued from 1859 to the present time under the title of "Pennington & Bridgen."

The firm of which Bridgen was the Manchester representative succeeded in obtaining a considerable share of the work in the neighbourhood—to a great extent in competitions—and amongst the works carried out by them may be mentioned the Hospital for Sick Children at Pendlebury, which is stated to be the first built on the pavilion system, now so universally adopted. Then the remodelling of the Manchester Royal Infirmary, which was succeeded by similar alterations in those at Ancoats and Stockport. The Royal Eye Hospital in Oxford Road, Manchester, was built from

their designs in 1885–86. They also erected, for the Metropolitan Asylums Board, a hospital with accommodation for 800 patients at Winchmore Hill, and another at Hampstead for 400 patients. The Churches of St. Saviour and St. Mark at Oxtou, the restoration of the parish church of Bunbury in Cheshire, St. Bride's Church, Brooks Bar, and St. Clement's Church, Chorlton-cum-Hardy, the Inland Revenue Office in Mount Street, Manchester, the premises in Deansgate in the same city for the Queen's Building Society, and the block of offices at the corner of Albert Square and Cross Street, were also carried out by them.

Mr. Bridgen's health failed a year or two since, and for some time he had been unable to attend to business.

Additions to the Library.

Copies of Leaning's *Specifications* and Fletcher's *The London Building Act 1894* have been added to the Loan Collection. The sixth edition of Professor Banister Fletcher's *Quantities*, thoroughly revised and brought down to date, has been received from the publisher [London: B. T. Batsford]. *Lockwood's Builders' and Contractors' Price-book for 1895* [London: Crosby Lockwood & Son], edited by Mr. Francis T. W. Miller [A.], and *Spon's Architects' and Builders' Price-book* [London: E. & F. N. Spon], edited by Mr. W. Young [F.], have been received from their respective publishers.

Mr. Hugh Stannus [F.] has presented *The Decorative Treatment of Natural Foliage*, and *The Decorative Treatment of Artificial Foliage*, being the subjects of two courses of lectures delivered by him before the Society of Arts in 1891, and in February and March 1894. The lectures are illustrated in their pamphlet form. Dr. Murray [H.A.], of the British Museum, has forwarded *The Mausoleum at Halicarnassos*, being an address delivered by him at a meeting of the Glasgow Archaeological Society, held 18th January 1894. *Urban Fire Protection*, being the subject of a Paper read by Mr. Edwin O. Sachs before the Society of Arts, has been published by Mr. Batsford in the "Studies in Municipal Economy" series, and presented by him to the Library.

Mr. Andrew T. Taylor [F.], of Montreal, has forwarded a monograph of the opening of the new library in connection with the McGill University, Montreal. The building was established by the munificence of the late Mr. Peter Redpath, who appointed Mr. Taylor his architect. The latter gives a brief account of the building, which contains arrangements for the disposition of books in advance of the ordinary methods adopted in this country. Mr. Taylor's contribution to the text is likely to be found useful for reference by architects engaged in the erection of libraries.

The *Proceedings* of the Royal Society (vol. lvii., No. 342); *Proceedings* of the Society of Antiquaries (vol. xv., No. 1); *Index of Archaeological Papers* published in 1893, being the third issue of the series and published under the direction of the Congress of Archaeological Societies in union with the Society of Antiquaries; *Transactions* of the Surveyors' Institution (vol. xxvii. Part VI.), containing the discussion on Mr. Henry Blackbourn's Paper on the London Building Act, 1894; *Professional Papers* of the Corps of Royal Engineers (vol. xx.), edited by Captain C. B. Mayne, R.E.; *Transactions* of the North of England Institute of Mining and Mechanical Engineers (vol. xlv., Part 2); *Proceedings* of the Society of Biblical Archaeology (vol. xvi., Part 10); *Annuaire* 1895 (vol. vi.) of the Société d'Archéologie de Bruxelles; *Annuaire* 1895 of the Société Centrale des Architectes Français; and the *Annuaire* 1895 of the Association Provinciale des Architectes Français, have all been received from their respective Societies.

Epigraphia Indica of the Archaeological Survey of India (vol. ii., Part xvi.), containing the index to the volume, has been received.

The first part of the first volume of the Third Series of the *Transactions* of the Exeter Diocesan Architectural and Archaeological Society, presented by the Society, contains numerous Papers, admirably and plentifully illustrated. The Rector of Bideford (the Rev. Roger Granville) contributes "An Account of Sir Thomas Grenville's Tomb in Bideford Church, and also of the "Long Bridge of Bideford," and Mr. C. J. Tait an interesting Paper on "Archæology and "Architecture." Mr. Edmund Sedding's Paper on "Ermington Church" is illustrated by three ground plans of the church at different periods of its history; and the same author also contributes a Paper on Holbeton Church. Notes on the Church of St. Swithin, Woodbury, are contributed by the vicar, the Rev. J. Loveband Fulford. The part, as a whole, promises excellently for the interesting character of the new series.

REVIEWS. XXII.

(64.)

EGYPT AND CHALDÆA.

The Dawn of Civilisation: Egypt and Chaldæa. By G. Maspero, Hon. D.C.L. and Fellow of Queen's College, Oxford. Edited by A. H. Sayce, Professor of Assyriology, Oxford. Translated by M. L. McClure, Member of the Committee of the Egypt Exploration Fund. With Map and over 470 illustrations and plans. Large 80. Lond. 1894. Price 2s. [The Society for Promoting Christian Knowledge, Northumberland Avenue, Charing Cross.]

Professor Sayce, in a preface to this admirable volume, speaks in the highest terms of Professor Maspero's qualifications for writing such a work,

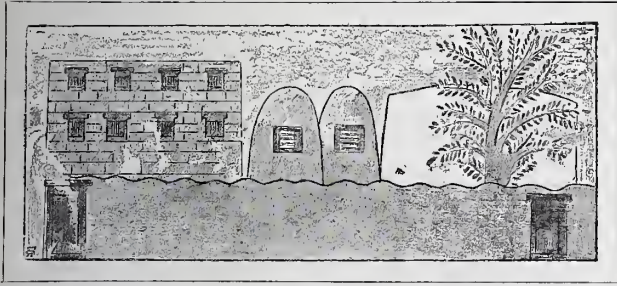
and gives a full measure of praise for the manner in which the task has been carried out. As to his qualifications Professor Sayce says:—"Alike as a philologist, an historian, and an archæologist, he occupies a foremost place in the annals of modern knowledge and research." Regarding the result he adds:—"In the present work he has been prodigal of his abundant stores of learning and knowledge, and it may therefore be regarded as the most complete account of ancient Egypt that has ever yet been published." These words from so high an authority as Professor Sayce will indicate the character of this important book, and form a better introduction to the present notice than anything I might presume to write.

It should not be overlooked that the historians of the present day have turned their attention to architecture, and treated it as a part of history. This has been done by men in the front rank as historical writers. Freeman may be cited as an example. Reigns, dynasties, and battles require much to be added to them in order to give a complete history of any people; and architecture is already recognised as one of the prominent outward signs of the progress a country has made. Architecture requires such a large combination of appliances, including the art as well as the science of any period; it has therefore much to tell of the condition of civilisation to which a people has attained. It becomes at times also a valuable record of the past. Even the remains of a temple give a clue to some of the rites that were performed; and sculptures upon its walls may reveal to us a glimpse of the mythology, of the particular deities worshipped, and their attributes. A ruined palace may convey to us some idea of the grandeur that surrounded the monarch; the mere walls of a house will disclose something about the living, and the tombs will show the treatment that the dead received. This is all fully recognised by Professor Maspero, who has now to be added to the list of those modern writers who recognise architecture as forming a part of history.

As this work deals with the "Dawn of Civilisation," the Egyptian part of it is limited to little more than the period of the "Ancient Empire," which closed with the sixth dynasty, or, roughly, about 2,000 B.C. This leaves out the Theban period, with its magnificent architectural remains, and confines its consideration to the more primitive times. The Pyramids are included, as they belong to the Memphite dynasties. The author cannot be accused of endorsing any of the wilder theories about these monuments, nor can he be said to have added much to our knowledge. A careful account of them is given, and their relation to the period in which they were constructed. Professor Maspero rejects the "accretion" theory, which was first originated by Lepsius. This theory assumed that the size of each pyramid resulted

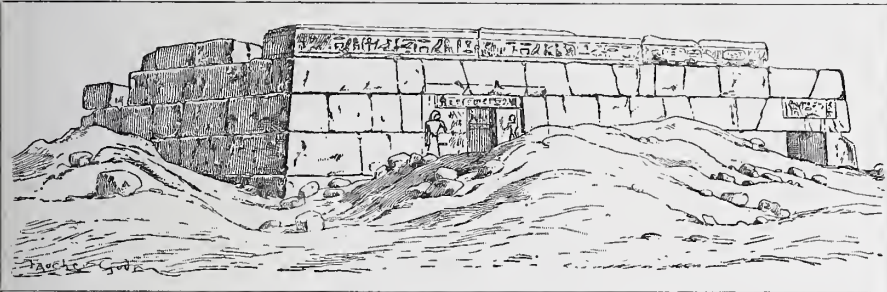
from the years of a Pharaoh's reign; that the Pharaohs on ascending the throne commenced a pyramid as their tomb; and that regular additions were made as time went on. Professor Flinders Petrie is quoted on this head, as he also refuses to accept the theory of accretion.*

The origin of the pyramid is seldom referred to by Egyptologists; that being the case, it is satisfactory to have the opinion of an authority like Professor Maspero upon the question. He says



THE HOUSE OF A GREAT EGYPTIAN LORD †

that "the pyramid, like the mastaba, represents a "tumulus with four sides, in which the earthwork "is replaced by a structure of stone or brick" (pp. 358, 359). We may assume that a sepulchral tumulus is meant. If so, this may be accepted, for it is difficult to suppose that the pyramid could have originated from anything else. That the mastaba had its genesis from a tumulus appears to be doubtful. There is at least one well-marked feature which separates the character of the two



THE MASTABA OF KHOMTINI IN THE NECROPOLIS OF GIZEH ‡

structures. One is a solid mass, while the other is a building formed of walls. The solid heap of the pyramid points to the tumulus as its progenitor; but the walls of the mastaba indicate its derivation from a house form. Perrot alludes to this; as the mastaba walls have a well-marked

batter, he says:—"This inclination has led some "people to assert that it is nothing more than an "unfinished pyramid."* The slope in the walls is merely the result of their having been constructed at first with mud or crude brick. The mastaba was not the tomb; it was the funereal chapel, where the rites for the dead were performed and the offerings made to the "double" of the dead person. To serve this purpose it had a door, and chambers, so that it was structurally a house. The pyramids had each a funereal chapel, but they were separate structures built on the east. This in itself is a strong proof that the pyramid was at first a solid mass, and not a structure formed by walls.

Professor Maspero states that no temple of the Memphite period now exists, but he has managed somehow to discover glimpses of them, and he gives a slight account of the building of one at an early date which is so valuable from its antiquity that it is worth quoting (pp. 118, 119):—

A temple was considered as the feudal mansion (*hâit*), the house (*piri, pi*), of the god, better cared for and more respected than the houses of men, but not otherwise differing from them. It was built on a site slightly raised above the level of the plain, so as to be safe from the inundation, and where there was no natural mound the want was supplied by raising a rectangular platform of earth. A layer of sand spread uniformly on the subsoil provided against settlements or infiltration, and formed a bed for the foundations of the building.† This was first of all a single room, circumscribed, gloomy, covered by a slightly vaulted roof, and having no opening but the doorway,‡ which was framed by two tall masts, whence floated streamers to attract from afar the notice of worshippers. In front of its façade was a court, fenced in with palisading. Within the temple were pieces of matting, low tables of stone, wood, or metal, a few utensils for cooking the offerings, a few vessels for containing the blood, oil, wine, and water with which the god was every day regaled.

This brings before us a very primitive temple in comparison with those which the remains of the Theban period show were erected at a later period.

A plan, from Professor Flinders Petrie, of the

* *A History of Art in Ancient Egypt*, vol. i. p. 167.

† A footnote adds that "this custom lasted into Græco-Roman times, and was part of the ritual for laying the "foundations of a temple. After the king had dug out the "soil where the temple was to stand, he spread over the "spot sand mixed with pebbles and precious stones, and "upon this he laid the first course of stone."

‡ Those who are interested in the subject of the lighting of the Greek temple may note this detail.

* See *The Pyramids and Temples of Gizeh*, p. 68 et seq., where it will be found that Petrie goes very minutely into the subject.

† P. 315. "The house was situated at Thebes, and "belonged to the 18th dynasty."

‡ P. 248. "Drawn by Faucher-Gudin from a sketch by "Lepsius [*Denkm.* ii. 26]."

ancient town of Gurob is given. This town is as late as the eighteenth dynasty, but it may be taken to represent at the same time the plan of a town on the Nile from any very early date down even to the present day. The mud hovels, with very narrow thoroughfares, have not changed much from the days of the Pharaohs. The representation of a house is also given of the same period (p. 315)—“The House of a Great Egyptian ‘Lord’ it is called—which shows the corn granaries with domed roofs. The mastabas and sarcophagi are almost the only sources from which the palace or house of the early period can be restored. In both of these the form of a house or palace was imitated, and they show that wood had been at least one of the materials employed. The stele of Sitû has a very good representation of a house upon it: this is as early as the fourth dynasty, and shows a number of the structural details of a palace or superior class of house during the time of the ancient empire. The door, it may be noticed, is very narrow, and a curious beam, circular or convex in section, was placed under the door lintel; the purpose it may have served is not quite apparent. This feature is well represented in the stele from the tomb of Shiri, who was a priest in the time of the Pharaoh Sondî, as far back as the second dynasty.

In the Chaldæan portion of his work Professor Maspero has much to say upon mud or crude brick as a building material—a subject I naturally feel some interest in, having read a Paper before the Institute, some years ago, on “Mud Architecture.”* He confirms, what I gave on the authority of Professor Sayce, that there was a month known as the “Month of Bricks.” He also supports, what I was then only able to hint at, that there was some connection between Sin, the Moon-god, whom Rawlinson connects with architecture and the origin of bricks and building. An ancient legend, Professor Maspero states, “ascribes the invention of bricks, and consequently the construction of the earliest cities, jointly to Sin, the eldest son of Bel, and Ninib ‘his brother’” (p. 753). The crude brick of Chaldæa was finer than that of Egypt; the reigning sovereign’s name was stamped upon them. As a rule, no cement was used, but at times a layer of mortar or bitumen was spread between the courses; reeds were often strewn among the bricks “to increase the cohesion” (p. 624). How the reeds fulfilled this function is not explained. The ancient walls of Uruk still remain standing to a height of 40 or 50 feet, which is good evidence that mere mud is far from being deficient in the claim of durability.

* TRANSACTIONS, Vol. III. N.S. p. 57.

The raised platforms on which towns, palaces, and temples stood in Mesopotamia form an interesting subject, which has not as yet received much attention. Professor Maspero states that at Lagash* one of these platforms still remains, rising 40 feet above the plain. They are not confined to the country of the two rivers. I have sketches and plans of some in Central Asia, and in most of them the raised platform was all that remained of the town. Ak Tapa, at Penjdeh, is about 100 feet in height, but is not built of brick; it is a mere earth heap. Eastwick describes one at Asiabad, in Persia, which he says is 200 feet high, 350 feet long, and 300 feet



STELE OF SITÛ, REPRESENTING THE FRONT OF A HOUSE.†

broad, built with unbaked bricks. There is another not far from Teheran, at a place called Veramin, where the unbaked bricks are fused into a solid and imperishable mass.‡ Whatever may have been their first purpose, these heaps belong to a primitive period, and a correct theory regarding them would have to embrace the remains existing along the whole region between the Euphrates and the Oxus.

In Chaldæa, as well as in Assyria, we have those

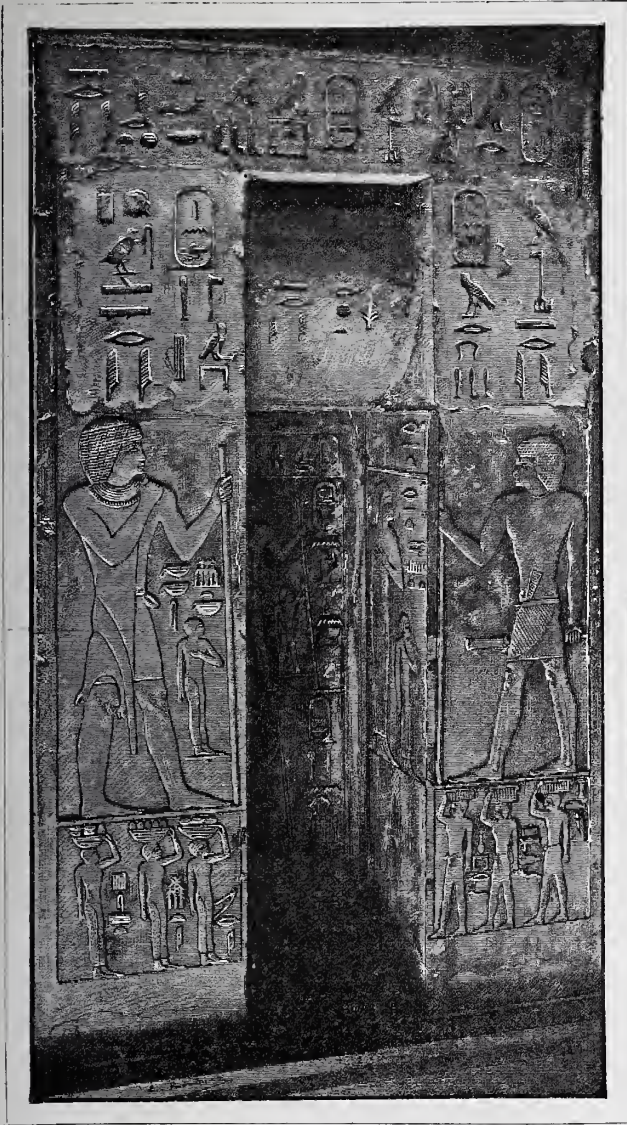
* I understand this to be the same as Telloh, where M. de Sarzec made such interesting discoveries.

† P. 316. “The monument is the stele of Sitû [4th dynasty] in the Gizeh Museum.”

‡ Some account of these will be found in *La Perse*, by Mme. Dieulafoy, and in Curzon’s *Persia*, vol. i. p. 353.

peculiar structures termed "terraced tower temples," or "ziggurats." As these temples might be described as "stepped pyramids," it would have been valuable to have had from such an expert Egyptologist as Professor Maspero some information as to any possible connection between

reaching it explains the steps and their arrangement, so as to allow for stairs by which to ascend. The Egyptian pyramid had the chapel or temple on the ground on the eastern side, and the means of ascending the pyramid were not required. This will explain why it became pointed and perfectly smooth on its four sides. The stars may have been studied, as many writers have supposed, from these ziggurats in Mesopotamia; but they were not originally intended for observatories, and the same may be said of the Egyptian pyramids. These last, Professor Maspero says, were developed from a tumulus. A good many years ago it occurred to me that these terraced towers of Mesopotamia had in all probability the same origin as the Buddhist stūpa and the Egyptian pyramid, and I wrote a Paper on the subject.* It has long been recognised that the stūpa originated in the primitive burial mound or cairn, and that in course of time the rude heap of earth or stones slowly developed into an architectural form. Like the pyramid, it is a solid mass, distinguishing it in a marked way from a building with walls. The terraced tower temple is also a solid heap, and we are limited almost to the early sepulchral tumulus as the only possible form from which the development could have sprung. Luckily there is a piece of sculpture from Kouyunjik, with a representation of a temple, which is part mound and part ziggurat, which may be looked upon as very good evidence for the theory.† It would be out of place to go into all the details of this subject here, but it may be pointed out that the theory finds a strong confirmation from a Paper read by Mr. Pinches at the last Congress of Orientalists held in London, where he explains that the É-sagila, one of the terraced tower temples in Babylon, was the counterpart of "the abode of the blessed in Hades "or Paradise"; ‡ an idea, we can scarcely



STELE IN THE FORM OF A DOOR IN THE TOMB OF SHIRI.*

them and their counterparts on the Nile. He gives a minute description of the remains of those in Chaldæa, and an approximate restoration of one, which he calls "the temple of Nannar at "Uru." This example has three steps. The shrine here is on the summit, and the necessity for

* "The Tower of Babel and the Birs Nimroud," *Transactions of the Society of Biblical Archaeology*, vol. ix. p. 307. A copy of this Paper is in the Library of the Institute. Some parts of it would have to be rewritten to bring the details up to later knowledge, but I see no reason to modify the main idea of the Paper.

† A restoration of this temple will be found in Perrot and Chipiez's *History of Art in Chaldæa and Assyria*, vol. i. pt. iv. p. 380; and the sculpture from Kouyunjik is given at p. 128, fig. 34.

‡ *Transactions of the Ninth International Congress of Orientalists*, vol. ii. p. 193. Mr. Pinches' Paper is worth consulting; he explains that the É-sagila was "a type of "the Tower of Babel," which was to reach to heaven; but the Chaldæan story has this curious variant, that Hades or Paradise was not above, but below the mound. Still, we have the important fact that the "glorious mound" was the connecting link between this world and the next.

* P. 237. " . . . from the stele, 1027, in the Gizeh "Museum."

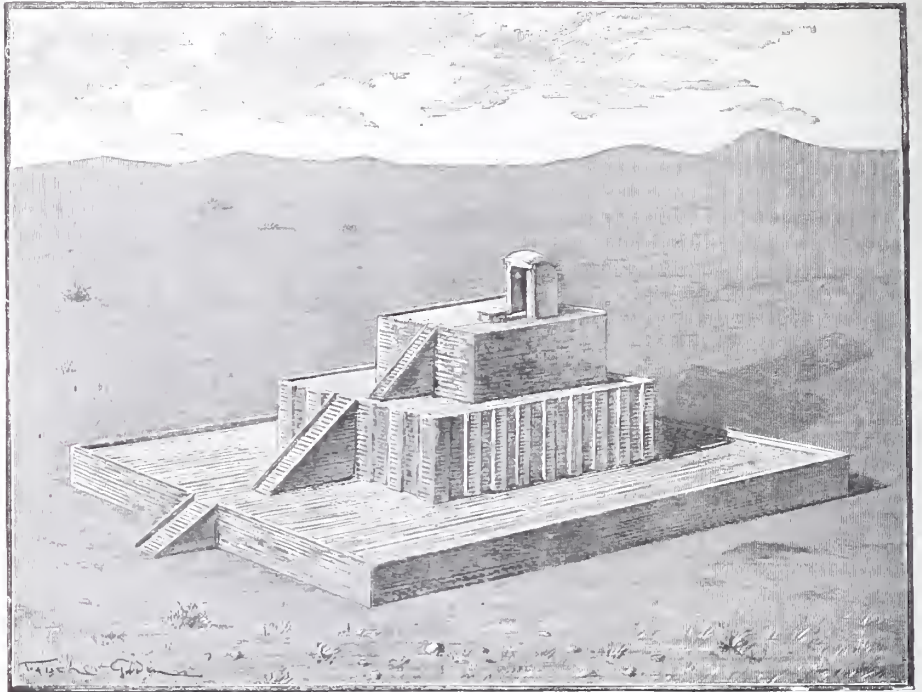
doubt, that must have been derived from the original sepulchral character of the mounds.

Professor Maspero gives many details of the ordinary house architecture of Chaldæa. The houses of the well-to-do people "are built of "fine bricks," the courses being "cemented together "with a thin layer "of bitumen"; "lighted internally "by small aper- "tures" in the upper part of the walls—this indicates defence. A "low arched door- "way, closed by a "heavy two-leaved "door," leads into a blind passage, "which opens, as "a rule, to a court- "yard in the centre "of the building." This is still the type of an Oriental house. The walls on the outside are bare and blank, and the openings are all inward to a central space. The rooms

are "small" and "oblong," sometimes "vaulted, "and sometimes roofed with a flat ceiling, sup- "ported by trunks of palm trees." This agrees with what I saw in Persia and Central Asia. Wherever wood was to be found the roofs were flat; but where it could not be procured, a barrel roof with crude brick was the rule in the villages. To this it may be added that one morning I saw some men repairing the defensive walls of a mud village; perhaps it was the neat- ness of the repaired wall that recalled to me that it was almost identical in detail with the defensive walls represented in the Assyrian sculptures. There were the same towers, with the curtain be- tween—the same crenellations on the top—exactly the same kind of wall that had been made in Assyria in the time of Sennacherib or of Tiglath Pilezer. The conclusion that forced itself upon me from these as well as from other data was that, at least up to a certain period, the architec- ture of Chaldæa, if not exactly the same, was closely allied to that which extended through Persia and Khorassan to Bokhara and Samar- kand.

Professor Maspero is known best as an Egypto- logist—on which subject he is a recognised authority—but Professor Sayce endorses his "exhaustive

"acquaintance with Assyriological literature," so we may also accept with confidence what he writes on that department of his subject. The book extends to 800 pages, and architecture is



THE TEMPLE OF NANNAR AT URU, APPROXIMATELY RESTORED (P. 629).

only one of the aspects of civilisation in its dawn that he touches upon. The numerous and very excellent illustrations ought to be mentioned: they are the work of Faucher-Gudin.

WILLIAM SIMPSON.

(65.)

A SERIES OF CATHEDRALS.

The Cathedrals of England and Wales. "The Builder" Series. Large fo. Lond. 1894. Price £4. 4s. [The Publisher of "The Builder," 46, Catherine Street, Strand.]

The form taken by this volume, if cumbersome, is at least dignified and stately, and so far in keeping with the subjects delineated. The drawings and articles are those which have formed the "Cathedral Series"—enterprise of *The Builder*, and are not gathered together without diligent revision and befitting improvements.

The plan and scope of the book itself may be shortly stated as consisting of an exterior view and ground plan of each of the cathedrals, with occasional sketches and measurement drawings accom- panying a descriptive text. In a volume so large as this appears, one might expect more to have been given, but the aim of the editor throughout seems to have been to break new ground rather than to

give a complete impression of each building. For this reason apparently he has had the view taken from unusual and even impossible points of actual view, the result being in some cases quite an unfamiliar presentation of a familiar fabric. This may add a degree of fresh interest to the work, but in one or two instances it does great injustice to the particular cathedrals, and perhaps to the series generally. No one, for example, could guess from the illustrations that Carlisle's glory is its eastern window, and that of Wells its western front, for in both cases points of view are chosen from which neither appears, and this seems to be done of set purpose. In a similar way few unacquainted with the splendid pile on the Wear are likely to realise from the drawing that Durham crowns one of the finest and most commanding sites in England; nor could one imagine that Lincoln occupies an imposing elevation, or that Wells is set in the loveliest surroundings. Of course, the nearness of the point of view has something to do with this; but for all the detail such drawings can show, many of them might have been drawn at greater distance with advantage; the views of Bristol and Norwich are cases in point. A purely architectural representation does not consist of a drawing of a building divorced from its surroundings, or set up in perspective from impossible vantage ground; it is at least to be supposed that for its site and environment the building was carefully designed and adapted. The views which are exceptions to this tendency are the most satisfactory. Different architects may and will take different views of the excellence of the drawings, but to the writer that of Chichester, by Mr. Beresford Pite, appears to be the finest, followed at some distance by the same gentleman's drawing of Worcester Cathedral. It is only fair to the other pen-and-ink drawings to mention that the softer ink-photo process has been employed in the case of Mr. Pite's work; but that allowed for as far as may be, the power and feeling which his work reveals is very striking. Although the effect is much more pictorial, architectural detail is indicated with as much knowledge and precision as by any other hand, and these two drawings are a contrast in every way to the "tighter" and harder style of "rendering" which is not without its representatives in these pages. Excellent examples of draughtsmanship are those of Ely, by Mr. Gerald Horsley; Lincoln, by Mr. Begg; St. Paul's, by Mr. Statham (the editor); Exeter, by Mr. Needham Wilson; and Gloucester, by Mr. Mallows. Taken as a whole, however, it may be doubted if the exterior views are quite successful, and two-thirds of them would be gladly exchanged for permanent photographs by most architects. "Photographs," says Mr. Statham in his Canterbury article, as if anticipating this criticism, "are invaluable as memoranda, but illusive as representations, owing to their constant tendency to

"distort and misrepresent proportion." This may be so, but perfect accuracy is not to be sought in the so-called laws of linear perspective. Though exactness in views is not of such paramount importance as Mr. Statham counts it, most of us would pin our faith to the camera in this particular, rather than to a drawing made up at home from plan and elevation, even though the details had been "filled in partly from sketches on the spot." The sketches which are mixed up with the text perhaps bring out the strong points of the architectural sketcher better than the large plates. Clear and suggestive, they serve their purpose very well; it is only when confronted with the much more difficult task of conveying an impression of a great building that the average sketcher seems to break down.

While praise may be so far qualified in regard to the general views, the plans, which are doubtless the most important part of the work, cannot be too highly commended. These are in every case drawn to a good scale, averaging about $\frac{3}{8}$ inch to 10 feet, Canterbury, Chester, Durham, and York being double-page plates. Each has the work of different periods clearly distinguished, and all evince the greatest accuracy and thoroughness in their measurement and delineation. They are supplemented in many cases by plans of the churches previous to alteration or pre-existing, as at Ely and Rochester, and plans of the crypts at Worcester, Ripon, and York. What is missed is some drawing which would raise the interior from the plan and give the impression of it which the view does for the exterior. This want has been, to some extent, supplied in the case of Durham, Worcester, and others; but an interior view of each in the text would have enabled one to form a more distinct conception of each cathedral. The articles connected with each subject are of a purely historical and descriptive nature; on this account, perhaps, some are "stiff reading," more especially in the absence of fuller illustration of the points dealt with. Among the most interesting and readable, while thoroughly architectural, is the editor's description of Salisbury; and Mr. Pite's article on Ely is with good reason singled out by Mr. Statham for special praise. Precentor Venables, too, whose death is just announced, has performed a similar office for his beloved Lincoln in a most excellent way; and, indeed, every article gives evidence of perfect acquaintance with its subject, and sometimes of enthusiastic devotion.

A work like this, which brings all the English cathedrals together, gives prominence and emphasis to their common characteristics. Looking over the plans, their remarkable narrowness, and length out of all proportion apparently to width or height; the bold projection of the transepts, which in some cases seems almost necessary to the lateral stability of the fabric; the prevalence of the square eastern end and the eastern transepts,

the spreading out of the western front for effect in many instances, are some of the English peculiarities impressed upon the student. Turning to the exterior, perhaps there is more to admire in the splendid appearance of the well-raised towers which the moderate height of roof permits, the perfect grouping of the normal three, best represented by Lincoln and Lichfield, the picturesqueness resulting from the various types of work at different periods, and withal the serenity of effect which comes of restraint and refinement. In this respect they stand between the Italian Gothic churches and the French. That disturber of the peace, the flying-buttress, while admitted and confessed, is kept within bounds; and no English cathedral, unlike Bourges, Le Mans, Beauvais, and other "architectural follies" of France, looks "like a half-built ship on its shores." Even if France achieved greater results on the whole, and though Germany has its one unrivalled example, English cathedrals, rightly regarded, hold their own in relation to Continental rivals. As for Italy, the Church of St. Peter surpasses St. Paul's chiefly in its most noble interior, and St. Mark's can be classed with nothing else. But is Lincoln less *beautiful* than Milan, or Salisbury than Santa Maria del Fiore? Who would exchange Ely for Siena Cathedral, or Durham for San Zeno, Verona? This comparison would seem almost ridiculous but for the close correspondence of the interior treatment in both cases; the English examples far excel, out and in and all round. And yet the new generation of British architects probably knows more about and takes more concern in the foreign shrines. Perhaps a book like this is all the more to be welcomed and prized at a time when the tide of interest appears to have receded from the noblest mediæval works of the country richest in the art of that period. That it will flow again, and soon, it is not possible to doubt.

Glasgow.

WILLIAM J. ANDERSON.

(66.)

CAIRO,

Cairo: Sketches of its History, Monuments, and Social Life. By Stanley Lane-Poole, Hon. Member of the Egyptian Commission for the Preservation of the Monuments of Arab Art. Second edition, enlarged, with numerous Illustrations on Wood by G. L. Scymour, Harry Fenn, J. D. Woodward, and others. 80. Lond. 1895. Price 12s. 6d. [Messrs. J. S. Virtue & Co., Limited, 26, Ivy Lane, Paternoster Row.]

No one is better qualified to write a really interesting description of Cairo than Mr. Stanley Lane-Poole. He approaches the history, life, customs, and arts of its people not as a stranger, but as one born, as it were, to the subject, and who has for years past been digging in the same soil. Therefore, even though this book have somewhat too much the guise of the popular "table-book," it does in truth contain a considerable mass of interesting material; and many facts, not

easily accessible but to the student, are brought together in a few very readable chapters. To the traveller intending to spend a few weeks in Cairo, this book would be an admirable companion, and would open his eyes to the real interest of much that he might very readily miss. During a stay of some months in Cairo, I was amazed at the almost complete ignorance of everything connected with Arabic art in all, or nearly all, the many visitors who passed to and fro, or indeed in the many European residents. I may safely say that I did not meet half a dozen persons who had even a superficial knowledge of the Arabic history or the Arabic art of the city. But that was twenty-five years ago. Now we may fairly believe that many know a little, and more want to know. Besides its service to the traveller in Egypt, the book renders one material service to the dweller at home. It points out how splendid are some of the treasures which have found their way from Cairo to Kensington. Anyone wanting to know something of the minor arts of mediæval Egypt will perhaps learn almost as much by quiet research in the Kensington Museum as in Cairo itself. But this does not apply to architecture. Not till he has spent some time in Cairo can the architect learn to what nobility his art attained in Arabic forms. The detail may be learnt at home; but the dignity, the repose, the reticence, and the occasional magnificence can only be seen truly on these few square miles of soil and sand.

In the table of contents a brief synopsis of each chapter is given; there is also, at the end, an excellent index; and to architects one of the best features of the book will be found in the appendix—a tabulated list of the Saracen rulers of Egypt from the time of Mohammed downwards, with the dates, both Christian and from the Hegira, the principal events and monuments being placed alongside.

Mr. Lane-Poole writes pleasant, chatty descriptions, and not as a pedagogue. Like every writer on Oriental matters, he occasionally insists on some quite unfamiliar way of spelling the familiar. Surely we might have kept our "Beni-Hassan"! To the average Englishman it represents the actual sound more nearly than *Beny Hasan*.

I cannot think that the illustrations well befit the book. A few are really good, such as the "lamp" on page 115, or the window, p. 187; but such illustrations as that on p. 31, or the "porter," p. 159, serve no purpose. Many of the more "pictorial" cuts are heavy, and wanting in proper gradation of tone; some are absolutely bad, as the plates facing pages 286 and 290, or the "Sais" at p. 138, whose right arm is a curiosity. On the whole, the book would gain by having fewer and less sensational plates. It is pleasant to refer to the simple, unaffected cuts in Lane's *Modern Egyptians*. But perhaps the "unaffected" is a lost quality in art.

J. D. CRACE.



MINUTES. X.

At a Special General Meeting, held on Monday, 11th March 1895, at 8 p.m., Mr. F. C. Penrose, F.R.S., *President*, in the Chair, with 15 Fellows (including 5 members of the Council) and 9 Associates, the President moved that, subject to Her Majesty's gracious sanction, the Royal Gold Medal for the promotion of Architecture be presented to Mr. James Brooks, for his executed works as an architect. The motion, having been supported by Mr. Wm. Woodward [A.], was seconded by Mr. Charles Barry, F.S.A., *Past President* [Appendix A], and it was

Resolved that, subject to Her Majesty's gracious sanction, the Royal Gold Medal for the promotion of Architecture be presented this year to Mr. James Brooks, *Vice-President*, for his executed works as an architect.

The Meeting then terminated.

At the Tenth General Meeting (Business) of the Session, held Monday, 11th March 1895, at the close of the Special General Meeting above referred to, Mr. F. C. Penrose, F.R.S., *President*, in the Chair, with 15 Fellows (including 5 members of the Council) and 9 Associates, the Minutes of the Meeting held 25th February 1895 [p. 314] were taken as read and signed as correct.

The President read a letter from Mrs. Gribble [Appendix B], addressed to the members of the Institute, in reply to the resolution of condolence passed at the General Meeting of the 7th January 1895 [p. 191].

The Hon. Secretary announced the decease of Charles Aldridge, of Liverpool, *Fellow*, and Alfred White, F.S.A., *Hon. Associate*.

The receipt of donations to the Library was announced, and an expression of thanks to the several donors was ordered to be entered on the Minutes.

The following Associate, attending for the first time since his election, was formally admitted and signed the Register, namely:—Alfred Kirk Brown.

The following candidates for membership were elected by show of hands, in accordance with By-law 9:—

As Fellows (2).

WILLIAM HENMAN [A.] (Birmingham).
PAUL WATERHOUSE [A.], M.A.Oxon.

As Associates (56).

THOMAS KERSHAW (Halifax).
WILLIAM HODGEN (Queensland).
ERNEST EDWARD FETCH.
FREDERICK BLIGH BOND (Bristol).
JOHN PAIN CLARK.
WILLIAM EDWARD VERNON CROMPTON (Wigan).
FREDERICK ERNEST PEARCE EDWARDS (Liverpool).
HENRY ERNEST KIRBY.
CHARLES EDWARD BATEMAN (Birmingham).
ALFRED WHITELOCK FIELD.
GEORGE GUNN (Sandgate, Ayr).
WILBERFORCE ERNEST HAZELL.
JOHN HENRY PRICE (Liverpool).
HARRY TOM BODEN SPENCER.
GEORGE AUGUSTUS BLIGH LIVESAY (Bournemouth).
ALEXANDER PAUL MACALISTER (Cambridge).
THOMAS HARRY WESTON (Bristol).

HENRY JAMES WISE.
HERBERT JEFFREY PALMER.
JOSEPH SPAIN (Sunderland).
CHARLES SEPTIMUS ERRINGTON (Newcastle-on-Tyne).
FREDERICK BRICE HOBBS (Liverpool).
HARRY WILSON PYE.
JOHN CADWALLADER DEWHURST (Belfast).
WILLIAM EDGAR GAULD (Aberdeen).
ROBERT WILLIAM HORN (Glasgow).
VIVIAN HERBERT KING.
ALFRED HENRY MILLS (Manchester).
THOMAS ALOYSIUS POLE (Brisbane).
GEORGE PATRICK SHERIDAN.
PERCY HENRY ADAMS.
HAROLD BAILEY (Hull).
PERCY PAOVICH COTTON.
WILLIAM ADAM FORSYTH.
FRANCIS JOHN POTTER.
CHARLES HENRY SMITH.
JOHN BORROWMAN, Jun.
HARRY EBENEZER BUDDEN (Sydney, N.S.W.).
FRANK BERRIDGE COOPER (Leicester).
ARCHIBALD CAMPBELL DICKIE.
SAMUEL STEVENS DOTTRIDGE.
ARNOLD SEAWARD TAYLER.
HAROLD EDMUND CHURCH.
HENRY INGLE POTTER.
ALEXANDER ROBERT HENNELL.
ALLAN JOHN PINN (Exeter).
SYDNEY BENJAMIN BEALE.
HENRY ASCOUGH CHAPMAN (Scarborough).
GEORGE COSTER (Bournemouth).
ERNEST OUTRAM CUMMINS.
HERBERT ALFRED LEGG.
GEORGE OAKLEY SCORER.
THOMAS DUNCAN RHIND.
LUKE BARLOW (Manchester).
JOHN LAURIE CARNELL (Norwich).
HYLA EDWARD ELKINS.

As Hon. Corr. Member (1).

LOUIS VIOLLIER, Architect to the Cathedral of Saint-Pierre, Geneva (Geneva).

The proceedings then terminated, and the Meeting adjourned at 8.45 p.m.

APPENDICES.

A.—Election of the Royal Gold Medallist.

Mr. WILLIAM WOODWARD [A.] said that for the last two or three years he had, on occasions similar to the present, directed attention to what he conceived to be an unwise procedure on the part of the Council in the nomination of the proposed recipient for the Royal Gold Medal. But on the present occasion he did not intend to pursue that subject. He did not desire to utter one word which, by implication even, would give a semblance of opposition to the nomination which the Council had made, and which had received the support not only of the gentlemen present, but the hearty concurrence of every architect throughout the whole of the United Kingdom. Mr. James Brooks had affixed to his every work the stamp of his individuality. He had solved a problem which would appear to be almost insolvable, of imparting to ecclesiastical architecture distinct originality in design, without sacrificing those features and those elements which inspired religious fervour, and which were pre-eminently characteristic of mediæval art. He had shown that it was perfectly possible in designing ecclesiastical work to impart such originality, and to diverge somewhat from the glorious examples of pure Gothic, without descending to the vulgarisms of a church of the "Queen Anne" type, or to the supposed inventive thought which certain

modern architects had palmed off upon the public as the result of some extraordinary genius. Fortunately, there were in London many works by Mr. James Brooks which he was sure every architect would desire to inspect, and see for himself whether the man whom the Institute delighted to honour was not worthy of that distinction. There was the Church of the Holy Innocents at Hammer-smith, containing a characteristic feature of Mr. Brooks's work in the vigorous lines of the water tables to his buttresses, in the variety, the mass, and the beauty of its detail. There was the parish church of Hornsey—a church which stood out distinct for the originality and beauty of the tracery in the windows, and, notwithstanding that originality, it contained the elements of the beauty of ecclesiastical work. With regard to the church at Hornsey, he should like to say that when, some three years ago, certain choirs in the North of London amalgamated and joined in a magnificent service in that church, and in which he (the speaker) had taken part as a singer, the choirs agreed that the acoustic properties of the building were magnificent; and one of the most distinguished organists in London said that he had never displayed the beauties of an instrument in such an excellent position as that in which Mr. James Brooks had placed it. Another building of his, the Church of St. John the Baptist in Holland Road, Kensington, was a remarkably beautiful church in its general conception, in its mass, and in its details, and possessed of a tower that contained all the features so characteristic of Mr. Brooks's work. Then there was a church which was now being built—the Church of the Good Shepherd at Gospel Oak—a church also containing that peculiar vigour in the water tables of the buttresses, in the boldness of its tracery, and in the magnificent dignity of its west front. He had mentioned only a few of his ecclesiastical works, but Mr. Brooks had not confined himself to ecclesiastical architecture; in domestic and secular work he had displayed equal skill, as, for instance, in the schools, the Convent, and the Hospital of St. Mary of the Cross at Shore-ditch. Those buildings were a dignified admixture of Gothic and secular work—light and beautiful in conception, and without that gloomy monasticism which distinguished the work of many architects when they indulged in Gothic. Then finally there were even stables containing the features which had dignified Mr. Brooks's work—the stables built in Brick Street, Park Lane, for the Marquis of Londonderry. Those works, and the thoughts which those works inspired, led him to believe that he was only feebly echoing the thoughts not only of everyone present, but of every architect in England, when he said that they thanked the Council for their wisdom in the selection they had made. They rejoiced in the privilege of being able to heartily endorse that selection, and congratulated Mr. James Brooks upon the greatest honour which it was in the power of his professional brethren to bestow, and they hoped he would live many years to enjoy the reminiscences which such a happy occasion must at all times recall.

Mr. CHARLES BARRY, *Past President, Royal Gold Medallist 1877*, in seconding the motion, said that, as one of the older members of the profession, he should like to express the pleasure he felt at the choice which the Council had made. His own impression had been for some years that that honour might have been conferred on their good friend even at an earlier date than the present; but that it was so conferred now he most unfeignedly rejoiced. They were indebted, he thought, to Mr. Woodward for mentioning some of the works which had earned Mr. Brooks that distinction. He thought it rather desirable that there should be some—he did not like to call it justification, but some reason, which could go forth publicly, as that for which the Council had afforded that much coveted honour. Of course, the Institute JOURNAL went all over the country and abroad, and it was desirable that those whom the Institute honoured, as it did honour

their good friend, should have the justification of that honour among those who did not know him so well as they did themselves. The works enumerated were, he thought, tolerably well known to all, and they formed a goodly catalogue which could be easily added to, and which really afforded the full reason or justification of the Council in awarding Mr. James Brooks the honour. He had hoped that Mr. Brooks would have been present that evening. Though from ill-health and growing infirmities he (the speaker) was not able to be so often an attendant at their meetings as he used to be, and as he should like to be, he came down expressly to shake hands with Mr. Brooks, and to wish him every kind of good wish. That, of course, he hoped might take place when the Medal was given; but in the meanwhile he did not like to sit there silent, as certainly one of his very oldest friends, without expressing his most cordial concurrence and infinite pleasure that the Council had thought fit to make the award they had done.

The motion was then formally put from the Chair, and carried by acclamation.

B. — The late Herbert A. K. Gribble [A.].

Mrs. Gribble's letter, in reply to the resolution of condolence passed the 7th January, is as follows:—

64, Redcliffe Road, S.W., Feb. 10th 1895.

To the Members of the Institute of British Architects.

GENTLEMEN,—A severe illness which prostrated me for the past month prevented a reply to your most kind and sympathetic letter, which I read with deep emotion. The chivalrous and generous manner in which you allude to the ability of my beloved husband is so soothing in our present deep affliction, that my son and I cannot find words to thank you suitably; and the assurance that his great talents were recognised and acknowledged by his colleagues of the Institute creates a lasting gratitude in the heart of his widow and son towards its members, one and all.

Trusting you will accept our sincere and united thanks, I am, Gentlemen, most sincerely yours,

JULIA MARIE GRIBBLE.

PROCEEDINGS OF ALLIED SOCIETIES.

YORK.

Some Account of the Arts in Sicily and Southern Italy. By Francis W. Bedford [A.].

Read before the York Architectural Society 8th February 1895.

Owing to the geographical position of Sicily, its fertility of soil, and the beauty which Nature has lavished upon it, it has been the coveted land through many generations, and was consequently the field of struggle between the older and newer civilisations. In speaking of the arts of Sicily, therefore, we must have clearly in our minds the position of the country, thus placed midway between Athens and Rome on the one hand, and Rome and the mighty power of Carthage on the other. We must follow, also, its story during those centuries of never-ending wrestlings, and we shall then understand better the various changes which took place in its architecture. The beauty and tenderness of its climate, too, its bright sun and blue sky—all these have had their influence on the arts, lending colour to them as bright sky reflected in a clear pool.

The earliest inhabitants of the island were a prehistoric race, traces of which exist in the flint implements found in different parts of the island. They were followed by the Sicani, probably an Italian race inhabiting the western part of the island; and the Siculi, who founded towns on the eastern and northern coasts. Phœnicians made colonies on the shores, of which Panormus, our modern Palermo, and Soluntum were the chief. On the main land around Naples several tribes were found, all distin-

guished by their language, constitution, and customs. Of these tribes the Oscan predominated, and their language was the one in most general use. At a very early period, about B.C. 1056, the west and south-west coasts of Italy were colonised by Greeks, who exercised great influence on the arts of the native tribes. A glimpse at the remains of the Oscan towns of Pompeii and Herculaneum shows to what an extent this influence spread, and the Greek language and customs prevailed until a late period in the Christian era, long after the Romans had conquered the country. It will be found indeed that the influence of Rome on the architecture of the South was not noticeable until a late period, and never had that power which it attained in the North.

Kyme and Neapolis were among the first Greek cities on the main land, and in B.C. 735 Naxos, on the east coast of Sicily, was founded by the Ionians. Then followed Syracuse in B.C. 734, Selinus in 628 B.C., Pæstum on the main land in 600 B.C., and Agragas in 581 B.C. The earliest monuments remaining to us of this period are the famous temples of Pæstum. They are situated in a romantically desolate waste—a perfect wilderness—encircled by the distant blue mountains, a spot which a few years ago was notorious as the most brigand-haunted place in Italy. As we approach we catch glimpses of the deep blue sea between the majestic dark-red and warm-yellow columns of the temples, now bare and ruined and shorn of all their sculpture, but which still rear their heads as emblems of the might of Hellas, and the gods to whom they were dedicated. The once prosperous town, the rose gardens extolled by the Roman poets—all are gone. Rude and archaic appear these temples to one familiar with the purity of the Parthenon; they are early—all is experimental. One can trace the development from the stumpy, much-diminishing columns, with their wide-spreading capitals, of the temple wrongly called the "Basilica," to those of the Temple of Neptune, where the columns taper more gradually and with a swelling outline, and where the capitals are more beautifully designed to support the weight above. Pæstum, however, appeals to one more from its wonderful picturesqueness and colour and the thoughts that fill one's mind in viewing the last remains of a once great city.

The most important town of Magna Græcia was Syracuse, founded by the Corinthians in 734 B.C. It soon passed into the hands of despots who, in conjunction with the inhabitants of Agragas, destroyed the Carthaginians at Himera in 490 B.C. Now commenced the golden age of the Greeks in Sicily, and Syracuse attained such power that it often threatened its mother Athens, culminating in the destruction of the Athenian expedition in 413 B.C. The present town of Syracuse occupies the island of Ortygia, which formed part of the original site of the ancient city, being connected to the main land by bridges. The greater part of the city occupied a limestone plateau at some height above the sea, and commanding magnificent views, with Etna in the distance. Below lies the famous harbour like an inland lake, where that desperate struggle between the Athenian fleet and the Syracusans took place.

The cathedral in the modern town occupies the site of a Doric temple which local tradition calls a "Temple of Minerva." Remains of the columns, with their capitals and entablature, are seen built into the aisle wall, crowned with an odd-looking Saracenic battlemented parapet. The interior also contains nine columns of good proportions. The most interesting object, perhaps, in Syracuse is the Greek theatre, one of the largest of its kind. It was built in the 5th century B.C. The site is magnificently chosen on the slope of the hill, the harbour, the island of Ortygia, and the blue Ionian Sea forming a background to the stage below; to the right stretches a long blue line of mountains, and in the plain the thin silken lines of the aqueducts stretch through the vineyards. For the Greek architects showed their knowledge of art from the very

beginning in choosing their sites so as to obtain Nature's best help. Viollet-Le-Duc says on this subject:—

It may be an exaggeration to assert that this idea of art was the first requirement to be satisfied; and yet, if we observe the position of the buildings, compare their respective dimensions, and note the "picturesque" manner in which they are grouped, it becomes apparent that considerations of outline and general effect materially influenced the choice of their ground. . . . If the Greek cities in their present ruined state still preserve the fragrance of art in the midst of their decay, it is because among the Greeks art was not a mere decoration—a superfluity; it was the ruling principle from the basement upwards; the genius under whose auspices the city was founded. Let us look at Agrigentum—the ancient Grecian Agragas of which I have spoken before—one of the finest of the Dorian colonies; and first observe with what care the site was chosen.

Near to a well-sheltered harbour there rises a range of calcareous hills running parallel with the sea: the Greeks made this chain of hills the rampart of the city on the side most exposed to attack. They shaped the summit into the form of thick walls pierced with gateways. The rocky ridge was converted into a wide rampart, on the top of which were several temples built parallel with the walls; thus presenting to strangers coming from the port a long line of buildings of very various dimensions, resting upon an enormous basement of hewn rock. Between this natural rampart, thus turned to such admirable account, and the Acropolis, which stands beyond and commands the surrounding country, is a valley in which the city is built, the dwelling-houses perfectly sheltered from the north and the south-east winds, both of which in Sicily are disagreeable. The Acropolis contained temples, of which, however, very few traces remain. The city was bounded on the south also by a long range of calcareous hills, whose summits were shaped by the hand of man, and adorned with a belt of temples standing out in bold relief against the sky, and on the north by the Acropolis joined to other hills of less elevation, itself also crowned by noble monuments.

The Temple of Juno Lacinia at Girgenti—as Agrigentum is now called—is the earliest of these temples. It was built in the fifth century B.C., and is a pure type of Doric. The temple is peripteros-hexastylus (columns all round, with six in front), and is built, as are all the temples of Girgenti, of a warm yellow and red calcareous stone, which was covered with an extremely thin and fine coating of stucco, made of powdered marble, afterwards painted in the brightest colours with ornamental designs. The Temple of Concord, a little further to the west of the above, is one of the best preserved temples in existence, owing to its having been converted in the middle ages into the Church of San Gregorio delle Rape. It is similar in plan to the Temple of Juno—somewhat later, but also belonging to the best period of Doric art. It has the cella remaining almost perfect. Not far from the Temple of Concord are the remains of the Temple of Hercules. Only the stump of one column remains standing; all the others are stretched out flat on the ground in very regular order, having been probably overthrown at the same time by an earthquake. An examination of the bases shows that the sirocco wind, which often carries dust and sand as well as rain with it, had undermined and worn away the columns at the bottom. Not far from the Temple of Hercules is the so-called Tomb of Theron—a square building of small dimensions in two stages, a plain basement below, and above decorated with attached columns at the angles. It is of late Greek or Roman workmanship.

Near the Temple of Hercules are the remains of the great Temple of Zeus, one of the largest Grecian structures known. It was called commonly, until recent years, the "Basilica of the Giants." It was a pseudo-peripteros-hypæthros temple (having attached columns all round and an open roof). It was 363 feet long, or 136 feet longer than the Parthenon at Athens, and had half columns 55 feet in height and nearly 7 feet in diameter. These columns were fluted, each flute being nearly 2 feet wide at the bottom.

In the interior of the temple enormous atlantes, 25 feet in height, supported the roof. One of these was reconstructed by Cockerell. To the west are the remains of the Temple of Castor and Pollux, consisting of four Doric columns, which were re-erected by Cavallari of Syracuse. It has been constructed, however, with the remains of two distinct temples. Much of the original stucco remains, and traces of colour are to be seen in different places.

It is difficult to picture in our minds what must have been the effect of these temples in the days of the Greeks—this long succession of noble buildings situated in one of the most beautiful spots in the world, on the edge of a precipitous ridge, converted by the consummate art of the Greeks into terraces and platforms, from which they viewed the sparkling sea beyond; whilst behind rose the Acropolis hill, 1,000 feet above the sea, crowned by magnificent temples, dark against the sky.

The temple at Segesta, one of the best preserved temples in Sicily, is situated in a lonely region some twelve miles from the nearest railway station. We walked from the station to the village of Calatafimi, about five miles through bare country—thick, however, with prickly-pear, and a stiff climb all the way. Here we hired one of the gorgeously painted carts, which are more picturesque than comfortable, as they are entirely without springs, and we had about two hours of the greatest agony I ever experienced. The road was exceedingly rough, and the man kept his mule going full trot all the way. We forded a river, and after a stiff climb reached the deserted temple. It was never finished, which makes it particularly interesting, as we can see distinctly the mode of building. The external range of columns was first erected, gaps being left in the steps between the columns, so that the stone for the internal cella might be the more easily dragged through. On the front of the steps blocks of stone are left projecting, which were used, probably, in hoisting the stones up. The columns are unfluted, and thicker than required, to allow of the paring down and fluting to be done afterwards. At the corners of the abacus of the capitals projecting lumps are left, perhaps to preserve the sharp aris. The internal cella had not been commenced when Agathocles destroyed ten thousand of the inhabitants in *b.c.* 307.

It is unfortunate that no remains exist of the domestic and civil architecture of the Greeks, or of their colour-decoration. However, in tracing the influence of the Greeks on the native tribes of the countries they colonised, we shall be able to gather some idea of Grecian houses and their decorations. And these are best seen in the Oscan town of Pompeii.*

The decorations of Pompeii, if not actually painted by Greeks, were formed on Greek originals, and from them we learn that the ancient art of painting had reached a very high point of perfection. Before the time of Augustus the walls were generally painted one colour relieved by ornament, but the Emperor introduced the system of decorating walls with landscapes and fanciful architectural compositions. This style of decoration spread very rapidly, and we find in all the buildings of the few following years which have been handed down to us examples of this work, as in the Baths of Titus and the excavations on the Palatine. These remains were later to be the inspiration to Raphael and his pupil Giovanni da Udine for the beautiful decorations of the Villa Madama and the Vatican. It must be remembered, however, in examining the decorations of Pompeii, that this city was only a third-rate provincial town; and as the whole, or the greater portion, of it was destroyed by the earthquake in *a.d.* 63, the paintings we have now discovered must have been executed between that year and the eruption of 79. They were painted, probably, by bands of travelling artists, who, having the Greek models at their finger-ends and their pattern-books before them,

reproduced more or less literally the paintings of Zeuxis and Apelles.

They are sketched firmly and masterly, not traced or stencilled. All the compositions are carefully thought out, and designed to fill the space for which they were intended. Architecture formed an important part in these compositions, forming backgrounds and frameworks to the pictures. Speaking of these architectural landscapes, Burckhardt says:—

The architectural views give an interesting picture, not only of the general style of the buildings of that time, but more especially of those which gave a special character to the coast between Cumæ and Sorrento in Roman times. They are, of course, somewhat fancifully exaggerated, giving not merely a picture of what really existed, but of what the artist desired to see built. Villas reaching out into the sea; the most splendid country-houses, surrounded with halls, temples, and palaces; and, above all, the most ornamental harbour buildings are fully displayed in bird's-eye perspective. . . .

. . . The landscapes, again, are differently treated. They, too, unite many things looked at from a high perspective point, and have no idea as yet of the scheme of lines common to modern landscape painting. Many are nothing more than lively representations of pleasing or remarkable objects, little temples, pleasure-houses, ponds with open courts, monuments with trophies, Hermes, semicircular walls, bridges, and so forth, in undulating country interspersed with trees. . . .

In the better landscapes an idyllic character appears—a distinct attempt to express a particular sentiment, though it sometimes fails through want of better means of expression. Round a lonely little sacred haunt of the nymphs, or the Paphian goddess, we see shepherds and flocks or a country sacrifice, overshadowed by olive trees; sometimes, too, personages out of the Greek myths enliven the rocky landscape.*

We now come to the period of decline. I have told you how the land was first occupied by these different tribes, and of their art under Grecian influence; and how the main land was first colonised by Greeks, and how they gradually spread to the south and into Sicily; of their struggles with Carthage and the Athenians. Petty quarrels between the towns of Segesta and Selinus following, and the appeal of the former to Carthage, brought on the Carthaginian wars, which resulted in the destruction of Agragas, Selinus, and other cities. In *b.c.* 264 Hieron of Syracuse attacked Massana, which appealed to Rome, and so commenced the First Punic War. The island was ravaged by the Roman soldiers, and in the Second Punic War Syracuse fell, and the Romans became masters of the island.

During the Roman period many buildings were erected, mostly of an engineering nature, as aqueducts, and also many amphitheatres, as those of Pompeii, Syracuse, and Pozzuoli. There is nothing exceptional or different in these buildings from the well-known examples in other parts of the world, so we will not stop to examine them. In *a.d.* 440 Sicily was taken by the Vandals, afterwards passing into the hands of the Goths, under whose dominion it remained until *a.d.* 535, when it was reconquered by the eastern empire of Rome. Then it remained under the Byzantine emperors until it was subdued by the Saracens in the ninth century. Of this period we have no actual remains, but its influence may be traced in most of the later churches—in the plans and in the mosaic and marble decorations.

Of the Saracenic period we have again to deplore that there are no traces remaining, all the Moorish-looking buildings which were at first attributed to them having since been proved to be of later date.

We now come to the most interesting period of the art history of Sicily and Southern Italy. Robert, son of Tancred de Hauteville, in Normandy, had compelled the Pope to invest him with the Duchy of Apulia and Calabria,

* Lantern views of houses and decorations at Pompeii were here thrown upon the screen and described.

* Sketches and photographs of Pompeian decorations and drawings of the painted walls in the "House of Livia" on the Palatine were here shown on the screen.

and, joined by his brother Roger, he invaded Sicily in 1061. This first expedition was not successful, but returning ten years later, the whole of the island was subdued by 1090. The line of Robert having become extinct in 1127, the second son of Roger united the whole of the Norman conquests, and was crowned king at Palermo in 1130.

We shall not expect to find architecture under the Normans as we see it in Normandy and England. The Norman invaders were warriors, and did not devote themselves at first to the arts. They found the inhabitants of the island—Greeks and Saracens—in a high state of civilisation and culture. Palermo had been the capital of Saracenic Sicily for 250 years, and was one of the most important towns in Islam—equal to Cordova and Toledo. The Norman conquerors employed the Saracens in the building of their churches and palaces, and Saracenic art was again swayed by Byzantine influences. So that the architecture we see in Palermo and elsewhere, though seemingly Byzantine and Saracenic, was not executed under Arabian rule, but by Norman command. These, and the nature of the materials employed, are sufficient reasons for the architecture being so different from our northern Norman architecture.

The cathedral at Salerno is one of the earliest buildings of this period. It was erected in 1084 by Robert, the first Duke of Apulia, and the conqueror of Sicily. Unfortunately, it was so much restored during the last century that we have little of the original building remaining. But one interesting feature does remain, and that is the original atrium in front of the church, from which we may gather some idea of the many others which have disappeared. It consists of a simple court, surrounded on all sides by antique columns taken from Pæstum, with pointed and stilted Saracenic arches over. There are five bronze doors to the church, made in Constantinople in 1099. In the interior are two remarkably fine ambones, which, however, are of later date than the church. They were made towards the end of the thirteenth century, and are beautiful examples of the combination of mosaic with marble. One has a beautiful candelabrum adjoining, and the other spirited carvings of the evangelistical emblems. There is another very beautiful ambone of this description at La Cava, not far from Salerno.

The cathedral at Amalfi, another of these "Norman" churches, is one of the most picturesque and interesting buildings in Southern Italy. It is an odd mixture of Romanesque and Saracenic work. It has an arcaded portico in front, in alternate courses of black and white stone, and decorated with geometrical patterns in the same material, approached by a huge flight of steps. The church was built in the eleventh century, but the portico is probably later, and has lately been rebuilt or restored. Adjoining is a fine tower, built in 1276, with ancient columns from Pæstum at the angles, and inlaid with coloured tiles. At the top it is surmounted by five turrets, roofed with bright yellow and green tiles; it is thoroughly Moorish in character, like the towers of Tangiers and Seville. There are some fine bronze doors, made at Constantinople in 1087, in which Scripture subjects and saints are represented in outline by silver and metallic compositions—red, black, and green—let into the bronze.

In the neighbouring little town of Ravello are found the purest remains of the Saracenic influence in Italy. The Palazzo Rufalo was a villa, like La Cuba and La Zisa at Palermo, built for the Normans by Arabian workmen. It has an interesting little court, with an arcaded gallery, at the first-floor level, of interlacing Gothic-looking tracery of very rich design, but somewhat poor in detail. This palace was built in the twelfth century. There is a little cubical-shaped gateway or pavilion, surmounted by a Saracenic dome, like the one at La Cuba in Palermo. The cathedral at Ravello was commenced in the eleventh

century, but is modernised: it contains a magnificent ambo like the ones at La Cava and Salerno, resting upon six spiral mosaic shafts supported by lions.

The cathedral of Cefalù, in Sicily, was commenced by Roger in 1131. It is basilican in type, approaching, however, the proportions of our northern cathedrals, the central nave being much longer and narrower, and the aisles wider than in the early Christian churches of Rome. In front the Norman founders introduced the twin towers of their native land, a feature which, I believe, exists in no other church of Italy or Sicily, excepting the cathedral of Monreale, which in many ways is a copy of this one at Cefalù. These towers project so as to form a very fine arcaded portico between. The nave of the church has the flat basilican roof, but the aisles and choir are vaulted. This is perhaps the most Gothic church in Sicily, excepting, perhaps, the cathedral at Messina. The nave is divided from the aisles by rows of long granite columns, with Corinthian capitals, supporting stilted pointed arches. The eastern end terminates in three apses; the centre one, and the first bay of the choir, are decorated with mosaics completed in 1148. These are the earliest mosaics of this period in Sicily and the most beautiful. Speaking of these mosaics, Crowe and Cavalcaselle, in their *History of Painting in Italy*, say:—

The only parts of these that now remain are in the semi-dome, apsis, and sanctuary, in the first of which a colossal bust of the Saviour was represented in glory and benediction between four angels holding the labarum, and medallions of Melchizedek, Hosea, and Moses (the latter now destroyed) on a level with Him on the side walls of the sanctuary. In a second course in the apsis and sanctuary the twelve apostles were placed; in a third the Virgin in the centre with the prophets Joel, Amos, Obadiah, and lower down a double row of prophets, elders, and saints. In the mosaics a far higher class of art than the Roman of the period was to be distinguished. The space was well distributed, and the apostles by no means displayed that absence of design or of form to which previous centuries had been accustomed. The draperies were good, and recalled by a certain breadth and elegance older and more classic times, although in the vestments of some angels their close fit and lozenge or square-shaped ornaments of gold still displayed an Oriental taste.

The features of the apostles were of the traditional types; those of the tall angels, whose hair, bound by ribands, flowed down their necks, were quiet, plump, and round, and though Byzantine in the depression of the nose, less than usually unpleasant in gaze. The Saviour was dressed in a purple tunic shot with gold, and a blue mantle draping the left arm and shoulder in angular and involved folds, the mass of which seemed to impede, rather than assist, the development of the form. The head, though apparently that of an ascetic—thin, bony, and of sharp features—was surrounded by very heavy masses of hair overlapping each other, hanging in a succession of curves on the shoulders, and with the now usual double forelock on the wrinkled forehead. The brows were regularly and naturally arched, and the eyes without gaze. The nose was thin and long, the mouth small. A regular beard covered the lips, cheeks, and lower part of the chin. The bare neck, muscularly developed, was not without evident defects of anatomical form. Fine and even majestic as this figure certainly was, it appeared inferior to those of the apostles below it; and it seems characteristic of the artists of this time that, in the effort to create a Christian type whose features should not be reminiscent of the antique, they produced nothing that indicated a creative spirit. They imagined the Saviour lean from abstinence, but by no means of ideal form. . . . That the mosaics of Cefalù were the labour of more than one hand is evident from the superiority of those parts which are nearest the spectator over others that are more distant. In all of them, however, the drawing was precise and careful, and displayed no longer the coarseness and darkness of line which so disagreeably marked earlier works. The forms of the figures, as is proved by the red outlines on the binding substance, were perfectly made out previous to the laying of the cubes. . . . True harmony of tones and a correct appreciation of the laws of distance, a fair knowledge of relief, and a proper subordination of fine ornaments to the picture

must also be conceded to the artists of Cefalù. As a final characteristic it might be noticed that the mosaicists had become technically perfect in the close jointing of the cubes.

This perfection in the fineness of the joints may best be seen in the walls of the semicircular apse, which looks like the interior of a cylinder of polished brass. At the angles of the apse are superimposed columns of grey granite below and green porphyry above, and crowned by beautiful cushion-shaped capitals in mosaic, above which spring other red porphyry columns up to the springing of the arch, where they are covered with green mosaic capitals of leafy ornament. In the angle near the apse is a thin green mosaic vaulting-shaft with a red mosaic capital, and in the centre of the wall another green vaulting-shaft, between two others of red mosaic, descends on to a mosaic corbel. The whole of the ground behind the figures is gold, and the vaulted roof is gold, with beautiful angels and winged genii between vaulting ribs of red and green mosaics. The rest of the church of Cefalù has been entirely modernised in the last century. There are traces, however, of coloured frescoes in parts, and the cloisters are interesting, but do not compare with those at Monreale.

The Cappella Palatina in the royal palace at Palermo was built at the same time as the cathedral at Cefalù, and the mosaics are little, if any, later. Internally it is perhaps the most beautiful building of its size in the world. Entering, we find ourselves in a somewhat dark and gloomy interior—in general effect of colour, a dark bronzy gold, lustrous and bright, however, where the light streams in at the crossing, and dying again in the dark shade of the apse, where we discover another enormous bust of Christ like the one at Cefalù. Below the colour is the grey and cream of pale transparent marble, for the walls are covered to the height of the columns with its delicate markings and tones, with here and there squares and roundels of blood-red porphyry and borderings of golden mosaics in Moorish patterns, like the tile-lined walls of the Alhambra. The floor is of the same material woven into interlacing designs of squares and octagons of green and red porphyry and borders of Alexandrine work. Classical-looking columns, some dark greenish-grey and others of paler tone with amber markings, separate the nave from the aisles. Some of these columns are fluted, and others spiral; and above their gilt capitals solemn and stately figures of saints fill the spaces between the Arabian arches, while above the whole story of the Old Testament is depicted in a strikingly simple, yet telling manner. Beyond, over the crossing and above golden arches, springs a low semicircular dome, in which a ring of archangels circle round the central figure of God. In the southern transept scenes from the Passion are depicted, while a large picture of John the Baptist in the desert—a beautiful pastoral landscape, however, with a sunset sky—fills the northern side. Over the nave a richly fretted ceiling of Arabian honeycomb-work, once beautiful with colour, crowns the whole.

Perhaps this is the best building in which to study the relative merits of this style of mosaic decoration, in which the windows of the buildings are restricted to the smallest possible dimensions, with our northern Gothic system, wherein the windows form the chief centre of colour. Or, again, with the fresco-covered churches of Italy—like Assisi, for instance. And I think everything is in favour of this Cappella Palatina, for, whereas the frescoes of Assisi have faded or crumbled away, or have been repainted beyond recognition, and the greater portion of our glass windows have been broken, these mosaics still retain nearly, if not all, their original splendour. True, those of the apse, including the great Christ, have been much restored, if they are not entirely modern; but those of the nave are still, practically, in the same state as they were in the days of King Roger. Some may complain

that there is not sufficient connection between the architecture and the decoration, between the building and the mosaics; but this is the same in all applied art, and in a rich polychrome work it is difficult to see how they may be brought closer together, for we cannot *build* our buildings of all these different and precious materials, so we must cover them with incrustations or paintings. The Gothic stained-glass windows of our northern cathedrals, excepting in very late examples, where the whole wall becomes window, never harmonise with their surroundings, but only form so many blots of bright colour in the adjoining dark stonework.

The best figures in this chapel are those which are treated in a severely architectural manner, as the single figures of saints between the arches; and no doubt other portions would have gained—the subjects in the spandrels of the arches, for instance—if they had been more severely treated and divided up into panels by borders, &c., and not cut into so awkwardly by the arches. In the south aisle is a magnificent pulpit not much later in date than the church, and adjoining, a fantastically carved marble candelabrum.

The cathedral at Monreale, near Palermo, is one of the most remarkable churches in Europe, and in it the mixed style which existed under the Normans may best be studied. In plan it is Roman and Byzantine; in decoration Grecian and Saracenic; while the sculpture of the portals is Romanesque like the churches of Lombardy. It was erected between 1174 and 1189. In plan it is generally described as a basilica, but it differs considerably from any basilican or early Christian church in Rome or Ravenna. It is, in fact, a combination of the basilica with the Byzantine plan, with some Norman features also. The nave was copied from the basilica, while the crossing and transepts are taken from the Byzantine type of plan, like La Martorana at Palermo. In many points of plan it follows the earlier church at Cefalù, on which this one is modelled. We see, again, the twin towers at the western end. On the northern side we find a long arcaded portico, like that which originally surrounded the Cappella Palatina. In front of the western façade there was originally an atrium, like the one at Salerno, but this has entirely disappeared. The portico between the two towers is modern; but it formerly consisted of three pointed arches. The walls within this portico and over the arches were covered with mosaics and marble panellings. In the interior the decorators have followed the same general style of decoration as we have seen before in Cefalù and the Royal Chapel at Palermo. The whole walls are gorgeous with gold and pictures, and are lined with a high dado of marble slabs, while at the eastern end we see another of those characteristic busts of Christ blessing and filling the huge church with His presence. Long rows of grey granite columns lead the eye to the crossing, where four grand arches soar up to the roof. A fine effect of grandeur is given to the apse at the eastern end by the arch which leads into it being made about 20 feet higher than that which separates the nave from the crossing, so that a line drawn from a spectator entering the western doorway to the soffit of this latter arch will meet the underside of the arch leading into the tribune. The arches, again, leading into the transepts are higher by about 10 feet than the nave arch, so that this increasing height towards the east gives a great effect of dignity and importance to the altar. The mosaics illustrate the Old and New Testaments and the lives of the Saviour and apostles. Those from the Old Testament occupy the spaces above the arches of the nave in two courses; they are almost identical in subject and method of treatment with those we have seen before in the Cappella Palatina.

The cathedral of Monreale (say Crowe and Cavalcaselle) was the most imposing in Sicily for the extent of its mosaic ornaments, yet below the cathedral of Cefalù and the churches

of Palermo in the artistic value of these works. . . . The bust of our Saviour—of colossal stature, and of a type and form inferior to that of Cefalù, with features of a heavy character, far from regular or animated—was represented in the semi-dome of the apsis. . . . Among the transept mosaics, those which represented the story of the Passion were not essentially different from the traditional ones which had now been frequently depicted, and which were afterwards to cover the walls of the nave in the upper church of S. Francesco at Assisi. The compositions were animated; and it was remarkable in some of them—as, for instance, in that of the Resurrection—to find in the forms of the sleeping sentinels bold and even foreshortened movements. . . . In general, however, the forms and features of the apostles and saints were no longer equal to those of Cefalù, and a certain stiffness or contortion of attitudes might be noticed; the eyes had become more open and gazing, the draperies more straight and angular. Nor were the harmonies of colour preserved in their purity; and greyish-red shadows, with lines of a broader and more cutting character, marked the decline of art in Sicily.

There are other points of difference between the spacing out of the pictures, some of which are improvements, while others are not so good as those of the Royal Chapel. In Monreale there is more space between the tops of the arches and the clerestory windows—what might be called the triforium stage—which is an improvement, as the pictures are not so much cut up, and it also gives room for a deep ornamental band or architrave to the arches; but we miss the grand series of saints between the arches which form the glory of the Palermo chapel, and the way in which the spandril pictures run down into sharp points between the arches is not so well managed. The designs of the spandrils of the great arches at the crossing are not so happy as those at the Cappella—horizontal bands of ornament run in an awkward manner into the architraves. There is no dome in this church of Monreale—a curious omission when the builders had seen the beauty of the Palermese examples. The present roof is modern, but well designed and painted. The dado, too, which covers the whole of the lower portion of the walls, is restored or entirely new. Among the best things to be seen may be mentioned the fine band of circular medallions containing busts of angels, forming a frieze under the roof, and reminding one of the similar range of archbishops in the church of San Apollinare in Classe, near Ravenna.

It may be of interest to touch upon the methods employed by the Greek workmen in executing these mosaics. Over the walls was spread a surface of lime mixed with sand and straw, and whilst this surface was still fresh the figures were painted in all their different colours. The mosaic worker then, having his cubes ready, followed the lines laid down by the painter, and matched the tints as closely as he could with his glass, stone, and majolica. The whites and flesh tints are of calcareous stone of different shades, which the island yields in abundance. For all the other colours coloured glass was used. The gold used by the mosaic workers of the twelfth century was, I believe, made in the following manner:—A sheet of clear glass, about half an inch in thickness, was put into the furnace and heated; it was then taken out, left to cool for a short time, and, after bathing the surface, a gold leaf was spread over it and beaten into its place. Over this gold leaf a thin film of powdered glass was spread with a paint-brush, and the whole was again put into the furnace and fused. The method generally employed now, I believe, is to pour over a thick slab of glass, on which the gold leaf is placed, a thin film of molten glass. This is more solid than the old method, but reflects the light more, and so destroys the effect of the pictures.

Besides these mosaics mentioned above, which formed the figure subjects above the dado, and which were composed entirely of cubes or irregular pieces, there is another distinct kind of mosaic decoration used for geometrical designs, composed of lines at right angles, triangles, circles,

and polygonal figures, which needed to be fitted carefully, and required all the pieces being cut to the angles in the design. These kinds of mosaics have been called by the Italians "Mosaici ruotati," because the pieces are cut by a wheel to the shape required. The Byzantines made great use of this species of mosaic, and the early churches contain many examples in their screens, ambones, &c. It was adopted by the Arabs, and nearly all the mosaics made by them in Granada, Cordova, and Seville are of this kind. The mosaic borders in the dados at Monreale and Palermo are of this description. The white portions are marble, the brick-red and black of glass, while the speckled red and green are of porphyry. The green is generally known as serpentine.

Adjoining the church at Monreale are very beautiful cloisters, with a fountain in one angle. Here will be found the best sculpture of the twelfth century in Sicily. The columns are inlaid with mosaics, and the wall above the arches decorated with geometrical patterns in coloured stones. The capitals are beautifully carved and of great variety. Greeks, Moors, and Normans in turn probably had a share in their cutting.

There are a great many other buildings of this period in Palermo, but I have already extended this beyond a short Paper. I had intended giving you, as well as I could, a continuous account of South Italian architecture down to the present day, which would have included the interesting periods of the introduction of the Gothic styles, which, however, never took a very firm hold, and the revival of the classical arts, which had a different growth and took different forms from those of Northern Italy. The Renaissance buildings of Sicily and Naples have a peculiarity of their own, which they obtained from their close connection with Spain. It is curious to note that the ideas of Bramante and other Lombard architects did not travel direct to Naples and Palermo, but took the roundabout course of being first carried to Seville, Malaga, and other Spanish towns, and then back to Southern Italy.

BIRMINGHAM.

The Small Country House. By T. W. F. Newton.

Read before the Birmingham Architectural Association 22nd Feb. 1895.

Many books have been written upon country houses, villas, and lodges, but the small country house, costing from £700 to £1,000, has been singularly neglected. It is hard to find the reason for this seeming omission, as it is a class of house in great request, and one which to a true architect should be a pleasure to plan. Nothing, perhaps, is more striking than are the poor plans so frequently published. They are wasteful in the extreme, show neither skill nor taste, and but little care or thought appears to have been bestowed upon them.

In planning a small house it should be our especial study to avoid waste of space, and yet ensure general utility. There must be no long passages; height must be kept down, and roofing as simple as possible. Breadth of effect must be studied rather than prettiness and ornament, as in this class of work there is no money to spare for either; all must be simple. One can hardly do better than conceive one's design on the lines of the old cottages in the immediate neighbourhood, as they will invariably suggest much in the way of simple planning, detail, and construction. It cannot in this connection be too clearly laid down that passage must be reduced to a minimum; this class of house cannot afford that 10 per cent. of its cost should be spent in passage. In large houses it is generally unavoidable, but in small houses it can be so curtailed as to be practically *nil*.

I purpose taking you through a house built in the manner suggested, and going into detail of plan, fittings, and elevation, it being assumed that we have about £800 to spend, that the house is to stand on an acre of ground, and be

suitable for the needs, say, of a young professional man with a small family.

Ground Plan.—The ground plan is the key to all the rest; if that be bad, as a rule all is bad; but it must be worked out by a careful consideration of the needs of the first floor. The front entrance should be fairly imposing, the door of ample width, with an inviting air about it. If it be a little lower than the usually given proportions, so much the better, as it will apparently increase the width. It is well either to have a porch or pent, or to recess the door, to afford shelter for anyone waiting to be admitted. Care should be taken that the front door be not too much raked by the principal windows. The door should open into a small lobby or outer porch, this in its turn should have a small cloak-room or recess for coats and hats. Three feet by 3 feet will hold a considerable quantity of these, and the general tidiness of the hall is thus preserved. Following this lobby an arched opening should give into a small hall of about 9 feet by 12. This hall-sitting room, if carefully planned so that it may be shut off from the stairs and kitchens, will give quite a useful apartment. To secure this object it is advisable to have all the doors on one side, that the remainder may be free from traffic. An angle-nook, if it can be arranged, or a corner fireplace will add to the picturesqueness of this cosy room. The angle should always be low, never more than 6 feet 6 inches or 7 feet, and a deep beam with a wide shelf over. An internal treatment of bricks gives a solid air of comfort, and wide benches at the sides add to this. The usual long passage hall is so much waste space, and quite useless as a room of any sort; neither can it be warmed. With this and the well of the stairs a current of cold air is generated which is drawn into the rooms every time a door is opened. If the stairs be shut off by a swing door or a curtained arch, and a good fireplace given to the hall, an air of warmth and comfort is secured, and greater privacy gained to the house, as the inmates may pass up and down stairs unobserved from the hall.

Dining-room.—The dining-room, if possible, should have an eastern aspect, and if it can also have a south light so much the better. The morning sun is always valuable in the dining-room in a house of this type, as it serves also as the breakfast-room, and the dinner is usually in the evening when the lamps are lighted. The chief points to be considered in this room are width, which should not be less than 13 feet, and ease of service to the kitchen and pantries—a small serving hatch from the latter saves a good deal of needless traffic. The fireplace is best at one end and the door at the other, at right angles to the fire. A long low window, with a seat recessed, and a simple beamed ceiling should make a comfortable and useful room.

Drawing-room.—The drawing-room, being more for afternoon and evening use, should face south to west. Here, I think, a square room is to be preferred—say, 14 feet by 14—with bays and angle, and a plain ribbed plaster ceiling. There is a tendency to make angle-nooks long, narrow, and high: this is out of character with the old traditions, as all old ones are just the reverse in every particular.

Kitchens and Offices.—The kitchen should be of fair size, and the light preferably on the north or east side, so that the midday sun may not add to the heat. The windows should be at right angles to the fire, so that the light on the range may be unobstructed. The larder should have a similar aspect, and may open out of the scullery. The pantry is most useful near the dining-room for easy service. The scullery should have sink and copper on the same side, under the window, and out of the draught of the door if possible; there should be two rows of 6-inch white tiles round the sink. The trades entrance and yard should be well away from the front door, and the space for coal and wood should be under cover and

enclosed from the back porch. W.c. and ashpit are best distinct from the porch, and the former should not, as is too often the case, lead out of the scullery. A small tool-house is useful for tools, stores of potatoes, &c. A good height for downstairs rooms is 9 feet.

First Floor.—The first floor is gained by a light, easy, and wide staircase, alike convenient for all parts of the house, and the space underneath may be utilised for pantry or way to small cellar. The staircase, both up and down, should be well lighted, and the landing so planned as to give easy access to four or five bedrooms, bath-room, box-room, and w.c. Of the bedrooms, two should be of good size, and two or three smaller. A large bath-room with hot closet for airing linen is a great convenience; the shelves should be of open battens so that the heat may ascend. It is best to arrange the bath-rooms and w.c. over the scullery and outbuildings; by this means the circulation from the kitchen boiler is kept short, and breakages, should they unfortunately occur, do not cause so much damage.

Bedrooms.—The bedrooms must be arranged with an idea as to the position of the bed, so that it may be shielded from the draught, and give a view of the fire to anyone in bed. Strong light opposite the bed is to be avoided. The roof can be started at 7 feet, and go off to 9 feet in the centre.

Fittings and General.—All grates should be such as give a large heat for little fuel. Dog and hob grates, although very picturesque, will be found by experience to do neither, and, as a rule, whatever care be taken in the setting, will be found to smoke. Tiles of a plain colour and simple wooden mantels are best. Care must be taken to protect the latter from the heat, and if the fireplace be recessed, a wide strip of marble is necessary. Firebrick backs should slope outwards so as to radiate the heat. The kitchen range should be a good one, and one large oven is better than two small ones. In the kitchen a mantelpiece of brick is useful, and a relief from the usual stone; it can have a moulded brick shelf and arch under. Electric bells, if carefully fitted, are of great convenience and require little attention; the indicator should be placed in a good light and near the staircase. Great care must be taken with the plumbing. Pipes should be run on inside walls and fitted with several stop-taps, especially one to shut off water from the yard during severe weather. The cold cistern should be placed over the hot one, and all pipes in the roof eased in felt, and the cistern room itself felted. Nickel taps are the best for the bath-room; they keep cleaner than brass and cost very little more. The drainage requires special care, nothing being allowed in the house, and all as simple and direct as possible. The dumb-well should be placed out of the way and in a porous soil.

Internal Wood-work.—The internal wood-work should be good and sound, and carefully framed to distribute strength. Wide panels, being liable to split, should be avoided. Simple brass door furniture is suitable. Lock-rails, about 4 feet to the top, are of good appearance, and assist the framing. A good hall floor may be made of 3 inch by 1 inch oak boards, or small oak blocks. Floors should be in narrow widths of tongued boards, so that shrinkage may be reduced to a minimum. All lead-light windows should have iron casements, with quaint iron fastenings and quadrants. These need not be expensive; but if not good, they will never be wind- nor weather-proof. Wood casements should be double rebated, and are better for being stayed with strong glazing bars. If frames are set on outside, a useful window-board should be provided inside. The ovolo is perhaps the most useful mould for this class of work, as funds will not allow much fancy in the way of special moulds.

Windows.—Avoid large panes of plate-glass; they are cold and unsympathetic. If a picturesque effect be desired, lead lights in squares about 8 inches by 6, with $\frac{1}{2}$ -inch lead, are perhaps the best; if narrower, they look

thin and are not waterproof. Wide ovolo glazing bars in squares of glass about 8 inches by 10 make a good second.

Staircase.—The staircase should be framed simply with newels of a good size, say 5 inches by 5, the balusters not being less than 2 inches square. A square baluster placed anglewise looks simple and well; or it may be 1 inch by 3 inch cut. The handrail should be comfortable to the hand, and not too sharply cut; a dog-leg stair about 4 feet wide is always satisfactory.

Plastering should be simple, and the cornices of small girth; members not too fine, or they will easily choke with colourwash. Ceilings should not be white, but a warm cream. Avoid distempered walls, as they rub off and show every mark of the sweating sure to occur in new work.

Wall Papers.—These should be simple and quiet, and play a secondary part in the decoration. In the kitchen, bath-room, and w.c. varnished papers are serviceable. A light-brown colourwash produced by umber is advisable for the scullery and out-buildings, as it does not soil so quickly as whitewash.

Miscellaneous.—Red wire-bricks are a good floor for the kitchen and pantry; they are of bright colour and easily washed. Plain good colours are the best for paint. Some rooms look well stained dark oak; walnut stain gives the best colour, and if the wood-work be good, a bright green stain makes a cheery room. Picture moulds level with the top of the architraves give a good wide frieze all round, and assist the appearance of lowness which is desirable in this class of house. A grating in the front door with a shutter is useful in a country house, in order that the visitor may be seen before the door is opened. Either a brass knocker or a wrought-iron dangle bell-pull and chain is suitable to call one to the door. Plenty of cupboard-room is desirable.

Externals.—If the plan be conceived on broad lines, and not of too fantastic a nature, there should be no difficulty in making a good elevation. The roofing should be carefully considered from the commencement, as much needless expense is often saved by avoiding several valleys, gutters, and hips; generally speaking, a gable is cheaper and gives more room than a hip. The roof should be torched—not bedded—and have a lap of at least $3\frac{1}{2}$ inches of tiles; anything less is not safe. In tile roofs the pitch should be 45° to 48° , and a plain ridge roll or half round lapped crest on the top. A well-burnt tile is the most durable; as we know by experience, however picturesque-looking a vegetating roof may be, it is affected by frost, and ordinary tiles are liable to split. Hips should have hip-tiles and not soakers. If a slate roof be preferred, small green slates, either Westmoreland or Colleyweston, are the best. Windows set flush on the outside with wide frames painted white are always an assistance to an elevation. Mullioned windows should be spaced about 1 foot 9 inches centre to centre, the transome being at least 6 feet from the floor to the underside. If the bays have flats, do not use zinc, as the noise during rain is worrying. French windows, as a rule, are draughty, and should be avoided. Plain-ledged and framed doors are perhaps most suitable to this class of house for external doors.

Chimneys.—These are best placed on inside walls as much as possible, so that the warmth may be retained. They should be carried high—say 7 feet or 8 feet—above the ridge, and be of the same height, otherwise they will probably smoke. The heads should be simple, and several of the top courses built in cement. Small pots are advisable, or the smoke will often be found to go up one flue and down the next.

Brick-work.—Never mind how rough the bricks are, so long as they are hard and well burnt and not too porous. Let the brick-work be the same all round the house. The mortar joints should be wide, white, and weathered in deeply from the top. If brick sills be used, see that they have a good, clean throat.



ARCHITECTS' BENEVOLENT SOCIETY.

Forty-fifth Annual General Meeting.

The forty-fifth Annual General Meeting of the Architects' Benevolent Society was held yesterday afternoon in the rooms of the Institute, with Mr. F. C. Penrose, the President, in the Chair. Letters from Mr. Thomas Harris, Mr. E. H. Martineau, and Mr. R. St. A. Roumieu were read, expressing regret at their inability to be present. The announcement that one so actively interested in the work of the Society as Mr. Arthur Cates, the Hon. Treasurer, was unable to be present through illness was received with general regret. The Hon. Secretary stated that he had received a donation of £7. 7s. from Mr. William Emerson, and that Mr. H. G. Ibberson had become a subscriber of the Society. The Report and Balance Sheet for 1894 [see below] were read and adopted. A vote of thanks having been passed to the retiring members of the Council, the Council for the year of office 1895-96 were elected as follows:—Mr. Thomas Blashill, Mr. Sydney Smirke, Mr. William Grellier, Mr. E. B. P'Anson, Mr. E. H. Martineau, Mr. T. M. Rickman, Mr. R. St. A. Roumieu, Mr. J. T. Wimperis, Mr. Thomas Harris, Mr. H. C. Boyes, Mr. W. Kidner, Mr. Geo. Scamell, Mr. Zeph. King, and Mr. George Inskipp. Mr. Arthur Cates and Mr. Percivall Currey were re-elected as Hon. Treasurer and Hon. Secretary respectively.

GENTLEMEN,— Annual Report for 1894.

It is with more than ordinary satisfaction that the Council of the Architects' Benevolent Society have the pleasure of submitting their Forty-fifth Annual Report. During the past year the Society has attained its greatest degree of financial prosperity, both with regard to capital and income, since its foundation, and with the larger means at its command its sphere of usefulness has been correspondingly extended.

As a special effort was made by the Honorary Treasurer in 1893, with favourable results, to increase the capital of the Society by donations, it was not expected that a large amount would be realised in this direction last year. The actual amount received in donations was £85. 14s. 0d., to which Mr. W. Willmer Pocock contributed the handsome sum of £50, and Mr. William Harrison, Mr. Ernest George, and Mr. Maurice Hulbert have contributed £5. 5s. 0d. each. Mr. Arthur B. Plummer (who, as Local Honorary Secretary at Newcastle-on-Tyne, has taken a diligent interest in the welfare of the Society) has contributed £5.

In regard to subscriptions an important advance has been made. Including the £19. 19s. 0d. which in 1893 were paid in advance for subscriptions, and which appeared in the Income Account issued for that year, the total amount of subscriptions received for 1894 was £405. 19s. 0d. A further sum of £25. 4s. 0d. was received for arrears, which, in many instances, covered the subscribers' arrears for a period of three or four years, and it is cordially hoped that the few subscribers whose names appear on the books of the Society with outstanding amounts will follow such a good example and clear off their arrears.

The Council have great pleasure in acknowledging the deep indebtedness of the Society to the unceasing and active interest which the Honorary Treasurer (Mr. Arthur Cates) takes in its affairs. Since 1890, when Mr. Cates undertook the office, the Society's invested capital has increased from £7,026. 14s. 10d. to £9,363. 2s. 10d., and the income

derived from subscriptions has increased from £308. 12s. 0d. to £405. 19s. 0d.; and the Council desire to record their recognition of the fact that this notable advance in the financial stability is mainly attributable to Mr. Cates's untiring effort and zeal in behalf of the unfortunate members of the architectural profession and their families who are unavoidably left in necessitous circumstances.

It should be added that, in addition to the amount of capital stated above, £50 were transferred from Income Account to Capital Account, with the object of purchasing £100 Caledonian Railway 1 per cent. Debenture Stock, but the purchase was not completed by the end of the financial year. The actual amount, therefore, in investments and cash standing at the credit of Capital Account on 31st December was £9,532. 11s. 6d.

Six meetings have been held by the Council during the past official year. One pension of £30 and two pensions of £20 have been paid, and the sum of £519 (as against £397 in 1893), being, with one exception, the largest amount ever paid in one year by the Society to applicants for relief, has been distributed among thirty-three persons. A pension of £20 became vacant through death, and the vacancy was duly announced and applications invited in *The*

Builder and *The Building News*, with the result that the pension was awarded to an aged architect in straitened circumstances. In a few instances the Council have come to the aid of younger architects who have been placed in temporary difficulty, through ill-health or some other cause, with the happiest results.

The Council have to record with great regret the decease of Lt.-Colonel Haywood, Mr. Edward Clark, Mr. H. Francis, Mr. Samuel Hill, Mr. James Murgatroyd, and Mr. Wyatt Papworth, all of whom were contributors to the Society.

The following gentlemen, having served three years, retire by rotation from the Council, namely—Mr. W. Hilton Nash, Mr. J. G. Finch Noyes, Mr. Andrew Oliver, Mr. Charles J. Shoppee, and Mr. Arthur Ashbridge. To fill the vacancies caused by these retirements, and by the resignation of Mr. J. Henry Christian, the Council have the pleasure to nominate Mr. Thomas Harris, Mr. H. C. Boyes, Mr. W. Kidner, Mr. G. Scamell, Mr. Zeph. King, and Mr. George Inskipp, all of whom have consented to serve if elected.

The Balance Sheet and Income Account for the year ended 31st December 1894, duly audited by Mr. Thomas Harris and Mr. George Scamell, are herewith submitted.

Dr.		INCOME ACCOUNT FOR THE YEAR ENDED 31ST DECEMBER 1894.				Cr.	
DISBURSEMENTS.		£	s.	d.	£	s.	d.
To Three Pensions		70	0	0			
To Grants paid to Applicants		519	0	0			
					589	0	0
To Expenses:—							
Assistant-Secretary's Salary ...		30	0	0			
Stationery, Printing, and Ad- vertisements		17	2	6			
Transfers of Stock, Fees, &c....		4	6	2			
					51	8	8
To Amount transferred to Capital Account.....		50	0	0			
To Balance carried forward		57	2	4			
					£747	11	0

RECEIPTS.		£	s.	d.	£	s.	d.
By Balance from last Account (1893)		35	14	9			
By Dividends on Stock:—							
£6,000 London and N.-W. Rail- way 3 per Cent. Debenture Stock		174	11	3			
£2,100 2¾ per Cent. Consols ...		55	19	1			
£1,450 Caledonian Railway 4 per Cent. Debenture Stock...		56	3	3			
					286	13	7
By Arrears of Subscriptions		25	4	0			
By Subscriptions 1894		386	0	0			
By Subscriptions paid in advance (1895)		1	6	0			
					412	10	0
By Portion of Grant returned.....		4	0	0			
By Rebate on Accounts, &c.		0	3	3			
By Income-tax returned up to 5th April 1894...		8	9	5			
					£747	11	0

Dr.		BALANCE SHEET: 31ST DECEMBER 1894.				Cr.	
		£	s.	d.	£	s.	d.
To Capital:—							
£6,000 London and N.-W. Railway 3 per Cent. Deben- ture Stock, purchased for...		5315	16	2			
£2,100 2¾ per Cent. Consols, purchased for		2110	6	2			
£1,450 Caledonian Railway 4 per Cent. Debenture Stock, purchased for.....		1937	0	6			
					9363	2	10
Cash in hands of Bankers 31st December 1893		33	14	8			
Donations received in 1894 ...		85	14	0			
Cash transferred from Income Account		50	0	0			
					169	8	8
To Balance at credit of Income Account.....		57	2	4			
					£9589	13	10

		£	s.	d.	£	s.	d.
By Property:—							
£6,000 London and N.-W. Railway 3 per Cent. Deben- ture Stock	(cost)	5315	16	2			
£2,100 2¾ per Cent. Consols	(cost)	2110	6	2			
£1,450 Caledonian Railway 4 per Cent. Debenture Stock	(cost)	1937	0	6			
Cash in hands of Bankers (Capital)		169	8	8			
					9532	11	6
By Balance of Cash in hands of Bankers (In- come).....					57	2	4
					£9589	13	10

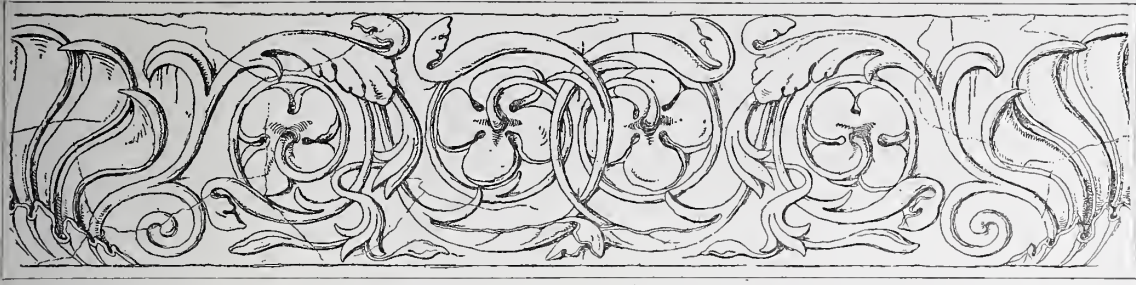
Examined with the books and vouchers and found correct, 18th February 1895.

THOMAS HARRIS, }
GEO. SCAMELL, } Auditors.

The Council, in closing this Report, desire to express the obligations of the Society to the Royal Institute of British Architects for the use of rooms in which to hold the meetings, to the Secretary (Mr. William H. White),

and to the officers, whose invariably helpful courtesy has greatly facilitated the prompt and economical administration of the Society's business.

[See report of Meeting. p. 351.]



SOUND IN ITS RELATION TO BUILDINGS.

By H. W. BURROWS [A.].

Read at the General Meeting, Monday, 25th March 1895, and registered at Stationers' Hall as the property of the Royal Institute.

IT is now nearly thirty-five years since a Paper was laid before the Institute on the subject of acoustics in connection with architecture by Professor T. Roger Smith [F.], followed in the next year by the publication of his excellent treatise on the *Acoustics of Public Buildings*. This work is now unfortunately "out of print," and difficult to obtain. Mr. H. H. Statham [F.], in 1873, contributed a very valuable Paper on "Architecture practically considered in reference to Music."* During the past session this subject was broached at one of the meetings of your Science Committee, and the writer was deputed to consider the question of acoustics for discussion at one of the Sessional Meetings. Little apology is needed for the introduction of so important a matter; but one is certainly needed for the author, who is merely an architect, not a physicist, and perhaps, therefore, not fully competent to deal with the science of acoustics in its abstruse bearings. Without professing to put before you any new views in the treatment of this complicated science, I shall endeavour to pass in review some of the principal later writings of others, scattered as they are through many scientific treatises and technical journals.

The inherent difficulties of the subject are great, and they are by no means lessened, but amplified, by the strange divergence of opinion at times expressed upon one and the same point; one observer pronouncing a building to be good for sound, while another condemns it. This may in part be attributed to the different uses to which the building is subject. "To put it simply," says the Rev. Compton Reade, speaking of churches, "just as that concert-room which is best for voices is worst for instruments, and *vice versâ*, so the church most suited for oratory is least suited for harmonic effects." But, conversely, other writers contend that "there is no instance of an apartment where music is heard to advantage where a speaker does not find himself free from restraint, oppression, or a necessity for exhaustive exertion. Therefore our problem is plainly to build our apartment, whatever it is intended for, as if it were a music-room, and we are safe." †

One finds a flat wall a source of echo and annoyance, and promptly proceeds to build a curved one as a remedy, perhaps only to find that he has plunged into a worse difficulty by focussing and concentrating the sound into one or more points in his building. Another pleads for the use of wood as the cure-all for every acoustic defect; while yet another utterly condemns its use, and would depend entirely upon plaster surfaces and smooth hard floors and the like. Each case must be considered on its merits, and the individual use to which each building is to be put carefully weighed, before a suitable result can be arrived at. An American

* TRANSACTIONS, 1873, p. 71.

† A. F. Oakey, in Van Nostrand's *Engineering Magazine* (1881), vol. xxv. p. 234.

Third Series. Vol. II. No. 11.—28 March 1895.

writer says he "can see no excuse for building an apartment so that its acoustic properties are "not as much a matter of course as keeping out the weather." But while even the greatest scientific authorities on matters acoustic are not agreed upon some of the problems which are more or less contemptuously dismissed as one of those things "which every schoolboy knows" by architectural writers, and while the strangest variance is expressed by the latter in their views as to the application of scientific laws to buildings, success can hardly be assured.

To take a well-worn theme, that of the Whispering Gallery at St. Paul's Cathedral, as an example, Ganot, in his *Treatise on Physics*, attributes the peculiarity to *reflection* of sound from point to point until it reaches the ear. Tyndall also deals with it as an echo or repetition; the late Astronomer Royal attributed it to reflection from the surface of the dome overhead; while Lord Rayleigh says the sound "seems to creep round the gallery horizontally." Professor T. Roger Smith, following Saunders, says the sound is conducted round the walls; but whether by vibration of the latter or by the air is not stated.

It is only by a patient accumulation of facts that scientific truths can be established, and no cursory dismissal of a subject, on the ground of its having been already well discussed, should be tolerated. The probable existence, for instance, of such a constituent of our atmosphere as *Argon* was not even suspected till quite recently. I do not propose to deal with the purely physical aspect of the science, but to consider it from the architect's point of view entirely, and it is with a view to raise some practical discussion on a difficult subject that I venture to bring that of acoustics before you.

Form of Buildings.—We come, then, first to the consideration of the form which a building should assume to ensure acoustical success, and we find that the greatest diversity of opinion has been expressed upon this most difficult and important part of the subject.

PLAN.—It will probably conduce to clearness of treatment if I describe buildings, so far as their form or design is concerned in regard to acoustics, much in the way that the problem would present itself to the mind of an architect in evolving his ideas, dealing first with the plan. As the limits of distance to which an average speaker can be heard are about 90 feet in the direction to which he speaks, 75 feet on each side, 30 feet to the rear, and 45 feet vertically, authors have endeavoured to group buildings into classes—those, first, which fall within the range of voice, and in which, therefore, sound proceeds from the speaker to the listener by direct radiation; and, secondly, those which exceed the above dimensions, and in which the sound must be conducted, assisted, and reinforced by the design, construction, and materials. Guillemin, in his *Physical Forces*,* "divides rooms into three classes: first, the concert-room, where the orchestra or speaker is placed, or should be placed, in the sound focus, and "where everything is subordinate to the auditor; second, the theatre, where there are two "sound foci—one for the orchestra and one for the actors; and third, the hall for deliberative "assemblies."

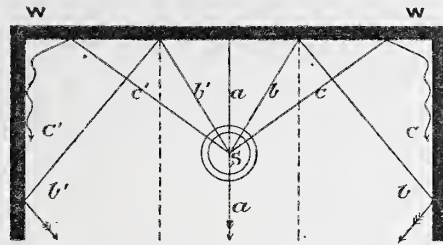
But little importance can be attached, apparently, to these somewhat arbitrary divisions, as many buildings without the slightest obstacle between speaker and hearer, and under one roof, are decidedly bad for sound—giving rise, in some instances, to confusing reflections, and consequent echoes, and in others to great decay of sound through the dispersal of the sound-rays upward in the large open roofs required to cover single spans of wide dimensions.

Simplicity of plan is not of necessity good for acoustics, as it has been so often shown that square rooms are defective; indeed, flat surfaces are condemned by most authorities on the subject, as reflections take place in the right angles of such apartments, at the floor, walls, and ceilings. A figure is given in the report of a lecture by Mr. W. Fletcher Barrett,† which

* *Building News*, vol. xxxii. (1877), p. 427.

† *The Builder*, vol. xxvii. (1869), p. 402.

illustrates this. Let s be the speaker, near the flat wall $w w$; the sound diverging in all directions strikes the wall at every angle; consider the rays a, b, c . The first reaches $w w$ perpendicular to its surface, and is reflected back in the direction of the arrow; b strikes the wall at an angle and is reflected; c reaches the wall at an angle approaching 30° , and is not regularly reflected, but is propagated as a roller (in the manner demonstrated by the late Scott Russell in his researches on waves). The nearer the speaker is to the flat wall the greater is the obliquity of the incident ray, and more rays are therefore abstracted from the volume of sound.



In such cases, therefore, it has been found of advantage to cant off the angles of the rooms, or to curve the ends, or to place the speaker near the corner of the room, so that he addresses the audience diagonally, much as we do in the meeting-room of the Institute. By curving the ends of the room the incident rays strike the wall at a less oblique angle, and are then reflected forward—in the case of a parabola as a series of parallel rays.

If rectangular rooms are adopted, some authors consider they are improved if one dimension is longer than the other. The late Dr. Brewer* said: “The best form for the interior of such rooms is that their length be about *two-thirds* greater than their breadth, in order that the sounds reflected from the side walls may mingle with the voice and strengthen it.” As sound-waves are propagated in spherical layers from their point of origin, it has often been imagined and urged that curved forms are the best to adopt for acoustic reasons, and many opinions have been expressed both for and against this view.

Of buildings having a circular plan we have already noticed the well-known bad example of St. Paul’s Cathedral; but it must be borne in mind in connection with it that the effect is in great part due to the close proximity of the speakers to the walls. Another effect would, no doubt, be produced if the speaker were situated in the centre of the circle, or near it. Tyndall records that at the London Colosseum, “a circular building 130 feet in diameter, Mr. Wheatstone found a word pronounced to be repeated a great many times. A single exclamation appeared like a peal of laughter, while the tearing of a piece of paper was like the patter of hail.” So, again, at the Dublin Rotunda a speaker said: “It appears as if some one were in front soaking up my words with a sponge as soon as the syllables had left my mouth.”† The Pantheon at Rome is also stated to produce some very singular effects of resonance, due partly to the dome and partly to the circular plan. Radau‡ mentions that in the circular Concert Room of the Fine Arts Society in Berlin, where the walls are broken by a large number of deep embrasures, this inconvenience is not met with. Closely allied to the circular plan we find many polygonal buildings giving varied results. Among those which have been noted are the following:—

The Westminster Chapter House, octagonal on plan, the sides each about 24 feet, with its well-known central clustered columns and vaulted roof, is stated by Saunders and others to be bad acoustically. So, again, with the octagonal vestibule, the Hall of Secrets in the Paris Observatory—Brewer shows that reflections take place from one side to the other, producing a regular “whispering gallery.” On the other hand, the old Surrey Chapel, Blackfriars, is quoted by Saunders as a very successful building for its purpose. It is a 16-sided room, with a gallery, above and below which are windows, the whole being covered by a hemispherical roof, with a lantern light.

With the examples here noted it will be observed that the breaking up of the wall

* *Sound and its Phenomena* (1854), p. 314.

† *The Builder*, vol. xxvii. (1869), p. 403.

‡ *Wonders of Acoustics*, p. 109.

surface by "deep embrasures," as in the Concert Room of the Fine Arts Society in Berlin, already mentioned, and by the gallery at the Surrey Chapel, successful buildings apparently resulted from the adoption of a plan which may be looked upon as normally defective.

Departing from the circular and polygonal types of plan, other modifications have been tried, and notably, perhaps, the oval or ellipse, as exemplified by the Albert Hall, London. Nearly every writer has condemned this building for its acoustic properties, or rather for the lack of them. It was pointed out by many before the building was begun that failure would in all probability result, as the reflections from such a form were known to be concentrated in the foci of the ellipse; and this, together with its vast size, form, and material of roofing, have alike combined to produce a great failure from an acoustic point of view. The amphitheatres of the ancients were not trammelled with the same restrictions that beset us: the only covering needed was the *velarium* to keep off the sun's rays, and in such buildings it can even to-day be shown that the seats were so disposed that the actor's voice proceeded directly to all the auditors. Radau says: "Even in the ruins of such theatres we can see that this end was generally obtained. Every word spoken in the arena can be heard at the farthest seats. The theatre of Hadrian's Villa at Tivoli, the Circus of Murvidio, and the Amphitheatre at Nimes are remarkable in this respect."

The amphitheatrical type of plan has often been adopted for lecture theatres, and it certainly possesses many and distinct advantages, so far as the seating capabilities are concerned, and in many instances has proved successful from an acoustic point of view; but there are notable exceptions, among which may be mentioned, chiefly defective from an excessive sonorousness, the semicircular room of the Fine Arts School at Paris, which is described by Radau * as being beautifully decorated but miserable in this respect, as are also the great Amphitheatre of Physics and Chemistry in the Jardin des Plantes, and the Amphitheatre of Physics in the College of France. Efforts have been made in each case to remedy the defects, but with little success. One of the examples often quoted as a successful application of this type of plan is the Lecture Theatre at the Royal Institution, plans and sections of which are given in Professor T. Roger Smith's work. At the University College, Gower Street, in the Botanical and Mathematical Lecture Theatres, both of which are arranged on this plan, with a quadrangular recess behind the speaker, I have noticed a distinct echo when the rooms are only partially filled by an audience, the speaker's voice beating on one's ear in a confusing manner: the effect is more noticeable in the lower room. This echo in semicircular buildings is, no doubt, in great part due to the speaker being placed in the focus of the curve, as I have observed at Gower Street that when speakers address the audience from either the right or left of the lecturer, the echo is not as perceptible, and is in many cases entirely lost.

Closely allied to the above types of plan we may next consider those in which the end is more or less curved, and the sides produced somewhat in the manner of the plan of a basilica. The objection to the concentration of sound in one focus is to a great extent lost by this arrangement, as the sound-waves, not being produced in the centre of curvature, are in part conducted by the walls before striking the curve. The London County Council Chamber, described by its architect, Mr. Blashill, before the Institute, and figured in the JOURNAL, † is an example of this method of planning, and is considered to be acoustically successful. Radau mentions that Chladni proposed a plan to terminate rectangular halls with a parabola, as found in some ancient basilicas, and suggests that the arrangement might be completed by giving a parabolic form to the roof over the platform. The objection to all such arrangements

* *Wonders of Acoustics*, p. 111.

† Vol. I. Third Series (1894), p. 371.

is that, although sound is undoubtedly conveyed by a parabola in a series of parallel rays, all sound originating in the body of the hall may be concentrated in the focus of the parabola, so that great difficulties present themselves in dealing with any curved surface of that nature.

Among other buildings planned as elongated rectangles with rounded ends which are successful acoustically may be mentioned the Cincinnati Music Hall,* the Concert Hall at Leipzig,† and the Queen's Hall, Langham Place.‡ In the last-named plan the truncated trumpet-shaped orchestra is a noticeable feature, as in nearly all other examples I have noticed the curve at the back of the orchestra is concave, parabolic, semicircular in outline, or a compound curve not easily definable.

The horseshoe type of plan has been adopted in a large number of theatres, but with varying success, depending in great part upon the materials of which the buildings are constructed, as we shall see later, and influenced largely, among other things, by the boxes, which Scott Russell says are favourable to the laws of sound, while Zamminer declares them to be monster traps for strangling it! Theatre planning and arrangement have proved an attractive theme to many writers, and I need not here enlarge upon it; the well-known works of Lachèz, Langhaus, Saunders, and Wyatt, and more recently the Paper read before the Institute by Mr. Ralph Nevill [F.],§ and the articles by Mr. Woodrow still appearing in the *Building News*, form an ample field of research for those interested in this branch of design.

Of composite types of plan, difficult to designate by any distinctive word, may be mentioned one the original suggestion of which is apparently Chladni's, namely, that in which the walls at the rear of the speaker or orchestra are formed as a truncated pyramid, diverging outward, with the seats arranged in a semicircular or other curve. This plan appears to be adopted with success at the Hall of the Midland Institute at Birmingham, and is figured in outline in the *Handbuch der Architektur*;|| and in the new Grand Theatre, Islington. Outline plans, to scale, of several buildings are given in the *Handbuch* referred to—of the Albert Hall, London; The Trocadero, Paris; Concert Hall at Leipzig; La Scala, Milan; the Birmingham Institute; and of the Houses of Parliament, Vienna.

We have to this point been considering those plans which are often designated halls, that is to say, buildings in which there is no division into arcades, as in churches and cathedrals. It has been urged by many, as to this latter—the avenue—type of plan, that the columns which carry the arcades cause sound shadows, and are therefore objectionable. In this matter we again find most contrary opinions expressed. Scott Russell says: "In a long gallery with wings the sound cannot be reflected back or rolled along so as to create disturbance, because it goes round and escapes into the transepts; consequently these are favourable to the laws of sound." Radau conversely insists that "the transepts of a church are most inconvenient to a speaker because of the repeated reflections from these recesses, which greatly weaken the sound of his voice." A recent writer in the *Building News* considers the effects of transepts doubtful, "especially those of much depth, as they tend to absorb the volume of sound at its initial point or to disperse the waves. . . . Transepts of small depth and of good width may even be found helpful in breaking up the echo and in diffusing the sound, as we find in many examples of recent churches." Dealing with church architecture and its acoustics, one of the most suggestive Papers I have noticed is that by the Rev. Compton Reade,¶ in which he does not spare the members of our profession, if I may quote the following:—

* Figured in Van Nostrand's *Engineering Magazine* (1881), vol. xxv. p. 238.

† Figured in *Handbuch der Architektur* (1893), Theil iv. p. 281.

‡ Figured in *The Builder*, vol. lx. (1891), p. 128.

§ "The Auditorium of a Theatre," THE R.I.B.A.

JOURNAL, Vol. IV. N.S. (1888), p. 125.

|| *Op. cit.* (1893), p. 281.

¶ "Church Architecture and Acoustics," *Religious Review of Reviews*, and the *Building News*, vol. lxxv. (1893), p. 37.

One might have presupposed that architects, in designing churches for special forms of worship, would have been guided by the failures and successes of the past. The reverse is the case; indeed, I question whether acoustics ever have come into consideration, it being assumed that all mediæval buildings must be more or less respectable in respect of acoustic properties. Some mediæval churches were indisputably models of acoustic excellence; others models of acoustic deficiency.

We nearly all fall under his lash, Churchman and Dissenter alike receiving castigation:—

All Saints', Margaret Street, and St. Alban's, Holborn . . . possess acoustic properties of a satisfactory character. They stand alone in this respect, St. Andrew's, Wells Street—a church celebrated for the excellence of its choir—being architecturally feeble and acoustically atrocious. . . . They are ugly and cacophonous. Nor have the Nonconformists eclipsed us. Mr. Newman Hall's pretentious tabernacle boasts an effective exterior, with a gloomy, cold interior, utterly destitute of the grace of congruity. Dr. Parker's Temple is light and bright, well adapted, moreover, to his form of worship, and acoustically perfect—for preaching purposes—but architecturally it may be styled a façade concealing a concert-room.

The main contention of his article is that churches which are good acoustically for oratory are least suited for music, and he instances Magdalen Chapel as a most striking example, attributing the peculiar excellence of this building to its T-shaped plan—choir and transepts, without a nave, and without aisles. Westminster Abbey and Christ Church Cathedral, Oxford, are cited as unacoustic. The reverend writer has the courage of his convictions, and says:—

For my own part, were I called upon to erect a church on acoustic lines I should imitate the plan of Mayence Cathedral, and place the organ behind a magnificent reredos at the extreme east end. My church should be T-shaped, as was Bristol Cathedral till recently, and as are the chapels of Magdalen, Merton, New College, and All Souls at Oxford; and I would separate the choir from the transepts by a light screen, after the model of that of Hereford. I should thus obtain an æsthetic and an acoustic effect well-nigh perfect.

The effect of pendentives and of hammer-beam and other timber roofs on the reverberation of sound is also dealt with in this telling article.

SEATING.—Where we require both to see and hear speakers or actors there is probably no better method of seating to be adopted than that described by Scott Russell and by Gwilt.* In churches and other buildings where it is not practicable to arrange the seats on the *isacoustic* curve, it has been proposed that steps might be formed to elevate the preacher so that the curve would be approximated to. This has been discussed fully on more than one occasion, and need not be further enlarged upon here.†

SECTION.—We have indicated that plan does not wholly influence the sound in buildings, as we find those of similar types behaving in different ways. Let us now consider what influence the section of structures has on the propagation of sound. As to walls and ceilings most writers are agreed that smooth surfaces reflect sound, while broken or rough surfaces disperse or absorb it, so that in some instances it may be found advisable to break up the ceilings with rafters, or to form recesses or projections in the walls. Each case must be considered on its merits, and no hard-and-fast line can be laid down for our guidance unless all the circumstances are dealt with, and one of the most important considerations in this connection is the size of the room. In large buildings, or where the dimension exceeds that calculated to produce an echo, we must endeavour to break it up and destroy it according to most authorities, while in rooms of smaller dimensions reflecting surfaces may be better. “A sharp, quick sound can produce an echo when the reflecting surface is 55 feet distant, but

* Gwilt's *Encyclopædia* (edit. 1881), p. 1047.

† *Building News*, vol. iv. (1858), p. 1195.

“for articulate sounds at least double that distance is necessary” (Ganot). Opinions are quite as conflicting in regard to the form of ceiling which should be adopted as they are in most other points in regard to acoustics architecturally considered.

H. H. S. (Mr. Statham, I assume), writing in *The Builder*,* claims that “a flat, or nearly flat, ceiling is the best form for a large music-hall. It breaks up and assists in destroying echo, while a semicircular vault collects and focusses it.” Others insist upon a curved form for the ceiling; but the nature of this curve is the difficulty. If it be parabolic or semi-circular we have the danger of foci being formed by the reflected sound-rays, and it is probably due to this consideration that some urge that the curve should be “in the shape of a coach-roof” (Brewer). Here, again, the size of the hall is of importance, together with the height at which the ceiling is situated. All appear to be in agreement that it is bad to have right-angle junctions between walls and ceilings, as confusing reflections then ensue; and to obviate this some form of cove has been usually adopted. In the Queen’s Hall, Langham Place, a convex cove is used, following the example, Mr. Knightley tells us, of the room used by Mrs. Siddons for her readings at Brighton. On the other hand, many buildings with a flat ceiling and an ordinary concave cove have proved acoustically successful, as, for instance, the Cincinnati Music Hall. Concave surfaces generally seem to be particularly difficult to contend with, and where they are successful it will, in all probability, be found that some projecting cornice or other feature is interposed in such a manner as to split up the sound-waves and prevent their reflection. The difficulties presented by concave curves are well shown by the failure of most domes or cupolas in an acoustic aspect. The circumstances which produce a whispering gallery under the cupola of St. Peter’s at Rome; the peculiar and prolonged resonance of the Pantheon at Rome and of the dome of St. Paul’s Cathedral, London; the echo and pronounced resonance of the elliptical cupola of the Baptistery at Pisa; and, to cite a more recent example, the failure of the glass domical roof of the Albert Hall, London, all serve to show the acoustic difficulties presented by such forms. The dome of St. Mary’s at Dresden is mentioned by Radau as being remarkable for the absence of resonance, and he also points out that the failure of domes is usually due to their producing powerful and prolonged resonance. In the case of the Albert Hall † one writer claims that the glass roof does not provide sufficient resistance to produce resonance, while another (H. H. S.) ‡ attributes the defect to the reflection of sound from the hard concave surface of the glass, and states that the *velarium* was put in to absorb some of the sound.

To prevent the loss of sound upward it is probably best to keep ceilings moderately low, consistent, of course, with good proportion. In our House of Commons it was found, for instance, that the ceiling was too lofty; it was lowered, the angles were canted off, and the ceiling formed of wood, with improvement so far as its acoustics are concerned.

Proportion.—In what relation should the dimensions of a building be to ensure good acoustic results? may be our next enquiry. We have already seen that one writer (Dr. Brewer) considers the length should be about two-thirds greater than the breadth, and that the height should somewhat exceed the breadth, while many urge strongly the use of what is known as *Harmonic Proportion*. This is well described by Mr. W. Fletcher Barrett § in the following words:—

It appears that for good acoustic properties a building should be so constructed that its different dimensions shall be in some simple relationship to each other. An analogous effect is well known in music, for if two notes have the simplest possible relationship to each other’s rate of vibration, as 1 to 2, or an octave, the combination of those two notes is more harmonious than any other combination.

* *The Builder*, vol. xxix. (1871), p. 543.

† *Ibid.* p. 440.

‡ *Ibid.* p. 469.

§ *Ibid.* vol. xxvii. (1869), p. 404.

Next to this would be the ratio of 2 to 3, or the fifth, and next the ratio of 3 to 4, or the interval of a fourth, the harmony decreasing with the simplicity of the combination. Further, in the case of three numbers a musical or harmonic proportion exists, when the first is to the third as the difference of the first and second is to the difference of the second and third: thus 2, 3, 6 are in harmonic proportions, because $2 : 6 :: 1 : 3$.

An exhaustive Paper dealing with harmonic proportion by Mr. A. F. Oakey* cites, as illustrative of the value of harmonic proportion, the following successful buildings:—

Old Theatre at Lyon, in the proportion of 4 : 4 : 3.

Free Trade Hall, Manchester—

Height 52 feet, or as 2; unit 26 feet; width 78 feet, or as 3; length 130 feet, or as 5.

Cincinnati Music Hall—

Height 80 feet, or as 2; unit 40 feet; width 120 feet, or as 3; length 200 feet, or as 5.

University of London, Lecture Room—

Height 52 feet, or as 2; unit 26 feet; width 52 feet, or as 2; length 78 feet, or as 3.

He also mentions that the Boston Music Hall, one of the best American examples of acoustically successful buildings, is in harmonic proportion; while Her Majesty's Theatre, in the Haymarket, which was of horseshoe form and not in harmonic proportion, being 67 feet long, 56 feet at its greatest width, and 57 feet high, was bad. Other examples of buildings, in harmonic proportion, which are described as good for sound are:—

Royal Institution Theatre †—

Height 30 feet, or as 2; unit 15 feet; width 60 feet, or as 4; length 45 feet, or as 3.

Westminster Chapel—

Height, 50 feet, or as 2; unit 24 feet; width 67 feet, or as 3; length 120 feet, or as 5.

Mr. F. R. Farrow, ‡ in his Godwin Bursary Report, mentions the proportions of the following buildings in Vienna, which he states possess good acoustic properties. Taking the measurements by scale they are very nearly as follows:—

New Opera House, Vienna—

Length 80 feet, or as 4; unit 20 feet; width 60 feet, or as 3; height 60 feet, or as 3.

Volks-halle in the Rath-haus—

Length about 80 feet, or as 5; unit 16 feet; width about 32 feet, or as 2; height about 32 feet, or as 2.

In the same Report the late Baron v. Hansen's opinion as to proportion is mentioned, he having found from experience that good acoustic results are obtained in halls whose length is twice, and height one and a half times, the width.

In the Paper by Mr. Oakey, already referred to, he describes the alterations made by him to some old buildings which were acoustically defective, and lays stress on the fact that in one case—that of the town-hall in a village (*sic*) in Massachusetts—he reduced the room to the proportion of 3 : 4 : 5 by the introduction of some shelving on which books and periodicals were stored: an acoustic success resulted.

Construction and Materials.—It will be conceded by all that upon the selection of proper materials for the construction and decoration of buildings their acoustic properties greatly depend. Unfortunately we here again find the greatest possible differences expressed by architects and scientists alike; indeed, it would be hardly too much to say that complete agreement even upon the main lines of the subject is not to be discovered. Now, whatever may be the opinion of individual observers, facts remain as stubborn things, and experiment

* Van Nostrand's *Engineering Magazine* (1881), vol. xxv. p. 228 *et seq.*

† *The Builder*, vol. xxvii. (1869), p. 404.

‡ *TRANSACTIONS* (1885), Vol. I. N.S. p. 55 *et seq.*

by competent judges can alone determine the value to be attached to each material. No doubt the divergent views are again to be partly accounted for by the varying requirements of different edifices; in buildings where resonance is demanded, the most elastic materials are needed, while in others some less elastic substances may suffice. As the volume of air contained within any room is the medium by which vibratory movements are transmitted to our ears, it follows that as the vibrations of various bodies differ, their effect on our auditory senses will also greatly vary.

That an inelastic substance, such as felt, prevents the transmission of sound is well shown by the common experiment of a bell under an air-pump receiver—where, if the sounding-bell be allowed to touch the air-pump plate, sound is audible; but an inelastic material deadens the sound in such a manner that if perfectly insulated all sound is absorbed. The transmission of sound is largely affected by the molecular structure of the material; if it be homogeneous, sound is transmitted through it equally well in every direction; but if it possess a definite structure, its sound-transmitting capabilities greatly vary; thus the velocity of sound in wood across the fibre is at least two to three times its velocity along it. Some excellent experiments are recorded by Mr. W. Fletcher Barrett in his lectures,* in which a set of sound-tight boxes were used, in the innermost being placed a sounding body. When a light rod is pushed through the small valve left in the boxes, and discs of varying materials are tested, the following results are recorded:—

Wood, sound well heard;
Slate, but little sound;
Tile, but feeble augmentation of sound;
Plaster, practically no reinforcement;

and the importance of this in buildings will be realised. If the walls of the building be covered with such materials as plaster, slate, tile, or stone, they are almost or entirely unable to reinforce the speaker's voice, whereas if they be lined with wood it is strongly reinforced. Mr. A. F. Oakey, in the Paper already quoted, points out that "our choice of material must depend upon one fact that is seldom the same in any two apartments, namely, the relative capacity, that is, the number of cubic feet of space, for each person. The most exhaustive experiment has determined that when the number of cubic feet of space for each person exceeds 195, it becomes necessary to adopt a resonant material for ceilings or walls, or both; that when the space exceeds 210 both walls and ceilings should be of wood, and the greater the space per head beyond this, the softer and more porous the wood must be, and the greater the necessity of perfect construction, so as to preserve the continuity of the fibre, and the thinner the wood employed should be, the necessity always increasing for an air-chamber back of this wooden surface, as the proportion of space increases"; when the cubic feet per person falls below 195, a hard, repellent surface is recommended; and if below 150, stone, or artificial stone, or even thick iron-plate, has been found advantageous.

The value of wood for reinforcing by its vibrations the volume of sound of the speaker's voice or of instruments is well known, and the subject was very fully dealt with by the Congress of Architects and Engineers held in Italy in 1880, as reported in *The Builder*,† dealing especially with theatres, and the following summary of the resolutions arrived at may prove useful:—

Wood of uniform fibre, and especially fir, is recommended to augment the sound of music. One kind of wood only should be used in any one room to secure uniformity and distinctness. Floorings under any sonorous body should be hollow, placed over a hollow; also of fir. A

* *The Builder*, vol. xxvii. (1869), p. 403.

† *Ibid.* vol. xxxviii. (1880), p. 560.

lining of wood isolated from the walls is recommended. It is also suggested that the soffits of the theatre, the fronts of the boxes, &c., should be covered with thin planks. If columns are necessary they should be of wood and hollow within. Other recommendations as to the form and design are included in this report, but the materials alone are now under consideration. For the same reasons, namely, the necessity of reinforcing sound for musical purposes and for speaking, it is urged that pulpits should be constructed with a false bottom, and in a discussion in *The Builder* * on the value of materials in regard to sound, the editor remarks in one instance it was proposed that a solo-singer should "leave the stalls and sing from the choir steps, facing the middle aisle." "Then," said the principal soprano, "I hope you will have a small staging of boards, even if it is only raised three inches, for *no one can sing off stone.*"

Dealing with a similar question Brewer, in the work already alluded to, says:—

All musicians know if they sit on a soft cushion or sofa, the sound of their voice or instrument is much more feeble than when they stand on a platform or sit on a hard seat—not so much because the cushion stifles the echo or resonance as because it does not vibrate.

Now, as opposed to this, we have the claimants for a more solid type of construction and material. Among older writers mention may be made of Lachèz and Guillemain, and, more recently, some of those who took part in the discussion upon the reading of Mr. Ralph Nevill's Paper before the Institute,† Mr. Wm. White and Mr. Robt. Walker especially recommending the use of concrete for floors of concert rooms and lecture halls, the latter citing Terry's Theatre and the Alhambra Theatre, both constructed of fire-proof material, of iron and concrete, as wonderfully resonant. In another case Mr. Charles Fowler ‡ instanced an old country church, where the substitution of a wood-block floor for an old boarded one deadened the sound, so that the preacher had considerable difficulty in making himself heard.

The materials employed in some of the buildings in Vienna are described in Mr. Farrow's Report (1885). § Of the Houses of Parliament he says: "The ceiling is flat, and constructed of iron and plastered brick, a portion of the surface being occupied by a flat ceiling of iron and glass. The walls are plastered or lined with marble slabs." In the same Report mention is also made of the materials used in other of the principal Viennese buildings in regard to their acoustic effects.

A happy compromise between the contending views seems to have been arrived at in the Queen's Hall, Langham Place, and in the Comedy Theatre, Manchester. Fibrous plaster has been adopted for the lining of walls, ceilings, &c., throughout in the latter; and in the former the walls are described as intended to be "lined with wood, fixed clear of the walls on thick battens: coarse canvas will be strained over the wooden lining, on which will be spread a film of composition, and on this will be raised ornament." ||

The question of material is one of the most important for acoustic considerations, and some careful experiments seem much needed to ensure the best results being arrived at. The lining of buildings, such as theatres, with wood throughout, brings with it such frightful risks from the possibilities of fire that its use cannot be thought of with equanimity; but the fact remains, apparently, as well demonstrated that by far the most reliable material to produce a satisfactory resonance when required is undoubtedly wood, and that by preference fir. It must be also borne in mind that plastered surfaces have a much more deadening effect upon sound when they are newly formed; as they dry out they improve, in all probability because the material then becomes more homogeneous, and consequently more elastic.

* *The Builder*, vol. liv. (1888), p. 160.

† "The Auditorium of a Theatre," *THE R.I.B.A. JOURNAL*, Vol. IV. N.S. (1888), p. 125 *et seq.*

‡ *JOURNAL*, Vol. I. Third Series (1894), p. 376.

§ *TRANSACTIONS* (1885), Vol. I. N.S. p. 55.

|| *The Builder*, vol. lx. (1891), p. 129.

Heating and Ventilation, and their Effect on Sound.—The propagation of sound is greatly affected by the condition of the air through which it passes, both the *velocity* and *intensity* being dependent upon the *density* and *uniformity* of the atmosphere or other media through which the sound-waves pass.

Under favourable conditions sounds of small intensity may be heard over very great distances, as has been well shown by the records of several Arctic expeditions, in which it is stated that conversations have been carried on at distances of more than a mile and a quarter. It has also been recorded by Humboldt that sounds gain considerably in intensity at night, his observations on the cataract of the Orinoco demonstrating that sounds were three times louder at night than by day. This augmentation of sound at night may in part be accounted for by the increased condensation, producing a denser atmosphere, while in the daytime upward currents of air are generated by the sun's rays, by which the air is rarefied.

Sound is conveyed with difficulty in a rarefied condition of the atmosphere; and if the attenuation be continued till vacuo is produced, all sound is lost. On the other hand, a dense atmosphere is a good conductor of sound; but Tyndall* states that "the intensity of a sound depends on the density of the air in which the sound is generated, and not on that of the air in which it is heard," and points out that the velocity is also affected by temperature, augmenting, from a velocity of 1,090 feet per second at the freezing point, nearly 2 feet per second for every degree Centigrade added to its temperature.

If the atmosphere be perfectly homogeneous in composition, sound is propagated in regular waves; but whatever tends to break up or disturb the regular propulsion of these waves confuses and lessens, and may even totally absorb them. This was well shown in one of Captain Parry's voyages, where conversation was being carried on from opposite sides of Port Bowen Harbour, a mile and a quarter apart; but a thaw coming on the sound could be no longer heard, even by loudly shouting.

Some of the most striking experiments were carried out by the late Professor Tyndall in his researches on the acoustic properties of the atmosphere, whereby he demonstrated that, while optically transparent, it could be, and often is, acoustically quite opaque; and, further, that this acoustic opacity can be produced by varying the uniformity of the air by introducing gases of different densities, by variations of temperature, and by the presence of air saturated with various vapours. He showed that the mere occurrence of rain, hail, snow, and fog has no sensible power to obstruct sound. "So long as the air forms a continuous medium, the amount of sound scattered by small bodies suspended in it is astonishingly small."

Contrary, too, to what we should expect, wind does not favour the propagation of sound in its greatest intensity to the windward, but, as has been shown by De la Roche and others, the range of sound is greatest at right angles to the direction of the wind. It is not due, according to Professor Stokes, to "a stifling of the sound to windward," but to "a tilting of the sound-wave over the heads of the observers that defeats the propagation in that direction."

Now if the above stated facts be true for the open air, shall we find the same, or similar effects inside our buildings? If the air contained within the walls of any edifice could be maintained in a perfectly homogeneous state, we should be led to infer that its acoustic properties would be better than when it was in a heterogeneous condition, and *vice versâ*. But the presence of an audience, exhaling dense gas and water vapour, together with the

* *Sound*, p. 10.

heating apparatus and lighting, increase the temperature and produce very distinct changes upon the condition of the air, giving rise to acoustic clouds, and consequent partial reflection and confusion of the sound-waves.

To pass now in review some of the opinions expressed on this subject by various writers, so far as buildings are concerned. The late Dr. Reid, so long ago as 1836, urged that "the air should be maintained as uniformly equal as possible." In Radau's *Wonders of Acoustics* there is the following note, but as no reference is given I have not been able to verify the statement:—

At the time when the ventilation of the Houses of Parliament was under discussion, it was stated that the current of heated air which rose from the hall prevented the voice of the speaker being heard at the opposite side.

The same writer says:—

The most original project for improving the acoustics of theatres is that suggested to Chladni by Langhaus, of Berlin. He would direct from the stage to the spectators a slight current of air, which should carry the words of the actors. It would be produced by skilful ventilation.

Professor T. Roger Smith in his work on *Acoustics of Public Buildings* states that—

An obstruction to the free passage of sound is presented by every adverse current of air and every variation in the quality of the atmosphere or its temperature, and, further, that even a very gentle current exercises a strong influence upon the course of sound, favouring or opposing its progress, as the case may be; and that, consequently, in arranging for ventilation it will be best to avoid creating a current that shall set in from the audience towards the speaker, or even one that shall pass across the space between them, but that it will be of advantage to direct the ventilation so that whatever movement takes place in the air shall follow the same direction as that towards which the speaker throws his voice.

Tyndall's experiments would tend to show that the *direction* of the ventilation is not of so much moment as is here insisted upon, but rather that the first statement should be regarded as of importance, viz. to maintain the equality of the air.

Writing in 1873, Alexander Saeltza* laments the neglect of this subject, and, with characteristic transatlantic assurance, states that his work "is the first attempt, in its peculiar nature, ever presented to the public," and that "he cannot find a book in which ventilation "is touched upon in connection with acoustics." But, while regretting the boldness of this statement, a perusal of his work will well repay attention, as the matter is well discussed and the importance of good ventilation clearly demonstrated. He states that in some of his own buildings, where the ventilation was shut off in the confusion and hurry of an opening night, the sound became perfectly unintelligible; but that when the apparatus was set in working order, in half an hour "the sound became perfectly clear and distinct."

By far the most important communication I have noticed in this connection is a valuable Paper, by Mr. W. W. Jacques,† in which are recorded the results of a series of researches.

The first experiments were carried out in the laboratory, and by them he showed that currents of air of varying density not only decrease the intensity of waves of sound, but that they also cause indistinctness of hearing by modifying the form. An apparatus was formed in such a manner that a given sound—of a musical instrument or a man's voice—was caused to pass over substances artificially heated to imitate the density of air found in various

* *A Treatise on Acoustics in Connection with Ventilation.* New York.

† "Effect of the Motion of the Air within an Auditorium

"upon its Acoustic Qualities," *Journ. Franklin Inst.* (1878), Third Series, vol. lxxvi. p. 390.

auditoria, and it was found that in addition to the decrease of the intensity of sound, it had also lost its distinctness. The same effect was produced when the source of origin of the sound was varied, an organ-pipe with a known and constant pressure of air, and a man who spoke with a clear voice, being in turn experimented with. With the voice it was found the intensity was decreased, and the articulation rendered indistinct and confused. The explanation is to be found in the fact that rays of sound striking upon one current of air are in part carried on and in part reflected; and the portion carried forward is subjected to a similar treatment, so that, in the words of the author, "each reflection being thus again and again reflected and divided, we have, following close upon the primary wave, a multitude of secondary waves, which, falling upon the ear, greatly mask the distinctness of the original sound."

He then shows that similar interference and confusion are brought about in buildings, the Hall of the Massachusetts Institute of Technology being first experimented upon, to confirm, if possible, the laboratory experiments on a large scale. The hall was first dealt with, with windows, doors, and ventilators closed, and by suitable means, explained in detail by the writer, the paths of the sound-waves were traced out. Windows and doors were then opened to admit the cold wintry air, and the ventilators were also opened to allow air, heated to a temperature of about 100° Centigrade, to flow into the room. Confused and varying currents were thus introduced, and precisely similar effects to those observed in the laboratory experiments were reproduced.

In the third, and last, series of experiments carried out by the same author at the Baltimore Academy of Music most important data were established. The ventilation of the house is thus described :—

The ventilation of this house is so arranged as to prevent largely the formation of air-currents of unequal density. According to a survey, made with thistle balls and the anemometer, of the space contained within the walls of this theatre, the movement of the air is as follows :—

The whole supply of fresh air is admitted at the back of the stage, is there warmed, then crosses the stage horizontally, passes through the proscenium, and then, somewhat diagonally, towards the roof, across the auditorium in one grand volume, and with gentle motion, so as to almost entirely prevent the formation of minor air-currents. It is exhausted partially by an outlet in the roof, and partly by numerous registers in the ceilings of the galleries. From this central outlet, and from the large flues of the registers, the air passes into the ventilating tower over the great chandelier, which supplies in its heat a part of the motive power of the circulation. It is further expelled from the tower by means of large valves, so contrived that, while they offer no obstacle to the *egress of air*, they completely *deny it entrance*. The amount of air so passed through the house is, as determined by a series of experiments, about fifteen thousand feet per minute. This amount, sufficient to ventilate the house, is just what seems to be required to impress the proper movement on its atmosphere. That it is amply sufficient for ventilation is shown by the fact that the thermometers of the upper circle do not vary perceptibly from those of the orchestra circle.

The seating of the building is stated to be for 1,600, and a strong consensus of opinion is quoted to show that the acoustic properties are almost perfect. The author then shows by a striking series of tests that the good acoustic qualities are largely due to the *condition of the air*, and not to the plan, or to the materials of which the building is constructed. Observers were placed at various parts of the theatre, without being cognisant of the nature of the experiments about to take place, and were requested only to take note of any times during which the sound varied. The ventilation was interrupted at certain intervals, and at times, agreeing with the cessation of the ventilation, a perceptible difference was recorded by each of the observers in the acoustic properties of the theatre.

The ventilation in one case was reversed from 8.30 to 9 o'clock, and the following is given as the result of the operation :—

- A. Observers in Orchestra : ... to 9.15, very indistinct ; 9.15 to 10.0, much better.
- B. ,, Right Balcony : 8.45 to 9.15, sound was dead ; 9.15 to 10.0, decidedly better.
- C. ,, Left Balcony : 8.0 to 8.40, good ; 8.40 to 9.15, confused ; 9.15 to 10.0, good.
- D. ,, over Stage : 8.0 to 8.30, good ; 8.30 to 9.0, strong draught, hearing better ; 9.10, draught disappeared.

It will be noticed that each observer recorded a period of half an hour during which the sound was interfered with ; the 10 to 15 minutes elapsing between the alteration of the ventilation, of course, being easily accounted for by the fact that the condition of the air would not in either case be momentarily changed. The improvement of the ventilation over the stage caused the observer placed in that position to hear *better*, the air then being in a more equable condition. On another occasion similar tests were repeated, with corresponding results.

I have thus ventured to somewhat fully quote an author whose experiments go far to show the extreme importance of good ventilation in regard to the acoustic qualities of buildings ; and this more particularly as the ideas, verified as they are by careful experiments, were claimed to be new.

Dealing with the same question, Mr. Ralph Nevill, in his Paper read before the Institute on "The Auditorium of a Theatre,"* quotes Saunders's opinion, that "it makes little difference to sound whether with or against the wind," and says : "I am sure no one will agree with him ; most of us will say, from actor to audience," and still further says :—

Professor T. Roger Smith quotes experiments to show that sound travels better with the wind than against it, and that it travels *still better across the wind*. The importance of this does not seem to have been noticed. If it be true, one great objection to the central ventilation flue disappears. For acoustic reasons, therefore, we may say that any extraction of air from such places must be from the back or the ceilings.

By reference to the Godwin Bursary Report for 1885, already referred to, it will be seen that the buildings in Vienna described by Mr. Farrow as good acoustically are also well ventilated ; indeed, the system of ventilation is of the most elaborate and complete description, and it may well be that the admirable acoustic properties are as much to be attributed to this as to any other consideration. I particularly allude to the Houses of Parliament, the Opera House, and the Rath-haus. The systems of ventilation adopted are fully described and illustrated by Mr. Farrow.

Considering all the evidence, so far as I have followed it, the conclusion seems carried home to one that the *direction* of the ventilation should not be confounded with wind as we know it in the open air. In the more or less confined space embraced within the walls of a building nothing is quite comparable to the action of wind ; and if it were, we should be justified, in the light of Tyndall's and other researches, in regarding the *direction* of the ventilation as of but little or no moment ; for we have seen that sound is heard not only with the wind, but often much better against it, and, better still, across it. The principal office of ventilation in its acoustic bearings seems to be that it does, or should, render the air free from those acoustic clouds which disturb, divert, modify, or absorb sound-waves as atmospheric clouds modify or destroy light.

Keynote of Rooms.—Many writers have agreed that the acoustic qualities of rooms are best developed when the speaker accommodates his voice to a certain pitch, whereby consonant vibrations of the air are evoked. This has been termed the *note* or *keynote* of the room.

* THE R.I.B.A. JOURNAL, Vol. IV. N.S. p. 128.

Scott Russell,* for instance, states that "a room 30 feet long gives out C natural," and Professor T. Roger Smith, in his book on *Acoustics of Public Buildings*, alludes to the same property, attributing it apparently to the harmonic proportion of the room. Mr. W. Fletcher Barrett,† dealing with the same point, states that "the entire mass of air in a large room, if it could be thrown into vibration as a whole, would yield a note of a pitch so low as "to be quite inaudible. By subdivision its parts can, however, vibrate more rapidly, and give "rise to that resonance which is often called the *note* of a room," and he thinks it is owing to this fact that "we have probably the philosophy of the origin and practice of intoning "services in cathedrals," as the voice then keeps tune to the musical resonance of the building. A writer in the *Building News* ‡ points out that—

In determining the harmonic properties of rooms, however, two or three considerations are important. One is the materials of which it is constructed; secondly, the proportions; and thirdly, the fittings. A hall built of masonry has a different note from one constructed of timber, or largely composed of that material.

That the proportion of the room has considerable influence upon sound is well demonstrated by the following remarkable instance, quoted by Lord Rayleigh §:—

The late blind Justice Fielding walked for the first time into my room, when he once visited me, and after speaking a few words said "This room is about 22 feet long, 18 wide, and 12 high," all which he guessed by the ear with great accuracy.

Mr. A. F. Oakey || says that a speaker will find it "less tiresome to talk in that key an octave above or below, as best suits him," and mentions that the old Salle de Concert at Paris is particularly sensitive in this respect, the wood lining of the hall having become, like an old violin, well seasoned and tuned to respond readily to the vibrations of both voices and instruments.

Dr. Cutter, of New York, ¶ says that the size of the auditorium seems to govern this tone, which has been called the keynote of the auditorium; and he further says:—

No one will dispute that music in the keynote of the auditorium is more effective than when it is not in that key.

He claims that both for music and speech the same stipulations hold good, and as a remedy for faulty auditoria suggests that speakers should only vary their voices as in a well-regulated song (*e.g.* "Annie Laurie").

The keynote of a room can be ascertained by singing or playing the natural scale slowly and smoothly, and the note most prominent is the keynote. The same writer mentions the following buildings as having been experimented upon successfully: 1. The Cincinnati Music Hall, with seating capacity for 6,000; the keynote was found to be F. 2. The City Hall, Saratoga Springs, was tested in 1890, and a notice placed in the building, "The keynote of "this hall is F," and without mentioning the keynote of the rooms, he claims that when it was adhered to in the Prince Albert Memorial Hall, Town Hall, Leeds, and in the rooms of the International Medical Congress at Berlin, the acoustic effects were successful, whereas ordinarily they are pronounced to be bad.

Remedies.—Varied remedies have been suggested to improve the defects of acoustics in existing buildings, and mention may be made of some of them.

It has been noted in dealing with materials that *cushions, furniture, &c.*, deaden sound,

* *Building News*, vol. iv. (1858), p. 1195.

† *The Builder*, vol. xxvii. (1869), pp. 403, 404.

‡ *Building News*, vol. xxxiv. (1878), p. 486.

§ *The Theory of Sound* (1878), p. 68.

|| "Acoustics in Architecture," Van Nostrand's *Engineering Magazine* (1881), p. 236.

¶ "Phonics of Auditoriums," *American Journal of Science*, vol. xlii. p. 468.

as is well known, and in many instances the use of thick *draperies* on walls has prevented, or greatly modified, echoes, absorbing or quenching the reflections. Radau mentions that at St. Paul's Church, Boston, the preacher can only be heard when the church is *decorated*, whereby the sonorousness of the arches is reduced. *Mattings* and *carpets* and other soft coverings tend to quench sound, and the presence of an *audience* often has precisely the same effect, as recorded by Tyndall in his experiences at the Senate House, Cambridge, where the room when empty was excessively sonorous. *Books* and *papers* have a similar effect, as noticed by Oakey in the Paper already quoted. The use of a *velarium* is also an advantage at times, where, as in the case of the Albert Hall, sound is lost in the roof or reflected from it. *Flags* and other hangings have occasionally been used for the same purpose with good results. Radau describes the advantages of *Venetian shutters* in the case of a lecture-hall near Leeds, where a bad echo was quite distressing: they were placed against the windows, and brought forward when the audience was small, and the contrivance is said to have answered admirably.

The use of *sounding-boards* over pulpits and in similar situations is too well known to need more than one word, and the effect of mirrors for reflecting sound, both *parabolic* and *hyperbolic*, is well described by Professor T. Roger Smith in his oft-quoted work. Without being in the least able to account for the scientific *rationale* of the matter, even if there be one, the use of *wires* and *cords* has been recommended, and at times stated to be successful. The former were used at the Guildhall, Plymouth,* and at a chapel in Malvern,† and the latter at St. Peter's Church, Geneva, in the Assembly Hall, City Offices, Bordeaux,‡ and at the Presbyterian Church, Valletta.§ In the last-named case the method of procedure is carefully described. A patented arrangement of wires (Patent No. 1955) was tried at the Lecture Theatre at South Kensington Museum, and is stated to have remedied the acoustic defects of the room.|| In the face of such categorical statements of success as those above recorded, it is much to be wondered at that so little has been done to test the efficiency claimed for these contrivances.

Acoustic Vases.—Though, possibly, of no great practical importance, allusion may be made to the bygone use of so-called acoustic vases. This subject was very fully dealt with by Mr. Gordon M. Hills [A.], in a Paper ¶ read before the Institute in 1881, together with appendices dealing with the use of brazen vases, or *echeia*, as recommended by Vitruvius. Plans of the buildings containing these vessels, with illustrations of the vases, are given, and in the appendix are added plans and sections of the Theatres at Aizani, at Hierapytna, at Gortyna, and at Lyctus.

Subsequent to the reading of the Paper further discoveries at Fountains Abbey were recorded by Mr. St. John Hope as the result of excavations under the upper rank of stalls, the vases then found bringing up the total at that time to twenty-four. Mr. Hope questioned the theory that they were inserted with a view to augment the sound of music; but the editor of *The Builder*** observed that "the idea is a very old one, and not so absurd as Mr. Hope "seems to have implied," asking at the same time if he had any other explanation to suggest. None seems to have been forthcoming, so far as I have observed.

Considerable resemblance exists, it seems to the writer, between some of the acoustic vases and the *resonators* devised by Professor Helmholtz, by which, taking advantage of the principle of resonance, he analysed composite sounds. This especially applies to the acoustic vase figured in the Institute TRANSACTIONS from the Church of St. Martin at Angers.†† In any

* *Building News*, vol. xxxvii. (1879), p. 140.

† *The Builder*, vol. xxxii. (1874), p. 6.

‡ *The Popular Science Monthly*, vol. xvii. (1880), p. 141.

§ *Building News*, vol. xxxiv. (1878), p. 305.

|| *The Builder*, vol. xl. (1881), p. 359.

¶ "Earthenware Pots (built into Churches) which have been called Acoustic Vases," TRANSACTIONS, 1881-82, p. 65.

** *The Builder*, vol. lv. (1888), p. 211.

†† TRANSACTIONS, 1881-82, p. 95.

case these vases would certainly, even if only to a small extent, augment sounds which were in unison with themselves. Any volume of air contained in an open vessel, if caused to vibrate, yields a certain note, and when that note is sounded in its neighbourhood it tends to strengthen it. It is by no means necessary to have a globe for this purpose; jars, tubes, or hollow cylinders, &c., are equally capable of reinforcing sound, or producing *resonance*, so long as the vibrations produced by the sounding body are proper to the resonant body.

It is much to be regretted that so many of these acoustic vases have been either removed to museums, or destroyed *in situ* during their examination or extraction; as, apart from their archæological interest, the opportunity has been to a great extent lost of testing their value or otherwise for acoustic purposes. Is it right to suppose that the ancients and mediævalists were utterly wrong in their use of these vases? They may not have arrived at a scientific determination of their true value, and hence some of them failed in their application; but it would seem fair to infer that some influence was exerted on the quality of sound by their use, albeit the effect was, in all probability, but a small one.

DISCUSSION OF MR. BURROWS'S PAPER.

Mr. JAMES BROOKS, *Vice-President*, in the Chair.

PROFESSOR T. ROGER SMITH [*F.*] acknowledged the author's reference to his book, *The Acoustics of Public Buildings*, and said that the work was being reprinted, and would shortly be published. To his mind the most valuable and most interesting part of the excellent Paper they had listened to was that which dealt with the condition of the atmosphere in rooms. That was, he thought, a comparatively new point, and the experiments referred to were very interesting; they showed almost beyond doubt that unless the condition of the atmosphere in a room were homogeneous there must be some difficulty in the radiation of sound, and suggested rather new ideas as to the possibility of improving the hearing in theatres and buildings of that sort, and the necessity of preserving the atmosphere at a tolerably uniform temperature and quality. If that could be carried further, it would lead to exceedingly interesting results. He thought it very desirable that experiments of other sorts should be conducted, and the results recorded. To some extent every building was more or less of an experiment. If the Science Committee would secure a collection of observations upon interiors, their dimensions, their materials, whether they were successful for music, whether they were successful for speaking—for the two things were very different—and if they were not successful for either one or the other, whether they were uniformly bad, or whether they were bad at one place and good at another place; observations like those, if they were tabulated with regard to a considerable number of known buildings, and by careful observers, would, perhaps, throw additional light upon what was confessedly and undoubtedly a very obscure subject when applied to practice. The observers, of course, should be skilled and

careful, for he noticed that among the observers Mr. Burrows had quoted, one had said that Her Majesty's Theatre was bad for sound. That, he thought, was the greatest mistake that any observer could possibly have made. There were two—he referred to the old one, the real one, which was lined with wood like a matchbox, and which was a most wonderful place. Music, it seemed to him, never sounded as it sounded in that building. He was not sure that the Albert Hall deserved to be called a failure. A building where five, six, or seven thousand people were in the habit of congregating every fortnight to hear music, and heard it with delight and success, could not be called a complete failure. There was, no doubt, a considerable amount of echo. In the early stages of the construction of the building, when it was full of timber (there was an enormous timber staging), the hall promised to be a most wonderful place for sound. He was there repeatedly at that time, and singing and playing on the fife or flute could be heard with the utmost distinctness in every part of the building. When the timber was taken down the echo from the roof was found to be very great. His own impression was that the echo was not from the glass roof, but from the large cove. With regard to another elliptical building where an echo had been found, he had an opportunity of tracing very carefully the actual lines that sounds from a certain point would make if they went up to the cove and were reflected down into the building. He found that they fell in a line forming an oval, and that on a corresponding portion of the floor where the seats were, the people had difficulty in hearing, so that it appeared pretty clear that the cove had been, in that instance at least, an echoing surface, and he suspected that the echoes which were heard, and which to some extent,

notwithstanding that the velarium had checked them, were still heard in the Albert Hall, were due more to the cove than to the glass roof. Mr. Burrows had not said quite as much about echo as perhaps that subject deserved; he (the speaker) would like to say one or two words on that subject. His experience, in endeavouring to unravel the defects of rooms where people found difficulty in hearing, had led him to believe that echo was by far the most mischievous of the defects. The places where the greatest difficulty of hearing was experienced were those where there were bare flat walls against which the speaker's voice could impinge, and those walls at such a level that the sound of the voice striking upon the wall was reflected level to the ears of some of the audience. Mr. Burrows had mentioned one of the theatres at University College—and a rather remarkable instance of echo had been developed by an alteration made there. He had mentioned two theatres which were one above the other, and both pretty nearly of the same size, though not quite of the same arrangement. In the lower one the echo was most distinct. This theatre was formerly a very good building for speaking and hearing, the slope of the seats being high, and the wall consequently completely masked and clothed by the sloping seats. The authorities of the College thought it would be desirable—for reasons which were connected with safety in case of fire—to alter the seating, and they gave it a much flatter slope. Since then it had been infested by a most conspicuous echo, which made speaking very difficult. Echo would develop itself even in comparatively small rooms. His impression was that a less distance than the 55 feet referred to by Mr. Burrows was quite sufficient for the purpose; and his idea was that if they took the difference between the direct path of the sound from the speaker to a hearer, and the length of the reflected path—supposing the sound was reflected from a wall to the same hearer—and found them to differ by more than 40 feet, an interference from echo was perceptible, and when it became a little more than 40 feet was very perceptible. Consequently, in a room no more than 20 feet across, a man might hear the echo of his own voice; and that, he thought, would be confirmed by those who were in the habit of speaking in a room, not much larger than that, which was very bare and very reflective. Consequently, the presence of large flat surfaces which were good reflectors was a very formidable enemy, and the breaking up, the masking them, the putting galleries or columns in front of them, the introduction of all kinds of architectural forms which would break them up and make them bad reflectors, was one of the best means for ensuring freedom from echo. The other point, resonance, was more difficult to deal with. There was no doubt that, up to a certain point, resonance was an advantage, and where

music only was to be dealt with, an extraordinary amount of resonance could not only be endured, but enjoyed. In such a place as Westminster Abbey, or still more in Canterbury Cathedral, the wonderful amount of resonance was a striking feature. After a chord had been sung by the choir, and the voices had ceased, the sound was heard reverberating above for several seconds. It required a very skilled speaker or reader to speak or read in a church of that sort without disturbing the resonance to such an extent as to make his words quite indistinct. As all knew, large numbers of persons could be made to hear clearly and distinctly in Westminster Abbey, and therefore it was clear that a great amount of resonance could be tolerated, especially if the person speaking or reading knew how to manage and to modulate his voice to keep it at a level. He would conclude by proposing a vote of thanks to Mr. Burrows for his exceedingly interesting and comprehensive Paper.

MR. J. TAVENOR PERRY [A.] seconded the vote of thanks, and said that as Mr. Burrows had mentioned a building of his (the speaker's) as being successful in the matter of resonance, he would explain how he had arrived at its mode of construction. In a house he had built on a very exposed part of the coast by Dover, he had used concrete almost entirely—concrete filled in between brick skins. A year afterwards he asked his client if he were perfectly satisfied with it, and he said that the only thing he was troubled with was its resonance. If there was a gale blowing, he could hear the house hum; if there was a hurricane blowing, the glasses in the house rattled. He (the speaker) had learned his lesson. Two or three years afterwards he had to build the Alhambra Theatre, and he built it of concrete—roof, floors, and galleries—and he believed the success was due to the use of concrete.

MR. H. H. STATHAM [F.] had not studied the subject from the scientific acoustic point of view, but he was rather consoled by the reflection that all those who had studied the subject of acoustics scientifically differed as to what ought to be done. He would give some results of his observations during a good many years on the effect of different buildings in regard to music. He quite agreed with the authorities quoted by Mr. Burrows, to the effect that a building might be very good for speaking and very bad for music. A building which might be very good for one person standing at a particular point might be quite unsatisfactory for a number of performers to be heard together. In regard to the question of resonance, there was a good deal of confusion of ideas. He was well acquainted with one building which produced very strong echoes indeed—that was St. George's Hall, Liverpool—which was composed entirely of hard materials—granite columns, cement walls. The floor at first was a tiled one,

but afterwards a wooden floor was put in. But all the walls were composed of hard reflecting materials. The echo when the organ was playing was tremendous. The eminent organist, Mr. Best, who had for many years played there, had remarked to him (the speaker)—and the remark struck him as a very odd one—that that hall no doubt “helped the organ very much”—he meant helped the tone of it—that there was a grand roll after a chord was struck. That was just what had been referred to by Professor Roger Smith in regard to one of the cathedrals. That was one thing. But the appreciation of what one might call complicated musical compositions was quite another thing. There echo was not wanted. Everything must be distinct and clear. In St. George’s Hall, as in some cathedrals, a very grand effect was produced when a chord was struck, but if one of Bach’s fugues were played it was all a muddle in consequence of the echo. So that while people were carried away by the desire for that resonant effect, they were spoiling the effect of complicated music at the same time. A hall very much upholstered prevented all echo, and was on the whole good for clearness of effect in instrumental music. Solo singers, on the other hand, complained that such a room did not help them at all. There was no echo, but it did not help the voice. He had had experience of that also in another hall which was exceedingly full of upholstery. One never heard the least bit of echo, but one felt that the hall was bad for the singer. The singer wanted more echo than a band or organ required, and that was one of their greatest difficulties—to steer clear between these various considerations. Considering its size, he thought the Albert Hall was a wonderfully good building for sound. The real difficulty was that it was too large to avoid echo. In enclosing such a large space with walls the passage of sound to the end and back was so slow that the ear took cognisance of the interval; and in such a case they must have echo to some extent. He was told that the echo in the Albert Hall was terrible before the velarium was put up, and that was what he should have expected. He should say that a concave roof of glass and iron over it was simply a form of reflector to focus the sound back again. The real mistake was that the hall was too large properly to hear in, and it was a wrong shape. It was a general rule in all concert-rooms (to use a proverbial term) “that the audience should face the music,” whereas when the audience were placed on a circle or ellipse all those who were up close to the music would hear one side of it, and not the other. That was partly the cause of the complaints made of the Albert Hall. The trumpet-shaped orchestra at Queen’s Hall had practically proved a success. Having attended for many years the Philharmonic Concerts at the old hall at

St. James’s, and now at the Queen’s Hall, he could testify that in the latter, which held about one-third more people, one heard quite as well; and that was certainly a remarkable fact. The fact that shadow sounds were formed by the columns of churches could not be denied. Whenever one sat behind a column one was conscious of a certain added difficulty in hearing, and he was surprised that that should be questioned by anybody. Reference had been made to Dr. Parker’s City Temple. He should like to bear testimony to his experience of that as a room for music. He had heard a great organist give a recital there, and he had never heard him before except at St. George’s Hall, where he had heard him over and over again. He (the speaker) remarked to him afterwards:—“I never realised “before what a brilliant pedal player you were, “because it was the first time I have heard you “without an echo; one could hear all the pedal “passages exactly.” He could not remember precisely what the plan and materials of the City Temple were, but it was a most satisfactory room for music, and it might be worth while to find out the reason. As to harmonic proportion, he believed it was perfectly true that by arranging rooms in certain harmonic proportions one could get them to respond to a certain note. This brought them back to the old difference between what was good for a single voice and what was good for an orchestra or for music. It was very convenient for a public speaker to find that by pitching his voice to a certain note he could make himself heard. But then the very essence of music was that it did *not* keep to one note, it ranged over a great many, and there was nothing more annoying when listening to music—it especially occurred with the organ—than to find one particular tone of the instrument strongly reinforced. To plan a building in order to get a particular note reinforced could only be successful when it was wanted for public speaking alone. It was a mistake for music; music demanded so much more that they must put that consideration on one side. As to the materials for that class of building, it appeared to him that wood and fibrous plaster were the best—that they reinforced sound without making sharp echoes. His observation had been that all substances which reflected light rather sharply reflected sound sharply, and, consequently, produced distracting echoes. So that in constructing the walls of rooms those substances should be used which vibrated with the sound, and, therefore, helped it, without reflecting it back again strongly. Those substances, he thought, were wood and fibrous plaster—hollow wood lining more than any others. The Paper was a very useful one, as bringing together a great many facts and experiences. Perhaps it would suggest other experiments and further observations, which might help the subject along.

PROFESSOR AITCHISON [F.], A.R.A., expressed his appreciation of the Paper, and thanked the author for the trouble he had taken in collecting so much useful and interesting information on the subject before them. When he was at college the only practical outcome of the lectures on acoustics was that the students would cover a piece of glass uniformly with sand, and make different notes on the edge of it, with a fiddle bow, and note the patterns into which the grains disposed themselves. With all respect for the opinion of the late Astronomer Royal, he thought his contention could only be partially true; for an effect similar to that in the whispering gallery at St. Paul's was produced at Leeds by a circular retaining wall which was uncovered. It was cut into four quadrants by four streets, and words whispered at one end of the quadrant could be heard at the other end. One of the earliest alterations, he recollected, to improve the sound in a building was made many years ago at Exeter Hall; a segmental ceiling was put to it in place of the lanterns. The statement was both curious and new to him that when sound impinged on a flat wall at the back of the speaker at a very acute angle, it was reflected by waves instead of by a straight line. Any room in the shape of a double cube had been noticed to have an echo. He was once at a church in Italy, at Faenza he believed, where there were twenty-one echoes in the nave; each compartment or arcade looked to him like a double cube and was domed over. The repeated echoes were very pronounced. He had noticed at long dining-tables, where there was one of those ventilating gas lights that looked like a stretched arm with an enormous boxing-glove on it, that if the speaker at one end of the table threw up his head, his words could not be distinctly heard at the other. Sir C. Wren is reported in the *Parentalia* to have said in regard to the pulpit in a church, "A moderate voice may be heard 50 feet distant before the preacher, 30 feet on each side, and 20 behind the pulpit." He did not know that the ancient amphitheatres were much used for speaking in. The Roman theatres, according to Vitruvius, were a semicircle, or nearly so, while those of the Greeks were more than a semicircle, and were not cut off by a straight line, but by the radii; but those theatres were what in these days would be called opera-houses—*e.g.*, at the beginning of each of Terence's plays there was an announcement which said, "The music composed for equal flutes, right and left handed." He might here allude to the brazen or earthenware vases in the ancient theatres. He himself unfortunately was not a musician, but when Vitruvius described the notes each vase was to produce, it could not be supposed that they did not answer their purpose. Mr. Falkener, in his *Classical Museum*, translated a Renaissance account of those vases being found in position in a theatre. There

were plenty of musicians among architects; and considering the number of persons in England who professed to adore music, the money should easily be raised for trying the experiment. Vitruvius told them that theatres lined with wood did not want vases, while those of stone and marble did. Getting the keynote of a room seemed a very useful thing, while the effect of currents of air on sound was most interesting. The divine who was so severe on architects probably fancied their art was as easy as writing sermons, and quite overlooked the fact that the appearance of churches should in itself excite the proper emotions, and that at present the science of acoustics was so little advanced that any change from an old form might alter the sonorous character of a church. He trusted the reverend gentleman would have the opportunity of testing his theories. The present form of churches was probably perfectly adapted to the Roman ritual, but was absurd for the Protestant ritual; but the remarks of their critic were no doubt just as regarded the building of music-halls and concert-rooms. They might fairly hope that some of the scientific men of the day would devote themselves to the science of acoustics, and give architects a chapter on the application of its laws to buildings.

MR. WILLIAM WHITE [F.], F.S.A., said that the subject Mr. Burrows had brought before them was one of great interest to him (the speaker), inasmuch as the subject of harmonic proportion was one he had closely studied, he might say, for the past fifty years. He was quite satisfied from his studies that the chief element of all was the proportion of the building within the walls. There were contradictions, and want of evidence, and things of that kind relating to materials, to heated air, to ventilation, to resonance, and so on. But he was quite sure that the first element was the proportion. In all his own works, which included about seventy churches, he had carried out one invariable system, and he could only claim one failure, and that was due not to the proportions of the building—it was indeed very good for sound in other respects—but to the intervention of a lantern in the centre, which swallowed up so much of the sound that it made it difficult to hear when speaking in the neighbourhood of the lantern. The sound of the speaker from the east end of the church could be distinctly heard at the west end, but unfortunately the pulpit came near the middle, and consequently the building failed in that respect. There appeared to be a general agreement that the proportion of the interior should be according to some harmonic ratio. But then came the question what was that harmonic ratio to be. It ought not to be, he contended, a ratio of numerical or progressive proportions. It ought to be a ratio of absolute geometry, and in that geometry the angles of 30, 60, and 120 were the angles to be

used in proportioning the distance from wall to wall and from ceiling to floor. They were told that the proportions of the buildings mentioned in the Paper, of 3, 4, and 5, were excellent for sound. Those proportions agreed almost entirely, but not quite, with the geometrical system of which he spoke. [The speaker here illustrated his argument by the aid of a series of diagrams, and cited various buildings in support of his contention.] Some thirty-five years ago he discovered almost accidentally that the worst proportion possible for a room was a perfect cube. He could speak from experience there, because he went into two rooms at Reading which were exactly 25 feet square and 25 feet high, and they were most intolerable for sound, and, in determining dimensions, he pleaded for the use of the equilateral triangle, which in its proportions had an accurate and absolute relation to the interval of the "Fifth" in Music. He would not go into the question of resonance, but he should like to say that when he had spoken of a hard substance for placing an organ upon, or for the floor of a lecture-room, he did not want that hard material carried round the walls and ceiling, but he wanted it chiefly for the assistance of the speaker. The softer material for the walls would concentrate the sound for the benefit of the listener. He did not quite follow the diagram in the Paper, inasmuch as an angle from the speaker was drawn to about a yard on one side of the corner, showing a wavy line going round, and then whether it was dissipated or what became of it he did not know. But there was an omission in the diagram. At the same distance from the speaker there would be an angle on the other side of the corner, with the same flowing wave meeting actually in the corner, and dissipating or absorbing each other. As regarded the square angles of ceiling, that must depend much more upon the proportions than upon the fact of its being square, or canted, or hollow. There were two lecture-rooms in the Institute at Stockholm, one over the other. The one was exceedingly good for sound, and that had a flat ceiling; the one over, in which the ceiling was canted off, was deplorably useless for the purpose of speaking. For the musical pitch of the room, it depended very much more upon the breadth and height than upon the length. He believed that the length would be found to affect the tone and the echo much more than the musical note. He arrived at that from a very different illustration—that of the bell. The bell was proportionated, by its diameter, for the note, and the half of the diameter for the octave above it, and so with all the intermediate notes, the height of the bell giving the tone. There could be no doubt from what Mr. Aitchison had said that the acoustic vases were for increasing the resonance, to give a pleasant resonance to the speaker's voice; and as to

music, he should not at all wonder if those sounds, not being strictly to a note, sympathised with the keynote of the building, and so would enable a speaker to accommodate his voice very much more quickly and much more truly with the sound of the room.

PROFESSOR BANISTER FLETCHER [F.] said he thought that a very useful work might be done if they adopted Professor Roger Smith's suggestion, and referred the subject to the Science Committee, with a view to the tabulation of all buildings. It would certainly take some considerable time; but a record of the shapes of various buildings, their sizes and details, including the question of ventilation, would be most useful. He supported very cordially Professor Roger Smith's suggestion.

MR. R. LANGTON COLE [A.], referring to the Stock Exchange Buildings, of which his father was the architect, said that for the last ten years, whenever business was particularly good, they had many complaints in reference to its acoustic properties. He thought they ought to add to the three classes which Mr. Burrows had mentioned a fourth, which only occurred in the case of a Stock Exchange, and that was a building in which a large number of persons wanted to speak and to hear each other at the same time, but to have no echo whatever. What they wanted to get rid of was resonance, and that resonance was much mixed up with echo. He believed the Managers of the Stock Exchange would place the building at the disposal of the Science Committee after business hours, in order that they might experiment upon it in any way they pleased. It had been mentioned that the Vienna buildings were generally very successful. It was true that they were very elaborately ventilated by mechanical means, as was also the Stock Exchange. But the Vienna buildings were nearly always ventilated on the downward system of ventilation. The air was brought in at the top and extracted at the bottom by mechanical means. At the Stock Exchange it was done on exactly the opposite system. The air was brought in at the bottom. It might be desirable to reverse that and bring the current downwards, so as to get rid of this echo. He would like to ask Mr. Burrows whether he considered marble a resonant material or not. Some spoke of it as resonant and others as dead. One of the most successful experiments made in stopping the resonance was hanging flags round the eight piers which carried the dome. They were hung in groups, and broke the air up. But objection was made that the flags were not suitable for a place of business, and they had been removed. The marble hall of Gatton, in Surrey, had such an intolerable echo that no concert or performance or entertainment could take place in it. Successful means—principally a large square velarium hung from the four corners—had been adopted

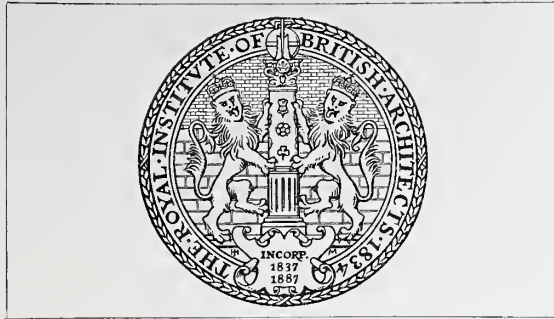
by Messrs. Edgington to prevent that echo, and evening entertainments were held there, including musical performances, without any difficulty.

THE HON. SECRETARY, referring to the construction of the Stock Exchange building, said that the conclusion he had come to from studying Indian domes was that those which were lined with marble, and of which the wall came immediately under the dome in square of plan, with very shallow recess transepts, echoed more than any other buildings in the world. In buildings where the domes were supported on columns, like one of the large domes in Beejapore, which had a series of aisles and transepts of considerable length, there was not nearly the same amount of echo. Domes were generally stated to be bad for sound, and he believed that difficulty was due to the fact that domes were nearly always built over walls which almost enclosed the space covered by the dome, and in consequence the sound could not get away. At Florence Cathedral there was very little echo, because there was a wide open space in proportion to the space covered by the dome, and the sound could get away. It was not confined, like it was in St. Paul's, or St. Peter's, or in the Indian domes he had mentioned. But the fact of a building like the Stock Exchange being lined with alabaster was one of the chief reasons for the echo.

MR. H. W. BURROWS [A.] responded to the vote, and said that, speaking as a member of the Science Committee, he should be very pleased indeed if they could carry out the suggestion made by Professor Roger Smith and Professor Banister Fletcher, and collect as much information as possible of the form and materials, and construction and ventilation of buildings, with a view, subject to the Council's sanction, of publishing a record in the *JOURNAL* in a tangible form. Unfortunately the efforts of the Science Committee were not always thoroughly backed, he was going to say, by the Council, or by the members of the Institute. In dealing with another matter which he had originally suggested—the testing of brickwork—they had had considerable difficulty in getting together even £50. None of these things, unfortunately, could be done without some expenditure of money, as well as of time. Of course, the members of the Institute were only too willing, as a rule, to give their time. But money also was wanted to meet incidental expenses, and it was hardly fair to saddle members of the Science Committee with these, in addition to the time they so willingly gave. Reverting to his Paper, with regard to the questions, and remarks as to different materials, and so on, he thought, as Mr. Statham very well put it, the main point was the use to which the building was to be put. A building which was good for music very often was exceedingly bad for sound, and that was very well borne out indeed by Mr. Langton Cole's remarks on the Stock Exchange. As he had told them, that building had proved

unsuccessful in regard to the acoustic properties desired, as could be seen by the efforts made to reform it. They had hung up two velaria, one immediately under the dome, and another in segments between each of the windows lighting the dome. They had also an arrangement of draperies in the spandrels of the arches, and they had tried flags. But all their efforts had been unsuccessful. That building, however, which was so bad for speaking purposes as far as members of the Stock Exchange were concerned, was pronounced, on the occasion of its opening by the Prince of Wales, when a performance was given by the orchestral band of the Stock Exchange, to be exceedingly good. There was the difference at once. When the building was used for speaking in, the reflection came very rapidly off the walls, and an enormous amount of confusion and rapid echoes was the result. If the building were used for music, the rhythmic progression of the songs woke up the echoes with pleasing effect. But when the resonance of the dome was brought into play the whole thing was spoiled. As had been truly remarked, if they would only strip the marble off the walls, and put wood in its place—hammer-dress all the pillars and take off their polish, build the ceiling at the commencement of the dome and utilise the space above for offices, which would bring in a revenue to more than pay for the removal of the dome—they might possibly get a successful building. But with a dome something like 90 feet high, and a crowd of men speaking underneath it, and reflections coming from every possible direction, it must necessarily be difficult to hear. With only one or two people speaking in the room, hundreds of echoes were awakened at every point. Mr. Emerson, he thought, misunderstood the plan. It was not a continuous wall under the dome. There was plenty of space for the sound to run into. [THE HON. SECRETARY: But not deep enough.] It was exceedingly deep. The whole building was practically two domes, with an arcade coming off, and therefore the sound could run out of the larger dome into the space between the two domes as easily as possible, and there was practically nothing except the beams which supported the domes to obstruct the sound. Therefore there was plenty of space for the sound to run under, and the reflection was principally from the columns carrying the dome, and the marble surfaces at the rear of those. [THE HON. SECRETARY, interposing, said these were only 23 feet off.] The space, he believed, from one side of the dome to the second dome was much more than 23 feet. Certainly anyone standing in the building would get that idea. That, he thought, would be found to be the case in many buildings. It was not so much that there was no means for the sound to get away, but that even if the sound

had the opportunity of getting away, the further surface still reflected sound, possibly not to the same extent as the nearer surface of the supporting pillars, but still to a certain extent, and so confusion followed. Professor Aitchison had asked what was the nature of the convex cove used at Langham Place. It was simply the reverse of the concave cove. It had been well illustrated in *The Builder*. Mr. William White's contribution was an exceedingly important one. He had shown a very elaborate series of diagrams, confirming from his own practice the value at any rate of an approach to harmonic proportion. Personally he did not think one need lay too much stress on the exact value of harmonic proportion expressed in so many feet and inches. One could see by reference to several buildings that a few feet, either one way or the other, when they were dealing with very extensive dimensions, like 200 or 300 feet, or even 50 or 60 feet, was of no great importance possibly. But certainly the relation Mr. White had shown between the use of the angle of 60°, both on plan and section, was very striking, and might very well be worked out, as Mr. White had done by comparing the dimensions given from quotations in the Paper, and showing distinctly that they fell within his geometrical ratio. Mr. Max Clarke had contributed some views on the subject in MS., which he (Mr. Burrows) hoped would be allowed to appear in the JOURNAL. He had given the dimensions of certain halls that were not mentioned in the Paper, and he very rightly said that they should have not only the materials of which buildings were formed, their dimensions, and so on, but they should also have a note giving their acoustic reputation. After all, the acoustic reputation was the main thing. People differed very much as to what a successful building was from the point of view of sound. Mr. Statham would say a building was good for sound because it was suitable for the performance of music. But the reverend gentleman quoted looked at it from another point of view. But they must have some agreement as to the basis they were to work upon. The only right thing to do, he thought, was to divide the buildings into classes, and then study the laws that would be applicable to each class. If a building were intended particularly for music, one set of conditions obtained; if for speaking, other conditions applied.



9, CONDUIT STREET, LONDON, W., 28th March 1895.

CHRONICLE.

THE INTERMEDIATE EXAMINATION.

Probationers who have become Students.

At the General Meeting of the 25th inst. the Chairman announced that an Intermediate Examination to qualify for registration as Student had been held on the 19th, 20th, 21st, and 22nd inst., and that of the seventy Probationers (including nineteen relegated from previous Examinations) who applied, fifty-six had been admitted, fifty-four of whom presented themselves and were examined. Of these, twenty-eight passed, and twenty-six were relegated to their studies. The twenty-eight placed by the Board of Examiners in order of merit are:—

- ORMROD: John [*Probationer* 1891]; 19, Silverwell Street, Bolton [*Masters*: Messrs. Bradshaw* & Gass*].
- MARSHALL: Ernest William [*Probationer* 1895]; 17, Lansdowne Road, W. [*Masters*: Messrs. Alfred Waterhouse, R.A.,* & Son*].
- MOODIE: Thomas Anderson [*Probationer* 1890]; 6 Belmont Street, Hillhead, Glasgow [*Master*: Mr. James Lindsay*].
- FRASER: Thomas Speirs [*Probationer* 1890]; 19, Afton Crescent, Glasgow [*Master*: Mr. James Lindsay*].
- MAGER: Ernest Jesse [*Probationer* 1894]; 28, Carleton Road, Tufnell Park, N. [*Master*: Mr. H. Chatfield Clarke*].
- DINWIDDY: Tom Norman [*Probationer* 1893]; Greenwich [*Master*: Mr. Dinwiddy].
- BÜSHER: Victor Evans [*Probationer* 1892]; 10, The Undercliffe, St. Leonards-on-Sea [*Master*: Mr. Frank H. Humphreys*].
- HAINES: Herbert [*Probationer* 1893]; 10, Brereton Road, Bedford [*Master*: Mr. Richard Lund].
- WARD: Frank [*Probationer* 1894]; 10, Claremont Terrace, Bradford [*Masters*: Messrs. Isitt & Adkin].
- MOORE: Louis [*Probationer* 1893]; Church Road, Woolston, Southampton [*Master*: Mr. F. H. Dancaster].
- BATES: William Stanley [*Probationer* 1894]; Wyaston, Chaucer Road, Bedford [*Master*: Mr. H. Young].
- BOWN: Percy [*Probationer* 1892]; James Street, Harrogate, Yorks. [*Masters*: Messrs. H. E. & A. Bown].
- CORAM: James Henry [*Probationer* 1894]; 95, Elspeth Road, S.W. [*Master*: Mr. W. H. Gibbs].
- SCOTT: William Alphonsus [*Probationer* 1889]; 16, William Street, Drogheda, co. Louth [*Masters*: Sir Thomas N. Deane & Son].
- BOND: Alexander Godolphin, B.A. [*Probationer* 1894]; 36, Corn Street, Bristol [*Master*: Mr. F. Bligh Bond*].

- JONES: Wallace Stevens [*Probationer* 1890]; Pillow Villa, 119, Cotham Brow, Bristol [*Master*: Mr. Herbert J. Jones].
- ECCLESTONE: Arthur James [*Probationer* 1893]; 27, Dene Side, Great Yarmouth [*Master*: Mr. J. W. Cockrill*].
- HARRISON: James Stockdale [*Probationer* 1892]; 7, St. Martin's East, Leicester [*Master*: Mr. Stockdale Harrison*].
- ELLIS: Hugh Alfred [*Probationer* 1889]; Beech Hill, Kersal, Manchester [*Masters*: Messrs. Mills & Murgatroyd].
- MORGAN: William Vincent [*Probationer* 1893]; 24, King Street, Carmarthen [*Masters*: Messrs. George Morgan & Son].
- GOUGH: Arthur Reutlinger [*Probationer* 1891]; Compton Lodge, Hampton Road, Redland, Bristol [*Master*: Mr. W. V. Gough].
- MANNING: George Herbert [*Probationer* 1892]; 3, Tavistock Road, Harlesden, N.W. [*Master*: Mr. Ernest Runtz].
- SHIELD: James Edward Coleman [*Probationer* 1892]; 11, King's Road, Sloane Square [*Masters*: Messrs. W. Dunn and R. Watson*].
- SMITH: John Arthur [*Probationer* 1889]; 164, Friar Street, Reading [*Masters*: Messrs. Charles Smith* and C. S. Smith*].
- HALE: Edward [*Probationer* 1892]; "Wroxton," King's Norton, Birmingham [Mr. W. Hale*].
- KNOTT: Stanley Edward [*Probationer* 1892]; Capel Road, East Barnet [*Master*: Mr. Frederic Hammond*].
- WESTCOTT: George [*Probationer* 1892]; 42, Shrewsbury Street, Old Trafford, Manchester [*Master*: Mr. Wm. Ball].
- AUSTIN: Rupert Claud [*Probationer* 1892]; 7, Panton Street, Cambridge [*Master*: Mr. W. M. Fawcett,* M.A.].

The asterisk * denotes members of the Institute.

The above-named gentlemen have been registered as *Students R.I.B.A.*, the number of whom at present is 143. Of the 26 Probationers who failed to satisfy the Examiners, and who have been relegated to their studies, four are sent back in all subjects of the Examination; two in nine, one in eight, two in six, five in five, one in four, five in three, and five in two subjects; and one in one subject. The Examination was held at the Examination Hall of the Physicians and Surgeons, Victoria Embankment.

THE ARCHITECTS' REGISTRATION BILL.

Petitions and Statement against the Bill.

The Institute Petition to the House of Commons against the Architects' Registration Bill praying that it might not be read a second time or be allowed to pass into a law was presented by Sir Richard Webster, Q.C., who gave the usual notice of motion against the Bill. Similar notices were given by Mr. Græme Whitelaw and Mr. James Campbell; and the Petition of the Architectural Association (London) against the Bill was presented by Mr. Farquharson. The Bill was down for second reading on Monday 25th inst., but it was not reached when the House adjourned at 12.25 A.M., the second reading being now fixed

for Tuesday 2nd prox. A Statement against the second reading was issued on Monday on behalf of the Institute by the Parliamentary Agents, Messrs. Loch and Co., to every member of the House of Commons, as follows:—

1. The Bill proposes to provide for the Legal Registration of Architects, for the purpose ostensibly of enabling the public to distinguish qualified from unqualified practitioners, and makes registration under the proposed Act the evidence of qualification. By clause 19, every person who was practising "Architecture" prior to January 1st 1895 may register himself as a qualified practitioner, the immediate effect of which would be registration by a large number of persons respecting whose qualifications to practise as Architects nothing whatever would be known; and it is but reasonable to suppose that the first to register would be those who felt that they were not able to face a qualifying examination, such as that which is required from professional members of the Royal Institute of British Architects before admission to its ranks. By clause 21, no person is to be allowed to use the title "Architect," unless so registered, but by omitting the word "Architect" from the title of "Architect and Surveyor," which is commonly used, any person will still be at liberty to practise architecture, however wanting in qualification, so far as the provisions of the Bill are concerned.

2. The Bill, moreover, defeats its avowed object by specially exempting the professional members of the Surveyors' Institution, and of the Institution of Civil Engineers, from its most important provisions (clauses 27 and 28), as surveyors very generally include the practice of architecture in their business, and many engineers do the same. The general public would gain little even by the enforced registration of only qualified "Architects," seeing that the vast majority of ordinary dwelling-houses in the United Kingdom are not erected under the superintendence of members of the profession. If the Bill become law no advantage will accrue to the public, inasmuch as by its provisions a vast number of those who now practise architecture are either not required to be registered, or are specially exempted.

3. The Bill may be fitly described as one to abolish the functions of the *bonâ fide* Architect, and to substitute those of the Surveyor and the Engineer, without the guarantees of qualification that Architects now possess. Much that, from an educational point of view, may be commendable in the Bill has been and is being accomplished by the Royal Institute of British Architects, with results which, under the provisions of the Bill, could only have been imperfectly obtained, if ever, at some remote period, and after incalculable injury had been done to Architecture, as well as those qualified to practise it.

4. The essential objects of the Royal Institute of British Architects are to maintain, by efficient and systematic examination, a body of duly qualified practitioners in whom the public may place reliance; to raise the standard of education in Architecture, not in London alone, but also throughout the United Kingdom by means of Societies allied to the Royal Institute; and to grant, in addition to a certificate of membership, diplomas or certificates in connection with examinations, or otherwise, as by-laws approved by the Privy Council prescribe. Not the least of the objects of the Royal Institute is the maintenance of an extensive Reference Library, open to all students of architecture, and the publication of a Journal, which is regularly presented to the principal educational bodies and public libraries throughout the world.

5. The professional members of the Royal Institute of British Architects are respectively entitled Fellows (F.R.I.B.A.) and Associates (A.R.I.B.A.). Since 1882 every person admitted an Associate has previously passed a qualifying examination, and in some cases three examinations qualifying respectively for the grades of Probationer and Student, and for candidature as Associate. Every person desiring to be admitted a Fellow must have attained the age of thirty years, and must submit, for examination by the Council, drawings of his executed works, with a signed declaration that the buildings to which they relate have been designed by himself. Roughly stated, the Corporation of British Architects consists of about 2,500 persons, exclusive of some 600 professional members of non-Metropolitan Societies—acting in Glasgow, Dublin, Birmingham, Bristol, Cardiff, Dundee, Exeter, Leeds, Leicester, Liverpool, Manchester, Newcastle, Nottingham, Sheffield, York, and Sydney, N.S.W.—allied to the Royal Institute, and similarly bound by honourable obligations of professional practice.

6. The affairs of the Royal Institute of British Architects are administered by a Council having a maximum of *thirty-six* persons, all annually elected by voting papers sent to every subscribing member in the United Kingdom. The Council at present consists of thirty-four members, including official representatives of the Allied Bodies in Glasgow, Dublin, Bristol, Leeds, Leicester, Liverpool, Manchester, Newcastle, and Nottingham. Yet the Bill proposes to create a complex General Council of Education and Registration to consist of *thirty* persons, and of Branch Councils formed thereout, with administrative officers and subordinates to be appointed in various parts of the United Kingdom. Much of this administrative machinery is already at work in all parts of the United Kingdom under the direction of the Royal Institute of British Architects and its Allied non-Metropolitan Societies. This machinery has been most effective in its results, and while it serves to

develop architectural education, it affords protection to the public generally.

The Bill is uncalled for and unnecessary, many of its provisions being objectionable and delusive. The Council of the Royal Institute of British Architects respectfully submit that the Bill should not be read a second time or allowed to pass into a law.

FRANCIS C. PENROSE, President.

ASTON WEBB, Vice-President.

ALEX. GRAHAM, Vice-President.

WM. EMERSON, Hon. Secretary.

WILLIAM H. WHITE, Secretary.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS,
9, Conduit Street, Hanover Square, London, W.
Saturday, 23rd March 1895.

The late Ewan Christian.

In acknowledgment of the vote of sympathy and condolence with the widow and family of the late Ewan Christian, passed at the General Meeting of the 25th ult., Miss Agnes Mary Christian, writing on the 23rd inst. on behalf of her mother, desires that their very sincere thanks should be conveyed to the members of the Institute for the message. "In the grief for our loss," says Miss Christian, "it is a real comfort to us to think that my father was permitted to be a worker to the last in the profession which he loved, and that his life and career had won such high esteem among his brother architects, whose good opinion he prized, and amongst whom he had some of his dearest friends." The letter terminates with an expression of grateful appreciation of the memoir written by Mr. Birch [p. 331].

The Prizes and Studentships 1895-96.

Particulars of the subjects set for the various Prizes and Studentships offered by the Institute for competition in the present year may now be obtained from the pamphlet just issued. Another Travelling Studentship, it will be seen, has been added to the list, through the munificence of Mr. Thomas W. Aldwinckle [F].

The Institute Silver Medal and Twenty-five Guineas, open to British subjects under the age of forty years, will be awarded for the best Essay on "The Influence of Materials on Architecture." The Measured Drawings Medal and Ten Guineas will be presented to any British subject under the age of thirty who submits measured drawings made by himself of any important building, Classical or Mediæval, in the United Kingdom or abroad, which the Council think worthy of the Prize. Various buildings suggested as worthy of illustration under this head are given in the pamphlet.

A "Design for an Institute of Architects" is the subject set for the Soane Medallion Travelling Studentship, open to British subjects under thirty years of age. The successful

competitor is required, within two years of the award, to make satisfactory arrangements for going abroad for not less than six months to pursue his architectural studies. Fifty pounds will be paid him when he leaves England for the Continent, and a like sum when, after an absence of not less than six months, he submits satisfactory evidence of his studies abroad in the form of measured drawings and sketches. The Pugin Studentship (a Silver Medal and £40) may be competed for by members of the profession (of any nation) between the ages of eighteen and twenty-five. This Studentship, which was founded for the study of "Mediæval Architecture of Great Britain and Ireland," will be awarded to the candidate who submits the best selection of drawings and testimonials. The successful candidate is required to make a tour, in some part of the United Kingdom, of not less than eight weeks, for the purpose of the study of Mediæval Architecture. The Godwin Bursary (a Silver Medal and £40), founded for the study of works of Modern Architecture abroad, will be awarded to any member of the profession, without limit of age, who submits the best selection of practical working drawings, or other evidence of special practical knowledge, and testimonials. Candidates must have a knowledge of at least one foreign language. The Godwin Bursar is required to spend not less than five weeks in some part of Europe (outside the United Kingdom) or America, to study, examine, and report on some of the best specimens of modern planning and modes of construction, drainage, water-supply, ventilation, and other sanitary arrangements to be found in the places he visits. The Owen-Jones Studentship (a Certificate and £50) is open to members of the profession under thirty-five years of age. Candidates for the Studentship, which was founded for the encouragement of the study of Architecture, especially with regard to Ornament and Coloured Decoration, must submit testimonials, with specimens of their drawings (evidencing acquaintance with colour decoration), and compositions in writing, not necessarily prepared for the occasion, exhibiting their acquaintance with the leading subjects treated of in Owen Jones's *Grammar of Ornament*. For the Tite Prize (a Certificate and £30, open to members of the profession under the age of thirty) the subject set is a "Design for a Stone Bridge" across an embanked tidal river. The winner of the Tite Prize must, within two years of the award, go to Italy for at least four weeks, and submit to the Council evidence of his studies there in the form of measured drawings and sketches. In placing at the disposal of the Institute for three successive years the Studentship which bears his name, Mr. Aldwinckle stipulated that the holder in each year should travel and sketch in Spain. The Studentship is of the value of £50, and the Council have decided to award it for the year 1896 to the person

who, among all those submitting works for the Prizes and Studentships 1895-96, will in the opinion of the Council best carry out the donor's intentions. The student will be required to spend at least eight weeks in Spain, and submit to the Council satisfactory evidence of his studies there in the form of measured drawings and sketches.

The Grissell Prize for Design and Construction (a Gold Medal and £10), open to British subjects who have not been in professional practice longer than ten years, will be awarded to the competitor who submits the best "Design for a Polygonal or "Circular Band Stand," suitable for a public garden.

All work to be sent in for the Studentships and Prizes must be delivered not later than Tuesday, 24th December 1895, before 4 p.m.

The Ashpitel Prize, consisting of books to the value of £10, will be awarded to the *Student* who, in the opinion of the Board of Examiners, shall have most highly distinguished himself in the two Final Examinations held during the current year.

The late Ernest Turner [F].

The following obituary notice of Mr. Ernest Turner is from details supplied by one of his pupils, Mr. George Vernon:—

Ernest Turner, who died suddenly on the 16th inst., was elected an Associate in 1867 and a Fellow in 1877. He served for many years on the Board of Examiners (Architecture). The third son of William Hall Turner, F.R.C.S., of Redhill, Surrey, he was born 24th July 1844, and educated at King's College School.

He served his articles with his relative, the late Arthur Newman, and afterwards became assistant to Mr. Bulmer, Architect and County Surveyor, Maidstone, with whom he remained some years. Of this period of his life he often spoke with pleasure; the nature of Mr. Bulmer's practice gave him opportunity to be often out of doors, and great was the enthusiasm with which he would refer to his experiences in assisting in a survey of the county, and of the country life.

Mr. Turner started in practice for himself when very young. Upon the death of Mr. Bulmer he took an office in Verulam Buildings, Gray's Inn. From the beginning of his career he had given special study to the principles of sanitation as then inculcated, and was quick to observe that the importance of the subject was not realised. His subsequent labours gave him a claim to be best remembered as one of the leading sanitarians of the day. Among the many undertakings of a busy life his connection with the Sanitary Institute is the most prominent. It was a voluntary labour in a cause which he rightly considered essential to the well-being of the community; to chronicle that work would be to write a history of the Sanitary Institute from its commencement. He had been a member of its Council since the

foundation in 1876; and the void occasioned by his death will probably be long felt.

His literary work bore the impress of his wide knowledge of the subjects dealt with, and the little book *Hints to Househunters and Householders* (1883) gives one, in addition, a very clear insight into the rich vein of humour which made him so delightful a companion. It is more than the title proclaims (in spite of the author's assertion to the contrary), for it forms a most valuable text-book for every student upon the essentials of good planning, good construction, and good sanitation.

As a sanitary specialist he re-drained many institutions and houses in London, besides many country mansions, among which may be mentioned Witley Court, for Lord Dudley; Ranston House, for Sir Talbot Baker; the Manor House, Brackley, for the Earl of Ellesmere; Aston Rowant House, for Sir William Plowden; Batsford Park; The Poles, Ware; North Mymms Hall.

Although he was best known as a sanitary specialist, he carried out many minor works, among which may be mentioned Christ Church Schools, Gipsy Hill, Norwood; Parochial Schools, Herne Bay; houses at Bayswater, Wimpole Street, Gipsy Hill; also country houses at Totland Bay, Isle of Wight, at Ascot, Sevenoaks, and elsewhere. As an architect he was an authority upon what may be termed the principles of hygienic planning, and in this connection it may be mentioned that he designed and carried out the Central London Throat and Ear Hospital, a Hospital at Teheran, Persia, and the Rotherhithe Sick Asylum. He was consulting architect to the Hospital for Epilepsy and Paralysis, and also for the extensions to the Devon and Exeter Hospital. The steam laundries he planned and carried out at Battersea, Penge, and Kilburn—the three largest in the Kingdom—are considered models of hygienic planning and arrangement. One can but mention his labours in connection with the various Health Congresses that have been held from time to time, notably, as Secretary to the Architectural Section of the International Congress of Hygiene and Demography held in London in 1891. His report to the Social Economy Committee, at the Paris Exhibition, 1889, on Public Baths and Washhouses (a copy of which is in the Institute Library) involved a vast amount of work, and his services at the Health Exhibition held in London in 1884 called forth special recognition.

The late Hubert Alfred Gregg [A.].

A young Associate of great promise has passed away in Hubert Alfred Gregg, who died on the 10th inst. at the age of thirty years. He was the son of Mr. Ebenezer Gregg [F.], and was elected Associate in 1877. As assistant to his father, he had turned his attention more especially to Renaissance architecture. Some ten years ago he spent several months travelling in Italy,

and his love for his peculiar study may be seen in numerous works, to which he lent his father most devoted assistance in London and out of it, besides in many works exclusively his own. For three years he had been suffering from a pulmonary complaint, from which, however, there seemed every hope of his making a permanent recovery, when he suddenly fell a victim to the epidemic to which so many have succumbed. He was buried at Church Crookham in Hampshire on the 14th inst.

Additions to the Library.

Among recent presentations, particularly worthy of notice are several parts of *The Engineering Magazine*, an American illustrated journal, of which a European edition is published in London ["The Electrician" Publishing Co., Salisbury Court, Fleet Street]. They contain a good sprinkling of architectural Papers, and the titles of a few are here appended:—

- Architectural Education for America. By A. Rotch, R. D. Andrews, R. W. Gibson, and Barr Ferree [*Hon. Corr. M.*].
- Early Architecture and Engineering in Peru. By Alice D. Le Plongeon.
- American Architecture through English Spectacles. By Banister F. Fletcher [A.].
- Art in the Floor Plan of a Building. By Thomas Hastings.
- Theatre-Building for American Cities. By Dankmar Adler.
- Recent Architecture in Philadelphia. By Prof. W. P. Laird.
- Uses of Terra-Cotta in Modern Buildings. By G. M. R. Twose.
- Historical Architecture in Current Use. By Prof. W. H. Goodyear.
- The Architecture of Municipal Buildings. By E. C. Gardner.
- Planning the Site for a City. By Lewis M. Haupt.
- First Principles in Architecture. By Prof. W. H. Goodyear.
- The Construction of a Great Building. By Francis H. Kimball.

Mention should also be made of a capitally illustrated article on "Ancient and Modern Irrigation in Egypt," by Mr. Cope Whitehouse, who, it will be remembered, favoured the Institute with a Paper on the same subject in the last volume of the JOURNAL [p. 573].

A handsome folio volume, *Architectural Remains, Anurādhapura, Ceylon*, published by order of the Ceylon Government, has been presented by the author, Mr. James G. Smither [F.], late Architect to that Government. The remains dealt with include the dagabas and other ancient ruined structures, all measured, drawn, and described by Mr. Smither. There are sixty-seven plates, with a most complete descriptive text.

Mr. Wm. Simpson [H.A.], R.I., has presented a Paper on *Oriental Art and Archaeology*, which was read by him before the Ninth International Congress of Orientalists held in London in September 1891, and is now reprinted in pamphlet form, with additions incorporating lately acquired knowledge on the subject. A new edition, enlarged and illustrated, of a pamphlet by Mr.

Robert Williams [A.], entitled *The People the Nation's Wealth* [London: Wm. Reeves], has been received from the author. A set of nine prints, comprising plans, elevations, &c., of All Saints' Cathedral, Albany, N.Y., from designs by the late H. H. Richardson, have been presented by Mr. R. Phené Spiers [F.], together with some reproductions of photographs of the fourteen- or fifteen-storeyed Chamber of Commerce Building, Chicago, and of the south porch of the Church of the Saviour, Philadelphia.

From Messrs. Macmillan has been received *Greek Studies*, a series of Essays by the late Walter Pater.

REVIEWS. XXIII.

(67.)

SOME OF MR. RUSKIN'S LECTURES.

Verona and other Lectures. By John Ruskin, D.C.L., LL.D. With illustrations from drawings by the Author. 8o. Lond. 1894. Price 15s. [Mr. G. Allen, Sunnyside, Orpington, and 156, Charing Cross Road, London.]

This volume has all Professor Ruskin's characteristic virtues and defects—his inimitable grace of style, his scientific shortcomings, and, above all, that strange and fanciful inconsequence which is, in so much of our literature, the despair of the Continental reader. The cohesion between the various papers, too, is of the weakest, and were not the writer privileged by long and grateful condonation, one might echo with good reason the critic's plaint against the practice of binding together a sheaf of papers which have little in common except, maybe, their treatment.

The second paper, which is called "Arachne," suggests to one that Professor Ruskin, who views the proceedings of the spider with so much natural admiration, might, if he were less modest, turn the eye of complaisance on the writer who spins his own web from material little more tangible, and with equal grace. This same lecture contains the tribute of a generous adversary to the miracle-working of ironfounders and the ineffable appropriateness to its work of the typical machine; but when he goes on to compare the steam engine to animal life, greatly to the disadvantage of the latter, and by inference, if unconsciously, belittles the Creator—for it is clear that he regards every species in the animal world as a separate creation for a definite end, and very ill-contrived at that—he is treading on treacherous ground, for what are the instances of inefficiency which he selects for his purpose? A pelican swallowing fish, and an eagle in captivity tearing its food! Surely this is rather an empirical kind of criticism; for what are the facts? Is it not fair to say that every wild animal, evolved through untold ages, is what it is because it has been modified to meet requirements to the complexity of which it is perfectly futile to

compare the single problem which is set before the engine? The animal is in effect, to a certain extent, a compromise, nor can one be asked to admit that the possibility of having some day to feed in a cage should have been a potent factor in the evolution of a wild bird, however important that function may appear to the Bank Holiday visitor.

The last two chapters, which were to have formed as many volumes in a general review of Christian history, which never got beyond this point, deal with monastic life. Carlylese in their tenderness for the Abbot Samsons, they are a strong piece of special pleading on behalf of the monastic system and its works. Nor can one deny that there is reason in this counterblast. We are too prone to forget what we owe to these discredited institutions, just as there are some of us who give the talented Professor himself less than his due for the work of his hardy pioneering days, and accept results which are his without recognition, while we smile over his mistakes; but his advocacy leads him too far, and we are fain to shrug our shoulders when we are asked to believe that the choice of the traditional abbey site was dictated by pure philanthropy, and for the single purpose of draining marshland. This was quite true of Cîteaux. The monks there did fight the malaria with admirable devotion, and undoubtedly sacrificed themselves in the interests of their successors; but it does not do to found a universal conclusion on this instance, nor will the advocate carry everybody with him when he says, "The indefinitely increased monastic power was not the origin of abuses, but became the inevitably imperfect and decaying subject of them. . . . The abuses were rather those of the outer world than of the monasteries."

The truth is, wealth and power must have their dangers, and that, as the outer world, or individuals in it, became more rich and more powerful, they simply fell under the spell of the same temptations which proved fatal to the monastic system.

So long as human nature endures, any institution like monasticism, or even analogous to it—the Salvation Army, let us say—carries the germ of the decay of its virtues in itself from the first day. History is constantly repeating itself. The virtue of the Buddhist mendicant was gradually sapped from the moment that he was endowed by King Asoka with money and land, till he was driven out in sheer desperation into the fastnesses of Nepal and Tibet; but let us listen for a moment to Matthew Paris, if we want to know how quickly the poison worked. Writing under the date 1243, only *seventeen* years after the death of St. Francis, this is what he says of the Franciscans: "These are they who daily expose to view their inestimable treasures in enlarging their sumptuous edifices and erecting lofty walls, thereby impudently transgressing the limits of

“their original poverty and violating the basis of their religion. . . . When rich men are on the point of death, they, in their love of gain, diligently urge them, to the injury and loss of ordinary pastors, and extort confessions and sudden wills.”

The monk was probably no worse than his fellow men, but he was not better, and his occasions of vice were larger.

A. E. STREET.

(68.)

ARCHÆOLOGICAL SURVEY OF INDIA.

South Indian Buddhist Antiquities; including the Stûpas of Bhattiprôlu, Gudivâda, and Ghantasâlâ, and other ancient sites in the Krishna District, Madras Presidency. With notes on Dome Construction, Andhra Numismatics, and Marble Sculpture. By Alexander Rea, M.R.A.S., Superintendent Archæol. Survey, Madras. New Imperial Series, Vol. XV. Fo. Madras, 1894. Price 10 rupees.

List of Architectural and Archæological Remains in Coorg. Compiled under the Orders of Government by Alex. Rea, M.R.A.S. New Imperial Series, Vol. XVII. Fo. Madras, 1894. Price 8 annas. [London Agents: Messrs. Trübner & Co.; B. Quaritch; W. H. Allen & Co.]

This volume is particularly well illustrated—there are forty-seven large plates—the subjects being reproduced by some of the new processes of photography. The folio size, here adopted, affords more ample space to do justice to archæological illustrations than what used to be the case in the earlier Bengal Reports. So far as one can judge by the volume, Mr. Rea's exploring work appears to have been well and carefully done. The result is a valuable collection of material, particularly that headed “Dome Construction”—which might perhaps have been called Stûpa Construction; for stûpas, although having a domed form, are solid, and not, as a rule, arched. The locality where the explorations have been carried on is near the mouth of the Krishna River, not far from Masulipatam. From Hiuen Tsiang, the Chinese pilgrim, we know that Buddhism was followed by large numbers in that region as late as the seventh century, and that numerous large monasteries were then in existence. Stûpas are also described by the pilgrim, some in stone and some in brick. Almost the only stûpa in the south of India that we are familiar with is the one at Amaravati, on the Krishna, the same locality where Mr. Rea has been at work. Unfortunately that stûpa no longer exists; the material has been carried off and used as building material; but luckily the sculptures upon it were saved, and are now in the British Museum. All the stûpas Mr. Rea has found have also been more or less destroyed—in one case the bricks were employed for road-making, and the marble was applied in building the sluices of a canal. Owing to this nothing more than mounds now exist, and only the lower parts of the monuments have been left. The three stûpas which are reported upon appear to have been of considerable dimensions. That of Bhatti-

prôlu was 132 feet in diameter, Gudivâda, 111 feet, and Ghantasâlâ, 112 feet.* They are supposed to have been similar in type to the Amaravati Stûpa, which was about 100 feet in diameter, and the Sanchi Stûpa is 106 feet. Some of the relic cells with the deposits remained, and were opened by Mr. Rea.

The important discovery made in these stûpas, and which is almost new to us, is the existence of interior constructive forms. They are built of brick, and it is supposed that the object was to reduce the large quantity required for filling up the solid mass; so partition walls were raised, and the spaces between filled up with mud. A plan of the Ghantasâlâ Stûpa is given showing an outer wall—a strong central core, and walls crossing each other at right angles—the object being merely to prevent the great mass of mud from pressing against the exterior surface, and bulging it outwards. These interior walls would no doubt be a support to the dome, but how the dome was constructed—whether on the arch or the corbel principle—there is unfortunately nothing in the remains to tell. Stûpas, we know, were in some instances built over smaller ones, but in such cases there is no intention of an inner construction. This took place when a shrine became celebrated, and the motive was merely to increase the size and importance of the monument. Cunningham, in his exploration of the Sanchi Stûpa [“Bhilsa Tope”] makes no mention of inner construction. When so much exploration is being done now in India, it would be rash to say that this discovery of interior walls in stûpas is the only one which has been made; I can only say it is the first which has come under my notice, with the exception of what I came upon in one of my explorations in the Jellalabad Valley in 1879. This was a mound left by the remains of a tope known to the natives in the present day by the name of “Nagara Goondi,” on the site of Nagarahara, which was the capital of the Jellalabad Valley when Hiuen Tsiang was there in the seventh century. On the top of this mound I noticed lines of stones that radiated from the centre. On making a tunnel to reach the centre near the level of the ground, a wall was come upon that appeared to be a continuation of one of these lines; and the conclusion I came to—but I confess on very slight data—was that a series of walls radiating from the centre had been built up to give stability to the mass. These walls, so far as I could see, had only one face, the space behind being filled up with mud and boulders to the next face. After the tunnel had been made about 23 feet through the square base of the tope, a wall at right angles to the

* This last includes the three procession paths. The diameter of the domed part of the Ghantasâlâ Stûpa is only about 60 feet, so that, in reality, this one is much smaller than the Sanchi Stûpa. If this was the case with the other two, then they were all smaller.

radiating wall was met with. As this would be about the position of the circumference of the circular drum of the tope, I concluded that it had been carried up all round from the foundation inside of the square base. Unfortunately, it was just when I had discovered these details, and was expecting to fully realise their exact character, that the army moved away to Gundamuck, and I could not remain behind; so what I state here is little more than a rough guess of the meaning of the facts I had only had glimpses of. That there was an inner construction in these topes is beyond a doubt, but whether this resulted from the materials used in the Jellalabad Valley, which was principally mud with boulders embedded in it, or a pre-existing manner of construction that had been brought there, I cannot, of course, pretend to say.*

Another feature of the Ghantasâlâ Stûpa is that it had three procession paths—at least such is Mr. Rea's conclusion. He points out that the Ruanwelli dagoba in Ceylon is supposed to have had the same number; and that the great dagoba of Boro Buddor in Java had five, and the Mengun Pagoda in Burma had also five.† There is a question that may have some relation to these paths, which, so far as I can recollect, has never been touched upon; unless it be some remarks I made regarding the platform on the top of the square base of the Afghanistan topes.‡ The point involves the question as to whether there was any service performed by the Buddhist monks at stûpas, or if they were merely monuments standing for no other purpose than that of being circumambulated by the ordinary worshippers. I am inclined myself to the idea that some service was performed—at least, at the larger and more important stûpas—but I have to confess that I am almost entirely without evidence on the subject. At the Ishpola Tope, in the Khyber Pass, I noticed that small statues were repeated all round at the base of the drum; they were seated with their backs to the wall, and facing the platform formed by the square base. It occurred to me that these figures represented the monks at service, and that that was the purpose of the wide platform, while the procession path in these topes was, as my explorations had shown, round the lower part of the square base. This led me to suggest that the ledge of the Sanchi

Stûpa, from which the dome springs, had also been used for the same purpose. That ledge is only six feet wide—which is wide enough for monks to squat and repeat a ritual, but would be a very narrow space for a procession path. The narrow stair at one point leading to this does not appear as if intended for a crowd of worshippers to be constantly passing; at least, the limits of the stair and the narrow ledge form a striking contrast with the size of the recognised procession path below, with its great railing and its four large sculptured gateways—the two do not appear as if intended for the same purpose. This is, of course, a purely speculative matter, and does not reflect in the least on Mr. Rea's explorations, which it is to be hoped he will continue, and be able to add further to our knowledge of these southern remains of the Buddhist period. The coins, relics, and the new written character—a most interesting find—which have been brought to light in these explorations, as they are not architectural, require no notice here.

The plan has now been adopted of getting the local authorities of a district to send in lists of temples, sculptures, inscriptions, and all archaeological remains, with any slight descriptions of them, so that when the Archæological Surveyor makes his tour of the locality he is saved the trouble of hunting for such things, and can go direct to each spot; and the description, however short, may indicate to some extent what he may expect to find. This volume is one of these lists. Short and concise as the notes given of each place are, they yet convey a slight notion of the archæological remains existing in Coorg. Some of these may be worth repeating here: Mr. Rea in a preface gives a summary derived from them. He says: "Prehistoric sepulchral remains are numerous. Their structure and contents are similar to others found over widely distributed tracts of Southern India. Their names are similar: they are known as Pându-pârê, pârê-kallu, Pândava pârê Kallu [stones of the Pândavas, evidently dolmens or stone circles], and Pândavaramanê [houses of the Pândavas, seemingly kistvaens]. Sometimes the kistvaens are divided into two chambers, and are situated singly or in groups. The relics usually found are peculiarly shaped pottery, containing earth, bones, iron spears, and beads." The ascribing of old or important remains to the five Pandu Brothers is common to most parts of India. Of carved or inscribed stones, the following is interesting: "*Kôllê Kallu* or *vira Kallu* are the tombs of warriors slain in battle. The lists would show them to be most numerous near the Kadangas, or ancient earthen fortifications. They are large slabs of granite with the front side divided into three compartments, as are those so numerous found in certain parts of Huvinahadgalli tâlûk of the Bellary district. The lowest compartment represents the battle,

* Details of this tope, with a rough plan, will be found in my Paper on the "Buddhist Architecture in the Jellalabad Valley," read before the Institute on the 12th January 1880, and published in the *TRANSACTIONS* of that year, p. 37. Masson's drawings in the *Ariana Antiqua* also show the existence of inner construction in the topes of the Jellalabad Valley.

† It may be mentioned that what is a "stûpa" in India is a "dagoba" in Ceylon, a "pagoda" in Further India, and a "tope" in Afghanistan. These words, as employed in this notice, all mean the same thing.

‡ See "Buddhist Architecture in the Jellalabad Valley," *TRANSACTIONS*, 1879-80, p. 52.

“the middle one shows deceased being conveyed to heaven, and in the upper one he is seated before a *linga* or other emblem. Similar, but more coarsely sculptured, stones are erected in the north of Coorg at the present day.” Among old works are “*Kadangas*—ancient earthwork fortifications consisting of a high breastwork and ditch. They are of ancient date, one being mentioned in an inscription of the ninth century. They are erected on hills and other places, and are sometimes very extensive. The tombs in their vicinity speak eloquently of the struggles which had taken place around them.” The temples, it would seem, are primitive. “The Coorg *dēvastānas* or pagodas are mostly of an insignificant character; none is distinguished for great antiquity or structural beauty; most of them are but rude village shrines, of mud walls and thatched roofs, within a gloomy grove, and not calling for any particular description.” The published list mentions a number of mud temples with thatched roofs. Draupadi’s Ratha, one of the Rathas of Mahavallipur—a rock-cut temple, probably not later than the seventh century—has what is evidently a copy of a thatched roof; here in Coorg, at the present day, is the original thatched roof still in use. This is easily explained. Coorg is in the Western Ghats, a little to the north-west of the Nilgiris; it is in the Nilgiris where the Todas and the Nairs are found, a primitive race still retaining the custom of polyandry among them, and they remain in a simple condition untouched by the changes of time. This is owing to their living in a hill region, where outside influences fail to reach them. Coorg, being in the same hill region, has evidently, from the extracts given above, also escaped the modifying touches of later civilisation, and continues to erect its temples and practise its arts after early and rude models. These rude models, when they are descended from early times, are often most valuable as aids in tracing the first origin of forms, and they are particularly valuable for this purpose in architecture.

WM. SIMPSON.

(69.)

THE LONDON BUILDING ACT 1894.

Streets and Buildings in London. The London Building Act 1894. With introduction, notes, and index. By W. F. Craies, of the Inner Temple, Barrister-at-Law. 8o. Lond. 1894. Price 3s. net. [Messrs. Sweet & Maxwell, Limited, 3, Chancery Lane.]

The London Building Act 1894, with copious index, notes, cross references, legal decisions, and diagrams. Edited by Bernard Dicksee, District Surveyor for East Newington and part of St. George-the-Martyr. 8o. Lond. 1895. Price 5s. net. [Mr. Edward Stanford, 26 & 27, Cockspur Street, Charing Cross.]

Mr. Craies supplies us with No. 7 of “The Annotated Acts,” and his notes are full and useful, giving references from one section to another where they bear on the same subject. Let

anyone try to ascertain, for instance, as the writer has, whether a certain existing building for the working classes may have another storey put on to it, and he will find the advantage of such references. The new portions of each clause are indicated by brackets, and the sections superseded are referred to in the margin, while many useful legal points appear in the notes and introduction, and the index is clear and copious.

Mr. Bernard Dicksee gives us, in his frontispiece, a very useful diagram showing the effect, under different circumstances, of what may be termed the “sky-line” clauses, and there are further illustrations in the body of the work dealing clearly and fully with the same subject, showing the differences between a “working-class” dwelling and that inhabited by the ordinary idlers who, from a London County Council point of view, form the remainder of the community. The text shows, by italics, the portions that are new, and the notes, index, and references are very full and complete. On page 189 we have the By-laws made in 1891 under the Metropolis Management Act, and it is curious to note that these are still in force, though they refer, five times over, to sections of the Building Act of 1855, now repealed. It is therefore necessary, until this anomaly shall have been removed, to keep the old Act on one’s shelves as well as the new.

The works above referred to make up, with those of Mr. Statham and Professor Banister Fletcher, a total of four volumes, albeit of modest dimensions, dealing with a subject of the greatest importance to every metropolitan architect. It seems a pity that the same ability, legal and architectural, could not have been combined, and expended in the production of one book, which should have embraced all the points separately taken by these publications.—R. LANGTON COLE.

(70.)

THREE BOOKS ON DRAWING.

Cusack’s Model Drawing. A Text-book for the general use of both Teachers and Students of Public, Private, and Elementary Schools; for Students in Training Colleges, and for Elementary Art Students. By Charles Armstrong, Art Master, City of London School of Art, &c. Fo. Lond. 1893. Price 3s. 6d. [City of London Book Depot, Finsbury St., Moorfields, E.C.]

Cusack’s Shading. A Text-book for School Teachers, Students in Training Colleges, &c. By Charles Armstrong, Art Master, &c. With Plates, Descriptive Letter-press, and Appendices. Fo. Lond. Price 3s. 6d. [City of London Book Depot.]

Pen Pictures, and How to Draw Them. A Practical Handbook on the Various Methods of Illustrating in Black and White for “Process” Engraving. With numerous Designs, Diagrams, and Sketches. By Eric Meadc, Author of “Scene Painting for Amateurs,” &c. Small 8o. Lond. 1895. Price 2s. 6d. [Mr. L. Upcott Gill, 170, Strand, W.C.]

From their titles, these three books might seem to the student to constitute a royal road to the

art of architectural draughtsmanship, and to the delightful honour of figuring as an illustrator of popular periodicals and books; from his first steps in "Model Drawing" and "Shading" to the mysteries of "the various methods of illustrating in black and white," the way would seem to be clear. But a closer acquaintance with the volumes would reveal the sad fact that the royal road existed only in the student's imagination, not in the books. His course will be plain and easy through the two elementary treatises, but afterwards it will be fraught with difficulty and danger, for the guide-posts are few and not seldom misleading.

Mr. Armstrong's book on *Model Drawing* can be heartily recommended to the young student. It is evidently the work of an experienced teacher, one who knows what to say, and says it in few words. Chapter I. states a few elementary truths about perspective which must be grasped before the drawing of models can be rationally attempted. Succeeding chapters explain and illustrate the delineation of the cube, pyramids and prisms of various kinds, the circle, cylinder, cone, &c., and finally of vases, groups of models, and common objects. The last chapter describes "the construction of models from card-board."

Cusack's Shading is an earlier publication than the *Model Drawing*, but falls naturally into second place in a review as in a course of study. It has been adopted by the School Board for London, and is certainly an excellent guide for the student. Probationers of the Institute, who have not the opportunity or desire to attend a class on the subject, will find the book of great service. Different kinds of shading with stump and powdered chalk, and with lead pencil or crayon, are shown, and the shading of various objects and ornaments, from a simple cube to a cluster of bananas, is carefully illustrated and succinctly described. Appendix I. contains the same diagrams and letterpress as the final chapter in *Model Drawing*, and some of the diagrams of common objects are also the same in both books.

Mr. Armstrong's definition of "entasis" (p. 26, *Model Drawing*) as "the bending in of the columns towards the top," is decidedly loose and ought to be amended; and in the book on *Shading* (Plate VI., Step 4 (5)) the word "distant" is a misprint for "darkest," while the letter O is omitted from Fig. 6. But these are trifles. The books are good. The type, paper, and illustrations are alike excellent; and in all cases, the descriptive letterpress is on the page opposite the plate to which it refers, so that the reader's patience is not tried by having to turn over the pages repeatedly to refer to text or diagram.

But what shall be said of the third book under

notice? Briefly, it is a hodge-podge of platitudes, hints (good, bad, and indifferent) on drawing for reproduction, fourth-rate drawings and sketches, and remarks on subjects of which Mr. Meade is so profoundly ignorant as to be totally unconscious of the fact. His remarks on perspective are an example in point. After saying, with an attempt at smartness, that the draughtsman "will find" that he will need something like the faculties of "a Senior Wrangler to grasp the geometrical intricacies" of the science, he does not hesitate to rush in where Senior Wranglers fear to tread, but proceeds to lay down the laws and rules of perspective with the authority of a professor. His second rule is decidedly interesting: it is, "that any object drawn below the horizontal line appears to the onlooker as if he were *looking at it from below*, and any object above the horizontal line appears to the onlooker as if he were *looking up at it from above!*" The italics are mine. Mr. Meade does not appear to have the slightest conception that more than one vanishing point can possibly be required; perhaps he may be induced to consider to what point the lines of the end of the house, shown in figure 12, converge.

There is a short chapter on "Landscape and Architecture." Let not the hopes of the architectural student rise. The two examples of architectural drawing are both incorrect, the second ludicrously so, and some of the hints would not be out of place in a Comic Guide to Drawing. "It is the custom to put in a landscape drawing a figure or two; too many figures spoil the effect. These figures are usually human beings or cattle;" and, again, landscape artists, in order to preserve the scale of the drawing, "adopt the excellent plan of comparing the figure they wish to introduce to some object in the distance whose size they can appraise—say a tree."* Of architectural drawing Mr. Meade knows nothing, not even the difference between a "perspective" and an "elevation" (*vide* pp. 61, 62); he even seems to think that "geometrical drawing" is "extensively used" in "builders' . . . specifications." Into the abstruse mysteries of these, however, even Mr. Meade dare not enter. They are, he says with a kind of awe, "distinct branches of mathematics, and such instruments as dividers, set squares, scale, and protractor are absolutely necessary."

The author's treatment of other subjects is little better. On page 68, he declares that "reflections in perfectly smooth water appear always the same depth below as the height of the object above the surface of the water!" And with like accuracy he maintains on page 19, in comparing a drawing with the print of the same drawing "reduced one-third," that "in the original the black lines were *three times* thicker,

* The italics are mine.—G. L. S.

"and the white lines or spaces *three times wider.*" But to follow Mr. Meade through all the details of his book would be as wearisome as the attempt to make sense of the following sentence (p. 12): "This, if true, is the best incentive to the beginner who is loath to work, or *attempt to work, independently and direct from Nature.*" Perhaps the one lesson which the young reader will learn from the book is "Crib, crib, crib!" "Many of our best black and white artists. . . compromise by simply borrowing or appropriating what they themselves are unable to draw." Over and over again Mr. Meade reverts to this subject: "there are pen-and-ink artists of repute who could not draw decently a chair if you put one in front of them and furnished them with pencil and paper. Others, apart from the assistance given to them by their 'studies' or their scrap-books, would be unable to draw a face, or a figure, or a room, or a landscape, or anything else showing artistic quality." It would be interesting to know who these "best black and white artists" and these "pen-and-ink artists of repute" are, and a consideration of the ethics of cribbing might not be out of place. But I have said enough.

In the chapter on "Materials" many useful hints on drawing for various processes of reproduction are given, but the whole book is marred by bad arrangement, carelessness, inaccuracy, and especially by the attempt to make it unnecessarily comprehensive. Many subjects are mentioned, but none are fully explained.—GEORGE L. SUTCLIFFE.
Manchester.

NOTES, QUERIES, AND REPLIES.

"Frauds and Abuses at St. Paul's," 1712.

In a Paper by Mr. Penrose on "Various Matters connected with St. Paul's Cathedral," read before the Institute 7th February 1859, the learned author referred to "a curious contemporary pamphlet," in which Wren, "with the master-workmen and others under his charge, were attacked in a most unjust and unscrupulous manner." This pamphlet, which was written by Dr. Hare, a residentiary of St. Paul's and one of a committee for superintending the conduct of the building, appeared in 1712 in the form of a letter to a member of Parliament, and bore the title *Frauds and Abuses at St. Paul's*, with the motto—

. . . Parentis viribus, atque
Extenuantis eas consulto . . .

The charges contained therein were duly answered in another pamphlet believed to have been written by Wren, and other papers on the subject were subsequently published. A copy of these, six in all, is in the Library of the Soane Museum, but the Institute has never possessed one. This void,

however, has been recently filled by Mr. P. Cordon Smith [F.], who has presented the copy belonging to his father, the late well-known Mr. C. H. Smith, with the latter's signature on the inside of the cover, and a description, evidently written by him, of the contents of the volume, with the note that it is taken "From the copy of these pamphlets in the library of Sir John Soane." In the copy just presented the second pamphlet, *An Answer to a Pamphlet entitul'd Frauds and Abuses at St. Paul's, with an Appendix relating to the Revenues and Repairs of that Cathedral*, bears on its title page the name in MS. of "James Burnell," and the words, also in MS., "by Sir Christopher Wren." It was published in 1713. The third pamphlet, published in the same year, is called *Fact against Scandal: or, a Collection of Testimonials, Affidavits, and other Authentic Proofs, in vindication of the persons attacked in the first pamphlet.* The fourth is called *An Abstract of an Answer lately published to a Pamphlet intituled Frauds and Abuses at St. Paul's*, and bears the date 1713. The fifth, with the name "James Burnell" written on its title page, as on that of the second pamphlet, is *A Continuation of Frauds and Abuses at St. Paul's . . . in answer to Fact against Scandal*, and bears the date of 1713, with the motto—

. . . tacitus pasci si posset CORVUS, haberet
Plus dapis et rixæ multo minus . . .

The sixth and last is called *The Second Part of Fact against Scandal; in answer to a Pamphlet intituled a Continuation &c.*, dated the same year, bears the following motto—

Diruit, Aedificat, mutat Quadrata Rotundis.
In silvis LEPORES, in verbis quære LEPORES.

It is interesting to note that although in the two pamphlets containing the charges of Fraud and Abuse the name of Dr. Hare is given in full, it appears as "Dr. H——" in those rebutting the said charges. The above-named six pamphlets, of small octavo size, bound in one volume, form "the controversy complete"; and the Institute copy is enriched by an advertisement cutting from *The Times* (20 February 1874) inserted therein, and headed "The Iron Railings round St. Paul's." One hundred and twenty-five feet run of these railings, with the western State Entrance gates, &c., made of the best Sussex charcoal-iron, cast in 1710, were referred to in the unhappy controversy which embittered the closing years of the great architect's life; and those who desire to know what it was proposed to do with them, by advertisement, in 1874, may consult this curious book, for the gift of which the Institute cannot but be heartily obliged to the Chairman of its Science Committee. The book has a MS. note at the end that "Edward Strong, Master-Mason of St. Paul's, laid the first stone, 21st of June 1675, and lived to see the building completed: he is buried in the

“ Church of St. Peter, at St. Albans, Herts, where
 “ there is a marble mural monument erected to
 “ his memory.”

London Architecture.

FROM ROBERT WILLIAMS [A.]—

Following up its excellent idea of becoming occasionally an illustrated journal, and that of a very high order as regards some of its illustrations, *The Daily Chronicle*, on the 19th March, published an article headed as above, illustrated by four drawings from Mr. Herbert Railton's pen. The article is by Mr. W. H. Conway, and is full of suggestive thought. Great are the speculations as to the future of architecture. “ Imagine,” he writes, “ a city of aluminium and paper buildings “ made to take to pieces! ” Then “ a man would “ move his house from place to place as easily as “ he now moves his furniture; ” and, alas for ground landlords! he adds, “ there would be no “ more building leases.” That the leasehold system works badly and should be abolished many of us believe, but the portable town of paper! The town which may be taken to pieces has no savour of architecture; it is too suggestive of the nomad.

Another plea for a broad thoroughfare is welcome to all who have longed, and who are still longing, for a really fine street in London. And the idea of arching (here he forgets the iron and aluminium; perhaps he should have written “ ironing ”) over the footways is good, provided the streets were sufficiently wide—not less than 120 feet, allowing 12 feet for each footway. But footways, approached by staircases and lifts, are suggested on a level with the first floor, which in turn may be covered with a roof or arched over for a footway on the second floor level, and so on. There is something pleasant in these ideas, and the architect sees rising before him a glorious series of arcades vaulting one above the other—but then he thinks of light, and light is a great boon in London; and in thinking he perceives, cast upon the walls of the houses and shops behind, the heavy shadows of the superimposed footways or balconies.

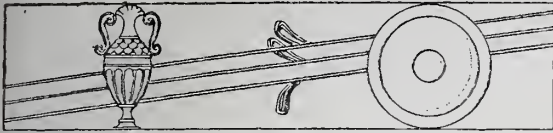
Again, “ I know not how many more stories would “ be similarly treated,” and here and there bridges are to be thrown right across the street, carrying the footways to the other side at the various levels, “ and other bridges would be flung across the “ main thoroughfare at convenient intervals.” We should thus have a veritable city of bridges, “ so “ that it would be possible to circulate all over the “ whole new area at whatever level you pleased.” Let us imagine a street, say, as long as Regent Street and seven storeys high, with footways at the level of each storey, and bridges thrown across, say, 40 yards apart. Then let us stand at the lower end, and “ the perspective of such an “ avenue.” to quote again, “ with the tiers of “ arcades on either hand, the bridges across at

“ the different levels, and across the side streets
 “ running out of it, would be beautiful,” but there would not be much view of sky; there would, on a sunny day, be a fine play of light and shade, but viewed from one end the transverse bridges would certainly have the appearance of a continuous vault, and the necessary dimensions of the haunches of the great bridges, even though they were made of paper and aluminium, would present a mass so darkening that much of the beauty would be lost. And what a tremendous job it would be “ to take to pieces ” all this, when, as we are told, “ towns would wander about as “ fashion and convenience dictated ”!

Anomalous reasoning notwithstanding, there is much in this article to commend itself to all lovers of London. But we may venture to say that it contains one very grave error, and it is one which architects must always have in mind when planning towns or in improving areas. In speaking of the tall buildings, which seem to be a part of the article-writer's ideal, he says: “ Such build- “ ings would accommodate *many more inhabitants “ per acre than are packed in our densest slums.*” The words now emphasised are evidently those of one who has not studied the cause of the high death-rates and birth-rates, the low physique, and the constant sickness which, unhappily, are the rule in our slums, new and old, simply and mainly for the reason that too many people are placed upon a given area; and the evil of this lies in the fact that we cannot, by good buildings or any other thing save fresh air, neutralise the evil effect of the exhalation of carbonic acid from the lungs and skins of the people crowded together. Where great masses of people are found, as in the slums of London, the surrounding air becomes charged with carbonic acid to such an extent that it is absolutely vitiated. This being so, it follows that fresh air being unobtainable, the evil of crowding will work its course, good and beautiful buildings notwithstanding.

It has been shown that as many as 3,000 are housed upon a single acre in some of the densest parts of London. It is also true that much sickness and a high death-rate prevail in these places, although in many cases the buildings are of good quality. Sanitarians are, I think, agreed that there must be a limit to the number of persons to be housed on an acre, but they have not arrived at a definite number. The London County Council propose to house 313 upon an acre in the Boundary Street Scheme in Bethnal Green. This, it would seem, is far too great a number; yet it is a vast improvement upon the old practice.

The thanks of architects are due to any daily newspaper which puts before its readers such readable articles as the one under review. That more of them may take up their parable and utter their dark sayings on architecture, “ past, present, and “ future,” is much to be desired.

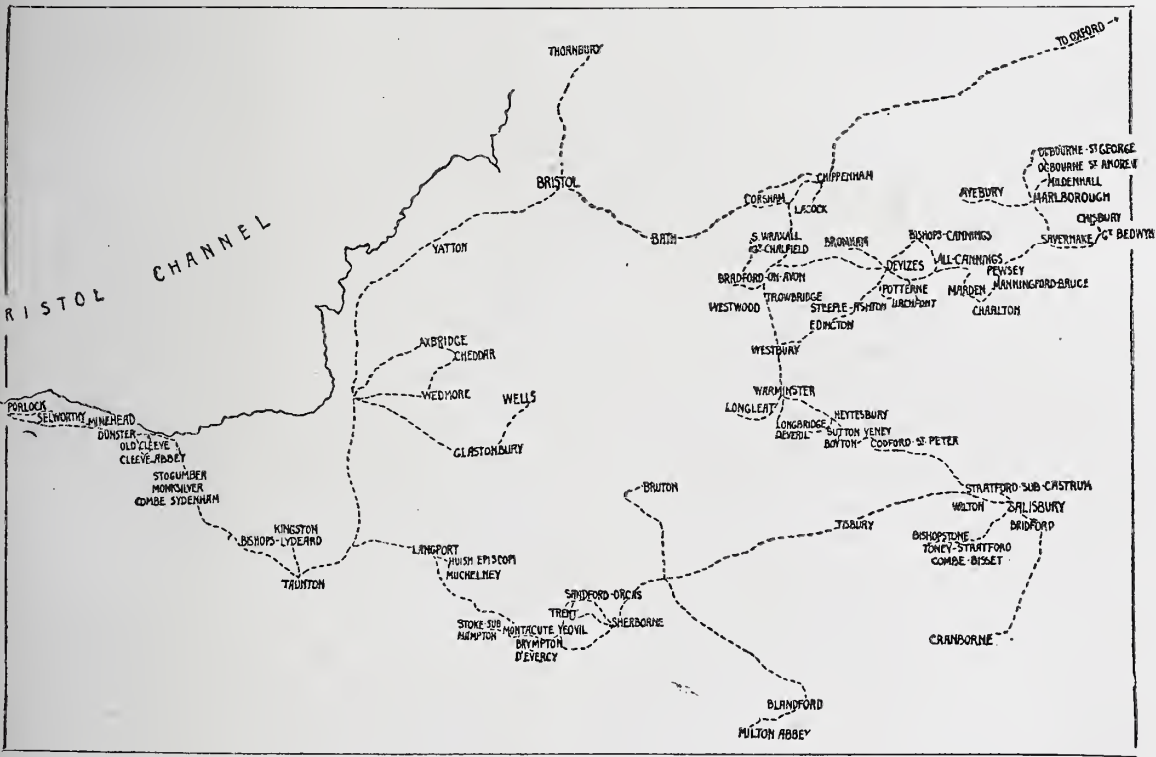


TOUR OF THE PUGIN STUDENT 1894.
WILTSHIRE AND SOMERSETSHIRE.

It was on the 17th of July 1894 that my tour was commenced at Marlborough. This neighbourhood, it is true, presents a wider field for the antiquarian and archæologist, in stone circles, barrows, cromlechs, sarsen stones, and wandsdyke, so crude and unintelligible to the more ordinary faculty of to-day, than to the student of Mediæval architecture, ecclesiastical and domestic. Still, some days may be passed here, and I think

so, so cosy enscenced in its marvellous artificial cup, must on no account be omitted. As in duty bound, I wended my way immediately to the church, a structure well restored and of the highest interest—qualities which I only too frequently found were incompatible. The tower is a good one, though the extreme lowness of the chancel arch within prevents the open effect which the beautiful coloured rood screen ought to have from being seen. Opposite the church are the gabled manor house and charming gateway, with long paved path across the lawn to the present entrance door, which now takes the place of the capitally-detailed porch on the west side of the house.

After a couple of nights at the comfortable little hotel in Savernake Forest, the days being filled in with visits to Great Bedwyn and Chis-



MAP SHOWING PLACES VISITED. LINE OF ROUTE INDICATED THUS : - - - - -

profitably. In Marlborough itself, beside the rival churches of St. Mary and St. Peter, and their broad connecting street of ruddy tile-hung gables, are the College buildings, formerly one of the most important inns on the Bath Road—a very pleasant group, with its old garden, Georgian façades, covered portico, and great staircase.

A six-mile walk in stormy and wet weather, across bleak Wiltshire downs, is not an ideal introduction to a good day's work. Still, Ave-

bury, and the evenings with delightful walks in the great avenues, my steps were turned westward toward Devizes, by Manningford Bruce, where the little church is remarkable for its complete and unaltered pre-Norman plan, saving for a modern porch. This church and the restored example at Bradford-on-Avon, called—possibly with exaggerated sarcasm—the 19th-century Saxon church, are, I believe, the most perfect examples in the West of England, and a comparison of them was of great interest to me. Further

on, at Charlton Church, is a very remarkable low-side window passing through two distinct walls to the porch under the tower, so that the attendant, to whom the celebrant at the high altar was in full view, could ring the Sanctus bell at the precise moment. It was a pleasant walk thence through the redolent fields of the Pewsey Vale, past Wivelsford, with its snug farms and thatched mud walls, and Marden, a village of the best English type, on to my destination.

Devizes is an excellent centre, and, though not boasting much Gothic work, it contains in its secular buildings many examples of a singularly pure and refined type of the Classic Revival.

A day was divided between All-Cannings and Bishops-Cannings churches. The latter, much more sketchable than most churches of a like early date, has a fine tower surmounted by the comparatively rare Wiltshire spire. Within is much of interest, though space only permits a mention of the extraordinary carrel, or confessional stool, inscribed and painted. At Bromham Church there is the chantry of St. Mary and Nicholas, almost identical in design and proportion with that of a like date at St. John's, Devizes. The flat ceiling is richly carved and panelled, and coloured principally in blue and gold; the beautiful niches retain their original decorations; dilapidated helms and gauntlets hang on their wrought-iron brackets; and canopied tombs, brasses, and old painted glass combine in making the interior a most attractive one.

Erehfont Church, in another direction, has for its especial feature the remains of its stone-slab covered roofs and fleur-de-lys cresting. The chancel, with ponderous buttresses and relatively small amount of fenestration, has a sturdy, yet by no means unpleasant aspect, taking into account its situation. The priest's door, and the tiny quatrefoil apertures doing duty for gargoyles, will be noted.

A few miles from Trowbridge is Steeple-Ashton, at once the most imposing, promising, and disappointing of churches. The effect produced by the almost French-looking exterior, crowded with flying-buttresses and pinnacles, is soon dispelled when a closer inspection reveals the grossness of moulding and enrichment, feebleness of proportion, combined with the disagreeable appearance of very fine joints and uniform tone of the masonry. It was therefore with a much keener appreciation that I turned my attention to the charming red-brick and stone-pillared granary upon the manor house lawn. Only a short distance off is Edington Church. Report had said great things for Edington, and for once report was not an overestimate of realities. All of one date (1361), it seems to lose nothing of that charm which variety of style so frequently lends, and its beauty doubtless lies in the subtleness of proportion, distribution of parts, and refined detail, the entire absence of curving in

nave and transepts greatly enhancing its value in the monastic choir, though even here it is used with the utmost parsimony. The fittings of this church are entirely commensurate with the fabric, and among them it would assuredly be impossible for even a Pugin Student to resist the blandishments of the exceedingly refined Jacobean pulpit. The canopied altar tombs also claim attention, and one of these I measured, that of a dilapidated ecclesiastic whose effigy reposes under a gorgeously-coloured canopy. As is usually the case, his punning rebas is freely used in the decorations, a childish piece of nonsense in which even the greatest dignitaries in mediæval times loved to indulge. Notwithstanding, in this case, by the contrariness of fate, his name is now an unknown quantity. It is much to be regretted that the other monastic buildings have been destroyed, and now become the adjuncts of a 19th-century "tea-garden."

On the 28th July a move was made on to Bradford-on-Avon, a wonderfully continental and picturesque-looking town as seen from the railway, though I did not find much to detain me and claim the attention of my pencil. At Barton Farm, close at hand, is an immense 14th-century barn, the great principals carrying the roof cutting down perpendicularly into the walls, and bolted to huge timber templates in most substantial fashion.

From Bradford were visited the manor houses of Westwood, South Wraxall, and Great Chalfield, the latter so shamefully maltreated and ruined, and this at no such distant date. Of South Wraxall Manor House nothing need be said beyond expressing a feeling of gratitude that it has been more kindly treated than its beautiful and unfortunate neighbour.

Chippenham was my next stopping place, and here the excellent "Angel" proved a gratifying change from the Bradford "Swan." At Laycock Abbey, Mr. C. H. Talbot, its enthusiastic owner, was so kind as to devote several hours to the showing of his beautiful home, and the excavation and restoration of cloisters, sacristy, and chapter-house, &c. Corsham was also visited from Chippenham, and here I was enabled to have the opportunity of inspecting one of the underground Bath stone quarries, and gaining much useful information therefrom.

From Warminster there is a delightful Sunday afternoon's walk to Longleat House, the approach to which by Prospect Hill embraces a superb view: alternating sunlight and shadow on distant Somersetshire uplands, red-roofed hamlets filling in the nearer tree-covered vale, and the great sombre mansion at one's feet, by the side of a string of lily-covered lakelets.

Again my way lay southwards by Heytesbury, where the large-aisled, gloomy chancel of the church bears the characteristic impress of Mr. Butterfield's restoration; by Knook, where the

simple little church and its surrounding group of dwellings gracefully become their name; and by Boyton, whose fine old manor was occupied formerly by the late Duke of Albany, and where the church, hard by, has suffered an entirely misconceived and reconstructive "restoration." The fine late thirteenth-century Lambert chapel on the south side has to some extent escaped, and the fenestration is worthy of close attention.

Blandford had the misfortune to be demolished by a conflagration in 1731—so says the naïve inscription on the town pump. In Blandford, therefore, I found but little of interest, and occupied myself with a visit to Lord Portman's splendid new mansion by Mr. Norman Shaw, R.A., and Milton Abbey. Here are the choir and transepts of a monastic church—of the highest importance, and I think but little known, from its inaccessible position. Indeed, a studentship might be spent here alone. Milton, too, boasts of at least one unique feature. I allude to the carved and painted wooden "sacrament-house," which is to be found nowhere else in England. Of all its beauties, alone I can mention the rich and splendid effect of the elaborate fan-traceried vault, with its ribs of dark yellow stone and white stone in-filling.

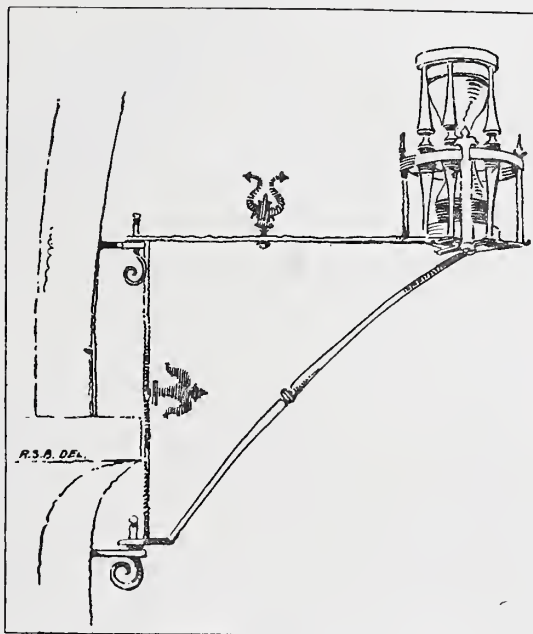
On 9th August I arrived at Salisbury for a stay of some duration—not to work at the cathedral, in these days too hackneyed a subject. I use the term with no disrespect for this venerable fane, which, escaping the barbarities of the Middle Ages, was stripped of its embellishments under the bigoted dogmas of a late eighteenth-century renovation. There is, however, plenty of other Gothic work to be done at such a fine church as that of St. Thomas, which, with its broad aisles, obstructed only by the lightest of arcades, liberal window space, and compact plan, seems so well adapted for the needs of a town church.

Of good work of another kind there is no lack among the various residences in the cathedral close, but I contented myself with measuring one of these, and that of a date (*circa* 1660) when doubtless the founder of the Studentship I hold, considered that architecture was an entirely moribund art.

There are plenty of "excursions" round Salisbury. At Tisbury, beside the quaint buildings of Place Farm, there is the church, whose interest lies mainly in the fact that the semi-classical upper stage of the tower is attributed to an illustrious native—viz. Sir Christopher Wren—and which, I heard with regret, the vicar is anxious to replace with something more in keeping with the remainder of the edifice. At Wilton House, notwithstanding the formidable proportions of the document furnished me by the Royal Institute of British Architects, I was unable to obtain permission from the agent to sketch, though I have since been given to understand that the necessary

order would have been readily granted by the Earl of Pembroke.

Cranborne Manor, belonging to Lord Salisbury, was also visited, and a day was spent at Bishopston, taking *en route* Stratford-Toney Church, beautifully perched on a tiny knoll, down the side of which it has been continually slipping. At Bishopston there are a great number of original and unusual features, and some very fine Communion plate, dating 1630. Nearer Salisbury there is Stratford-sub-Castrum, where the pretty little church is smothered in roses and surrounded by lime-trees, each seeming to endeavour to overcome the sweet perfume of the other. Within, I was specially attracted by the old hour-glass beside the Jacobean pulpit, the ceiling so plain and



OLD HOUR-GLASS, STRATFORD-SUB-CASTRUM.

effective, and the couple of charming walnut-wood chairs within the altar rails.

August was drawing to a close when I saw my first Somersetshire tower at Bruton. At Sherborne, the sombre and even repellent outward appearance of the Abbey Church, certainly conveys no foretaste of the glorious *tout ensemble* of the interior, so replete in fine colour, natural and artificial. The absence of a label-mould above the nave arcade is very noticeable, and though in an interior it may be a superfluity, it nevertheless forms a suitable boundary to the opening beneath. I did not fail to observe how largely the plain semi-elliptical Norman chancel arch enhances the effect of the otherwise monotonous perspective of the noble fan vault.

Yeovil, my next centre, it must be confessed, is

not an interesting place, for hard work and modern villas predominate. The church, even though boasting of a crypt, failed to equal my expectations. I spent the greater part of a day visiting the churches of Marston, Rimpton, and Sandford Orcas, none of which detained me long—and fortunately, for at the latter I found a charming manor house, entered through a very nice gateway-house, all inclosed in a perfect old garden. Throughout the house I observed the curious pre-

passes through the door to the garden, and observes on the lintel the words

And yours my friends

he feels a kindly sense-of gratification, only to be enhanced when about to enter the house he sees inscribed above him so pleasing an invitation—

Through this wide opening gate,
None come too early, none return too late.

My day at Brympton-d'Evercy was, alas! like

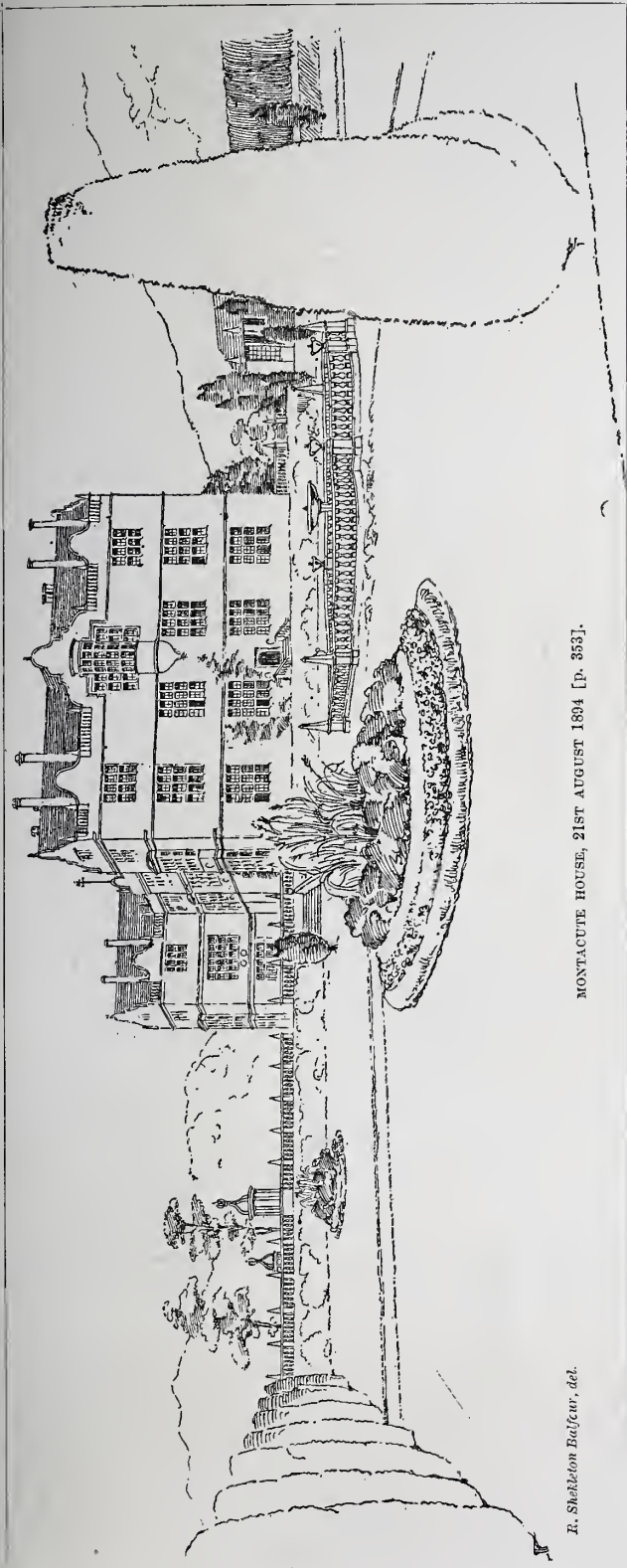


GATEWAY HOUSE, SANDFORD ORCAS MANOR HOUSE.

dominance of the volute in chimney stalks, pinnacle, and buttress, and peeping through the enwrapping carved foliage of Gothic string-courses, all assuredly dating long antecedent to the influence of the Renaissance.

What would Montacute House be without its gardens, its yew hedges (such as I have never seen), its fountains and terraces, pavilions and sun-dials? one wonders when contemplating so serene a picture. And do not such hospitable mottoes as those for which the Phelipases have always been, and I may add still are, famous enhance the charm of the place? For as one

too many another during my long journeyings, marred by the state of the weather, though the natural feeling of disappointment so readily evoked on a sketching tour was very largely mitigated by the courtesy and the hospitality of the Hon. Sir Spencer Ponsonby-Fane, under whose guidance I was shown the entire mansion, with its rare collections of old brasswork and furniture, the grand terrace-front by Inigo Jones, with its flights of steps descending in so happy a manner to the lawns, the old Priest's House and quaint church, whose great corbelled-out square bellcote entirely overwhelms the diminutive west gable. In the



MONTACUTE HOUSE, 21ST AUGUST 1894 [p. 353].

R. Shelton Peacock, del.

church I found a simple yet very effective stone screen topped by a great painted rood beam, and many family tombs and other noteworthy objects.

From Muchelney the towers of Langport and Huish-Episcopi are very prominent objects, the latter wondrously crowded with tracery and disengaged pinnacles, which contribute very largely to the "bride-cake" appearance of the whole. Muchelney is an ideal hamlet steeped amid great elms and yews, and very picturesque is the grouping of church, cottages, and cross. The church porch I noted was vaulted in a somewhat uncommon fashion, the wall ribs alone springing from the corbels, while a short distance above they are connected by a tiny cusped arch from which spring the diagonal ribs. The foundations of the adjacent abbey church I traced with special interest, particularly those of the circular Lady Chapel beyond the semicircular apse, like Beckett's crown at Canterbury. The adjoining abbot's lodging is a pretentious structure, now degraded to the use of a farmhouse.

My steps now took me northward to Glastonbury and Wells, of which it is superfluous to say anything; to Cheddar, where to anyone unacquainted with geology the great gorge with cliffs of 400 feet high cannot fail to seem a startling formation in a district so flat and marshy. But I must not pass by Cheddar Church entirely, for there is much fine woodwork, a good old stone pulpit, much over-decorated in the days of cosmopolitan amateur "Art," and some beautiful glass in the chantry on the south side. The groundwork of these windows is a silvery white, on which stained panels are here and there distributed. Two of these, representing the Annunciation, struck me as having a peculiar charm of composition and colour. Here, too, is a triple canopied niche of rare design and workmanship, which attracted both my eye and pencil. At Axbridge and Wedmore there are churches which are well worth visiting.

On the 4th September I was at Taunton, admiring, though not sketching, the tower of St. Mary Magdalene Church, for the surroundings I found too untranquil. At Kingston, not very far distant, the tower of Taunton has a dangerous rival, and one far more pleasant to draw. I did not omit to notice the "tricky" method by which a diagonal buttress is obtained for the upper stage by connecting the angle buttresses by means of a squinch. The sister church of Bishops Lydeard possesses an unusually perfect specimen of the churchyard cross, and is replete in woodwork of the typical Somersetshire character.

My route for a space now lay along the coast line, the sturdier character of the architecture proclaiming the more stormy occupations of the inhabitants. In Dunster, the haunt of artists and sportsmen, I found no lack of subjects with such buildings as the Yarn Market and the Nuncrey; at the castle crowning the tree-covered rock on which it stands, and at the church whose chancel, shut off from the main building as at Arundel, serves as a private chapel to the Luttrell family. At the fascinating ruins of Cleeve Abbey are some splendid tile pavements *in situ*, and carefully preserved. The gateway to the abbey buildings is a beautiful conception, with a simple and reposeful treatment and happy apportionment of features in the upper stage. Stogumber Church, built of so red a stone that I supposed it at a distance to be brick, possesses an arcade of great elegance and refinement. Minehead was my headquarters at this time, and an excellent starting point it is. Porlock I visited from this, and Selworthy, whose church steps command a view so glorious, that it seems no unusual thing to find the old brazen inscriptions in the church commending its charms from generation to generation.

At Yatton Church I spent a couple of days. Here are all styles, from the plain chancel of early date—the common arrangement in Somersetshire—to the perpendicular nave of remarkable grace.

Bristol I found full of interest, odours, and smoke. Here I spent several days, more in sight-seeing than in work, for the coating of grime conceals to a large extent its beauties, and its busy atmosphere depresses rather than stimulates after the tranquillity and freedom of rural districts, while bringing forcibly to mind a speedy return to the far busier and more grimy metropolis. Still I soon found there were many places to see not far off. Bath ancient, Bath mediæval, Bath modern, each distinct and separated by a chasm of oblivion, yet all within a stone's throw—Roman

baths, Abbey Church, and scores of fine houses whose existence was due in so large a measure to that patron saint of the last century builder—I mean Beau Nash.

As must always of necessity be the case, sight-seeing takes precedence of sketching, and I found



GATEWAY, CLEEVE ABBEY.

a week had passed with but scanty additions to my Gothic notebooks, and that the time had arrived to speed back to town after nearly eleven weeks of work, wandering, and enjoyment, with only a portfolio full of drawings and many pleasant memories to commemorate my Pugin Tour of 1894.—R. SHEKLETON BALFOUR, *Inst. Medallist* 1892; *Pugin Student* 1894.



MINUTES. XI.

At the Eleventh General Meeting (Ordinary) of the Session, held Monday, 25th March 1895, Mr. James Brooks, *Vice-President*, in the Chair, with 22 Fellows (including 7 members of the Council), 23 Associates, 2 Hon. Associates, and 7 visitors, the Minutes of the Meeting held 11th March 1895 [p. 343] were taken as read and signed as correct.

The decease was announced of the following members—namely, Ernest Turner, *Fellow*, and Hubert Alfred Gregg, *Associate*.

The following Associates, attending for the first time since their election, were formally admitted and signed the Register—namely, Arnold Seaward Tayler, John Borrowman, jun., George Coster (Bournemouth), and Percy Henry Adams.

The President announced the results of the Intermediate Examination held on the 19th, 20th, 21st, and 22nd March, and read the names and addresses of 28 Probationers [p. 375] who had passed and were registered as Students.

A Paper by Mr. Henry W. Burrows [A.], entitled SOUND IN ITS RELATION TO BUILDINGS, was read by the author, and, having been discussed, a Vote of Thanks was passed to him by acclamation, and the Meeting terminated at 10.30 p.m.

The Northern Association.

The following is a list of the Officers and Council of the Northern Association for the Session 1895-96: President, Mr. Joseph Oswald [F.]; Vice-President, Mr. F. W. Rich; Hon. Treasurer, Mr. J. T. Cackett [F.]; Hon. Secretary, Mr. A. B. Plummer [F.]; Hon. Solicitor, Mr. H. C. Harvey; Hon. Librarian, Mr. H. C. Charlewood [A.]; Council, Messrs. F. E. Caws [F.], W. Glover, E. J. Hansom [F.], W. S. Hicks, J. H. Morton [F.], J. W. Taylor [F.], G. T. Brown, R. B. Dick, C. S. Errington [A.].

PROCEEDINGS OF ALLIED SOCIETIES.

LEICESTER.

Exhibition of Students' Drawings.

The annual exhibition of students' work and distribution of prizes in connection with the Leicester and Leicestershire Society was held on 26th February 1895. The prize drawings of the local students, together with a number sent down from the Royal Institute of British Architects, were exhibited in one of the Art Gallery rooms, and formed a very interesting collection of works. Mr. John Goodacre [F.], President of the Society, occupied the chair, and there was a numerous attendance, among those present being Messrs. E. Clephan, J. B. Everard [F.], A. H. Paget [F.], J. T. Biggs, S. P. Pick [A.] (Hon. Secretary), A. Spencer, Stockdale Harrison [F.], J. Goddard [F.], H. L. Goddard [A.], C. Kempson [A.], H. Roberts, W. M. Cowdell, A. H. Hind [A.], W. A. Catlow, H. H. Thomson [A.], B. Fletcher, W. T. Topott, and several students and

their friends. The President, in opening the proceedings said he was glad to know that the students took so much interest in their work, and had made so much use of the facilities offered to them in the various classes in the town. Much good and painstaking work had been done by them, and he was glad to know that the lectures were so well attended. With regard to the past year, they could not boast of very much, but some good, quiet work had been done.

Review of Works submitted for the Leicester and Leicestershire Society's Prizes. By S. Perkins Pick [A.].

Read before the Society, 26th February 1895.

There is not much competition for the prizes offered for architectural sketches. This is to be regretted. Students should realise the importance of being able to represent buildings by perspective sketches. When once the necessary knowledge is obtained, there is nothing more fascinating to the architectural student than the practice of making drawings of old work. The prizes offered for architectural sketches have this year been withheld; but the Committee thought so highly of the artistic capacity shown by Mr. Shirley Harrison that they have awarded a special prize to him for the set of sketches he submitted. The reason why the prizes offered were not awarded is that the work submitted hardly complied with the conditions. Mr. Harrison made no measured details of interesting parts, but his work is very clever indeed; both pencil and colour sketches are excellent as far as they go, and show a keen appreciation of artistic compositions. This student has doubtless received considerable assistance by making a careful study of the late Mr. Harry Ward's work. The centre pencil sketch on one of the mounts, marked "Gloucester," is probably a copy of one of Ward's drawings. If this is so, it should have been noted as a copy. All the remaining sketches are most likely drawn from the actual examples. The chief point which one has to impress upon Mr. Shirley Harrison is the need for more careful drawing. This remark applies especially to the coloured sketches, the outlines of which are not sufficiently correct; nor is there sufficient carefully-drawn detail done before the colour is laid on. It is all very well to endeavour to represent by a trick, as it were, the characters of architectural detail; but this can only be done successfully by those who have first drawn in the most careful manner, and laid up a big store of knowledge for the purpose.

The two sketch-books submitted by Mr. Bedingfield show a great diversity of selection, and a keen appreciation of those details which are likely to be of use to a practising architect. But, generally speaking, the subjects are not carefully drawn, and therefore lose a considerable portion of their value on that account.

The measured drawings sent in are an excellent lot. Mr. J. Clark has obtained the first prize by a very creditable set of drawings of the General News Room, situate in Granby Street. They consist of plans, sections, elevations, and numerous details, also the sketches made on the spot. One cannot speak too highly of the careful and complete manner in which Mr. Clark has delineated this refined building. The chief criticisms which can be made are that the detail drawings of the classical ornaments are not in all cases strictly accurate. The drawing of the internal Corinthian cap, for instance, is not, in many respects, a correct representation of the original; but, in spite of any shortcomings of this sort, this set of measured drawings is one of the best results the Leicester Society of Architects has ever received in competition for its prizes. There is another point which makes these works valuable, and that is the likelihood of this building being pulled down, or—what would be equally fatal to its present dignity—the setting back of the front for the purposes of a street improvement. One knows that, sooner or later, this

may be absolutely necessary; but when that necessity does come, there will doubtless be many who will grieve the loss or mutilation of this fine building, and Mr. Clark's drawings will form a very good record of it, and be prized accordingly.

Last year Mr. Clark was awarded the second prize for his set of drawings; this year he takes an unquestionable first place, which shows a very creditable advance.

The second prize for measured drawings has been awarded to Mr. E. C. Lawrence, who submitted a good and complete representation of the County Assembly Rooms. It is a great pleasure to note the very marked improvement in this student's work since last year. He has chosen a capital subject, and has fairly succeeded. The smaller scale drawings are neat, and the details are very well drawn. There is, of course, plenty of room for further improvements in Mr. Lawrence's work. For instance, the general drawings do not portray the refined character of this building. The caps and bases to the porch columns and the figures in the niches are poorly drawn, back lining does not improve them, and the omission of the bas-relief panels shows a weakness in which, perhaps, it was wise on the part of the student to indulge. The details appear to be carefully drawn, but the ornament is not shown in the best manner. In spite, however, of all these shortcomings and omissions Mr. Lawrence is to be heartily congratulated upon the very marked improvement he has made during the past year.

An extra prize for a set of measured drawings of the south aisle of St. Martin's Church has been awarded to Mr. J. F. J. Goodacre. The general drawing to the small scale shows very careful draughtsmanship; so do the elevation and plan of the south doorway. The details are not drawn in a good manner. Last year the first prize was awarded for drawings of this subject; they were a very good set, and showed considerable ability. It may be remembered by some of you that the following criticisms, amongst others, were made upon them: "The chief deficiency is to be found in the sketch-book, in drawings of ornament and detail. It is in this direction that students need a course of instruction in drawing from the cast. What students have to guard against is the possibility of becoming too mechanical; one is afraid of too much measured drawing in the way of taking ten thousand dimensions of stones in a building. With your nose within a few feet of the walling, and your attention monopolised with dimensions, there is always a danger of missing the main spirit of the design of the building. Measured drawings are, of course, a very excellent education, and every architectural student should make some; but at the same time, the importance of making careful perspective drawings cannot be over-rated—composition, concentration of enrichment, colour, and suitability are understood and grasped better by a careful sketch." Now, there is a fear that these remarks may have been misunderstood, for Mr. Goodacre has shown no joints whatever, which, of course, is very destructive of all character which the building may possess; in fact, the south wall of the church, as it is drawn, appears rather like a plaster erection. Well, now, it was not altogether the intention to save students time and trouble in measuring joints—for instance, all the jointing to windows, doors, cornices, string-courses, base mouldings, and portions of the walls surrounding same, and other portions where the masonry may differ in its character, should be measured, and the joints should also be shown on the details. Mr. Goodacre's sections of the moulded caps and bases ought certainly to have the joints shown as far as they can be ascertained. One other point should be mentioned, and that is, the weakness which is shown in the sketch-book, especially when any ornament is attempted.

Mr. J. E. Simmons sent in three sheets of very useful subjects. The door of the late Dr. Benfield's house in

Friar Lane is very carefully drawn, and the other two subjects show a good selection and are well worthy of study. This student's work on the spot is rather weak, but it has the quality of neatness and clearness. The only other set is by Mr. A. R. Widdowson, whose drawings of three old doorways show good studies of a class of work which, until somewhat recently, was despised. It is now thought that this style of work is useful material, and a good many of the leading architectural designers are incorporating work of this character in their buildings. This student has attained the age of sixteen years only, and deserves some additional praise for so soon commencing the serious business of laying up a store of knowledge for the future.

Altogether the Society may be congratulated upon the quality and quantity of drawings which were submitted for the prizes they offered for competition. It is hoped that the good example set by these students may be the means of inducing many others to make sketches and measured drawings of either old or new work.

Before concluding these notes a word or two ought to be said respecting the excellent opportunity which we all have for attending a course of lectures upon Architecture now being given by Mr. Cranage. These lectures are most useful—in fact, they are probably the first properly organised course of lectures upon the subject which we in Leicester have had the advantage of attending. It is very gratifying to see them so well attended, and it is indeed a rare opportunity of gaining a vast amount of information without much personal exertion. In conclusion, one has to again impress upon all architectural students the necessity for their laying up a store of scientific and artistic knowledge. They should all, without any exception, attend the Art and Science Classes for this purpose. If they neglect to do so they will realise, probably when too late to make amends, that they are being left severely alone by discriminating clients.

The prizes were then distributed by the President as follows: For measured drawings of old work, 1st, Mr. J. Clark; 2nd, Mr. E. C. Lawrence; 3rd, Mr. F. J. F. Goodacre. For architectural sketches, special prize, Mr. Shirley Harrison. Mr. A. H. Paget, in proposing a vote of thanks to Mr. Pick, remarked that the Leicester Society was certainly recognising one of the wants in the professional life of their town. Mr. Pick, in responding, observed, with reference to subjects for students to sketch and measure, there were still plenty of good examples left in the town and county, such as Magazine Gateway, an excellent piece of fifteenth-century work, and the low-relief work to be found on the slate headstones in some of the churchyards in Leicestershire. The latter might be regarded almost as a lost Leicestershire art.

Mr. J. Goddard, in moving a vote of thanks to the President, Mr. John Goodacre, expressed the opinion that Leicester stood second to hardly any other town in its architecture, both of public and private buildings.

The arrangements for this very successful meeting were carried out by Mr. W. A. Catlow, the energetic Hon. Secretary of the Prizes Committee.

MANCHESTER.

Philadelphia: an Architect's Notes in an American City. By H. Bloomfield Bare [F.].

Read before the Manchester Society of Architects, 5th March 1895.

My observations will be confined to a few matters that would perhaps seem novel or noticeable to the English architect visiting America for the first time, and will relate chiefly to the city of Philadelphia, which has a population of about a million and a quarter, and which is one of the oldest cities in the Union. It is affectionately referred to as the "Quaker City," "The City of Brotherly Love," the "City of Homes," because it is said a larger propor-

tion of the people inhabit their own houses here than is the case in any other city of the world.

The city is laid out upon a rectangular plan which has served as a model to so many of the younger cities that its arrangement deserves notice.

Approaching Philadelphia by crossing the Delaware River, the ferry-boat lands you at the foot of Market Street—a wide street going for many miles east to west, and dividing the city into two main divisions, the North and the South. All the streets crossing it are numbered, as "North Fourth," "North Fifteenth," "North Forty-first" Street, in the one division; and "South Fourth," "South Fifteenth," or "South Forty-first," in the other division; in each division the house numbers of the cross streets commence at Market Street. All the streets running east and west (parallel to Market Street) have names—"Chestnut Street," "Walnut Street," "Spruce Street," &c., in the northern division; "Arch Street," "Jefferson Street," "Girard Avenue," &c., are found on the south side of Market Street. Their house numbers commence at Front Street (facing the Delaware River), so that 1510 Market Street, or 1510 Chestnut Street (parallel streets), would be in the sixteenth block from the river; 1510 North Fourth Street, running at right angles to these, would be in the sixteenth block from Market Street. So that a stranger having a list of the names of the streets easily finds the position of an address upon the map, and by knowing that eight blocks are spaced to the mile, he can also calculate the distance to be traversed from any one point of the city to any other point, the house number giving him the clue to its position. This systematic plan avoids confusion certainly, but the want of diagonal lines of thoroughfare is often inconveniently felt when it happens that, to reach a distant part of the city, two rectangular sides of a triangle have to be taken instead of the more direct diagonal.

This inconvenience is overcome mainly by the very general system of exchanges from the horse tramway, or electric motor cars, which are laid everywhere, so that you ride east and west and exchange into a car going north or south, or *vice versa*.

Many of the streets and avenues—especially in the more retired residential parts of the city—are planted with fine trees, but it would be an improvement to have more open spaces and squares, as these are rather limited in Philadelphia, for though Fairmount Park is perhaps the most extensive and the finest park possessed by any city, on account of its distant situation some residents never enjoy its beauties oftener than once in a few years, and it would have been preferable if park areas could have been obtained and allotted to the several districts for the benefit of the inhabitants of each section. To have the open spaces more evenly dotted over the area of the city is of course the ideal arrangement.

In this respect Washington, the capital, has superior advantages; its rectangular arrangement of plan is cut across with many diagonal thoroughfares, and the inter-sections have been preserved as open spaces, and so liberally adorned by trees, lawns, flower gardens, fountains, and statuary as to add immensely to the picturesque appearance of refinement there, in which qualities Philadelphia is lacking, for the reasons given. However, in Philadelphia, Independence Square, Washington Square, Rittenhouse Square, and the few other open spaces preserved at comparatively rare intervals afford good indication of the superior orderliness of the people, who evidently respect public property more thoroughly than we are accustomed to do in this country. There is an entire absence of railing or fencing, and pathways are laid across the squares in every convenient direction for thoroughfare; but the lawns are beautifully trimmed and kept, no one tramples over corners or injures the grass edges, the flower-beds are liberally supplied with flowers and shrubs, no one plucks the flowers or injures the trees, and no one

carves the wooden benches; there is rarely a guard or keeper to be seen. The only notice observable at intervals is, "These plants and flowers are under the protection of "the Public."

While the display of the finest line of shops in Chestnut Street remind one rather more of the taste of Paris than of London, the older residential parts of the city are certainly more Dutch-like than English—the house fronts of fine deep-coloured red brick, with white marble door and window dressings, steps, and plinth. The herring-bone red-brick pavement, the white marble hitching-post for horses, and the carriage step at the kerb, also bear out the resemblance to towns in Holland. Brown stone fronts have of late years replaced the old Quaker-like red fronts.

Every kind of excellent building material seems to be easily procurable in Philadelphia; there is no really poor brick and no slovenly brickwork, while the best facing bricks are better than those we have here. There is, especially, a Pompeian brick 12 inches long that sets eight courses to the foot, made in colours, from rich deep ochre buff to a dark brown speckled with black, as though ground slag were mixed in the clay. This thin course Pompeian brick makes very refined-looking work. The terra-cottas are nearly all very good, with great variety in the tones of buffs and reds. The kinds of stone are also very varied—fine-grained buff, red, and dark brown stone—all of good weathering qualities, and green stone, so very peculiar and novel in appearance that I never got quite used to it. Grey and red granite is abundantly used; nearly all the Belgian and Devonshire marbles have their counterparts in the Pennsylvania marbles, and there are several others in general use unlike any we know here, especially a pinkish marble with onyx-like figure. Roofing slates and tiles are much the same as ours here, the latter perhaps of rather better quality; and there is a partiality for Italian roll tiles, some of them having a good rich brown glaze. Lead and zinc are scarcely ever used for roofing; lead would not be able to stand the expansion and contraction caused by the extremes of heat and cold in that climate; but painted tin is used for gutters and coverings. The tin sheets have hitherto been largely imported from England, but recent tariff legislation has aimed at the exclusion of the British article in the hope of fostering American tin industries.

The tin sheets are ordinarily soldered together at the joints, and laid sometimes with very slight fall, or almost flat, no drips, rolls, or loose lap-joints to allow for "play" of expansion and contraction, as we should require for lead or zinc coverings, and the tin buckles freely, and often has the appearance on the roofs of damped brown paper; and it resembles that article in another respect—in the ease with which a high wind can strip the whole of your tin roof-covering and leave it a few hundred yards away on your neighbour's property. Galvanised iron downspouts and hanging gutters certainly look flimsy as compared with similar articles in the fine castings supplied to us by Macfarlane's and other British firms; but there is good reason for adopting galvanised iron for these purposes, as it suffers less from the effects of frost, which would crack and burst the cast-iron articles.

There is not quite as legitimate an excuse for the large number of cornices, pediments, copings, balustrades, finials, and window-dressings, &c., all executed in galvanised iron, painted, sanded over, and jointed "to look like stone"; yet this pretentious meanness passes muster on some of the principal streets, and accounts for many unsightly things upon buildings erected only a few years, when the paint and sand have scaled off and the finials on copings and pediments get weak and groggy, and cornices and balustrades are bent in by the weight of a ladder: then one wishes for a more wholesome public disapproval of such shams.

There are also angle turrets of tin painted and jointed like brickwork, the tacks at the joints of the plates

very visible through the paint. Moulded and repoussé copperwork is much used on some of the better buildings with quite satisfactory effect, especially about oriels, dormers, turrets, and shop-front fittings, and where the designer has not attempted to make the copper to look like some other material. It seems to afford a good substantial weathering surface, with fireproof qualities, for covering wood framing; it also allows of artistic elaboration, and its colour harmonises in repoussé panel work well with other materials of the exterior, whether of brick, or stone, or terra-cotta.

What are known as "storm doors," sometimes projecting on the street, are frequently put up as extra protection during the winter to stores, saloons, hotels, banks, &c., or public buildings and offices, churches, &c., and enclosing the projecting steps of private houses; they are removable wooden and glass constructions, very good for keeping out driving snow from the entrances. Mosquito blinds of fine-woven wire are fixed to window and door openings for summer months. This refers more especially to suburban and semi-rural districts. In the city the mosquito is rarely noticeable; but he is apt to be sufficiently annoying when you take the evening air on the verandah of your summer residence. Soapstone for hearths is generally supplied where open fires are used, as this material seems best adapted to withstand the heat from the log fires lit on the hearthstone.

These open fires are ornamental and supplementary to the heating apparatus, which no house or cottage is ever without. The open fires being more generally confined to ground-floor entertaining rooms and halls, the ashes are raked into an opening in the back of the hearth, and are discharged into the cellar direct. What we should put as fender walls under the hearth are carried the full height of the cellar, and an ashes-bin is thus formed, usually spacious enough for all the ashes of the winter months. At a convenient season these ashes can be removed by means of a sliding door at the cellar floor level, or at the same level outside the cellar if there be an area space next the chimney breast. This simple arrangement saves the domestic considerable labour, and avoids much dust in the apartment.

I would here say something with reference to the woods in ordinary use, and they are excellent. American joinery, or millwork as it is called, wherever I have seen it, is done with remarkably clean stuff; a knot is a most unusual thing to discover in doors, linings, panels, moulds, skirtings, match boardings, or floorings; this is the case even in the cheaper cottages, and "natural wood finish" is nearly always specified—that is, a simple varnish on the clean wood, or stain and varnish—the stains being very excellent shades of reds, yellows, browns, and greens, such as we see on cabinet work here. Painted wood for interior work is almost out of vogue; graining of modern work I have never seen, and I believe it is quite disused. Next to yellow pine, ash is most frequently used, then chestnut and oak. American oak we know, but the chestnut is a fine decorative grain that I think we should prefer to that of the oak if it were imported, and it is somewhat cheaper than oak.

Except in the very plainest cottages one or other of these hard woods is generally put for the joinery of the ground-floor rooms at least, and hard-wood polished floors for rugs and mats are more often laid in American houses than with us. Other woods, such as cherry and maple, cedar and butternut, are frequently seen, but very little mahogany or bay wood. The commonest wood for rough boarding is hemlock; its short grain and large knots make it unsuitable for joists or bearing timbers unless very carefully selected.

As a typical block of offices the Drexel Building of Philadelphia affords a good instance, though it has only ten storeys above ground. The Betz Building, of later date, has fourteen—the highest in that city at the present

time. The Drexel Building, designed by Messrs. Wilson Brothers, Architects and Engineers, was, I believe, the first building constructed entirely of wrought-iron framing for walls, floors, partitions and roofs, and with the outer walls put as a separate skin or covering, carrying only its own weight. The Drexel Building contains at least three separate Banks and the Stock Exchange, and nominally 1,100 offices, but really about 600. The same system is adopted in numbering the offices as in numbering the streets: the first floor contains offices No. 1 to, say, 56; the second floor commences 200, perhaps runs up to 270; the third floor commences 300, perhaps runs up to No. 380; the fourth floor commences 400, and so on: therefore, No. 950, Drexel Building indicates its situation on the ninth floor, 1050 would be on the tenth or top floor.

Six large elevators were first provided, but two more were soon added, and to meet the demands of the traffic three or four are reserved for the top floors only, and marked "Express to 7th, 8th, 9th, and 10th floors." A little regiment of uniformed elevator boys attend under the command of an officer, who is responsible for all working smoothly and well, so that none are kept waiting.

The exterior elevations, simple and dignified in design, are all faced entirely with white marble from the ground to the cornice of the top storey. The windows are all furnished with sun-blinds of one pattern, so that the effect is a good harmony of colour. The roof is flat, and is laid with asphalt; it is used as a free promenade by any visitors who care to ascend by the elevators for a view of the city, which from this lofty elevation is a very extensive and interesting one.

As regards the interior, the entrance vestibules and corridors are lined with black, grey, and white veined marbles, floors of marble mosaic, marble staircases, and marble walls and fittings to toilet rooms, also the very best sanitary ware, and all lavatory fittings electro-plated throughout the building; even down in the cellars, in the engineers' and stokers' quarters, the same quality of lavatory fittings—all are treated alike. Polished oak woodwork is seen throughout this building, and the finest bronze hinges, locks, and hardware everywhere. The character of the work is so good that renewals of painting and general repairs are reduced to a minimum; therefore a liberal expenditure at first proves a wise economy. The basement contains all the boilers, engines, dynamos, and machinery for working the elevators, electric lighting, warming and ventilation of the building.

Rates, taxes, lighting, heating, and cleaning are all included in the rents paid monthly by the tenants, and notwithstanding that the rents have been considerably increased upon those charged at the beginning of the letting, about seven years ago, the offices are rarely empty.

In the matter of street paving Philadelphia is woefully behind London, Manchester, or Liverpool; the paving is generally wretchedly bad, mainly because the foundation is unskilfully made; the sets and crossings, even in the best thoroughfares, are of miserably bad material, poorly laid at various times by conflicting authorities—the municipality and the monopolists who own the tramways, the rails of which are so carelessly fastened that they very soon get loose and remain so. The business of scavenging is equally wretched and unorganised. The Tramway Company stipulate to keep their track clean, which they try to do by sweeping dirt off to the sides of the road; then the city official sweeper is indignant when he comes along, and he sweeps it back again, endeavouring to fill up the groove of the tramrail if he can. More money is spent in this way than if the streets were properly cleaned by one authority.

In the matters of projecting signs and advertisements, overhead wires, projections, and obstructions on the footways, Philadelphia is sadly behindhand and uncivilised; there are plenty of enactments against such public obstructions which nobody cares to enforce, and often there is great recklessness of public safety and convenience which

better government would suppress. One more thoroughly appreciates the benefits derivable from the superior municipal government in English cities after a few years' absence.

There is one thing in which Philadelphians have a decided advantage over us. I can speak from several years' experience of anthracite coal; and no one who has ever used it would willingly return to the use of bituminous coal. In the first place, anthracite coal has no smoke and no smell; it is hard, and in appearance like jet; it burns slowly and gives off probably one-third more heat into a room than our ordinary coal; there is no waste in the form of cinders, for it will burn thoroughly to a white ash, and needs comparatively little attention in the stove or open grate. In an American house the heater furnace, which warms the whole of the rooms, halls, and passages, requires attention about once in ten or twelve hours; it is going steadily night and day all through the winter months, and with good management gives very little trouble. In the same way the American kitchen range, or stove, with anthracite coal, has comfort and convenience in its use, such as few English housekeepers know, and I believe with a saving of at least 30 per cent. of fuel; it will maintain a slow steady heat through the night, and, upon the application of draught in the morning, revive to a brisk glowing fire in a few minutes. The American cooking-stove has the advantage of providing a large heating surface for pans, &c., while there is no glare or scorching for the cook, nor sooty pans for her to handle. I am somewhat enlarging on this subject, as the architect is often concerned with such domestic details as affect the comfort of his clients, and he is able in many instances to institute improvements in household arrangements for which he will earn the grateful thanks of, at least, the mistress of the house.

The coal itself is carefully prepared after it arrives at the pit's mouth. Being very hard it is broken up by machinery, washed free from any shale or dirt, and is screened into uniform sizes, ranging from "pea coal," "nuts," "walnuts," "eggs," "large eggs," &c.

Putting a load of this coal into your cellar is a comparatively clean operation, because it flows as readily as marbles would from the rear of the coal-cart along a sheet-iron shoot to the cellar opening. The cart is tilted in front by a rack-and-screw arrangement on the shaft, and the shoot is made to telescope, so as to be easily carried on the cart. Houses are generally advertised to let with the clause "with portable heater in the cellar." The brick-set heaters are very little used now in ordinary houses, and the portable heater is constructed with cast-iron frame and firebox with fireclay lining, and covered with galvanised sheet-iron hood or warm-air chamber. The lever handle works the raker for the ashes. Warm-air tubes branch off the hood. The position of the heater is fixed with some regard to the cold quarter of the house, and pipes radiate in every direction, carried on to registers opening in walls, partitions, and floors, though floor openings are avoided generally. The registers have louvres to regulate the inflowing hot air. A pure cold air shaft to heater from the outside is generally provided. In the brick houses the hot-air flues are 9 inches by 9 inches square, or 9-inch round terra-cotta pipe built into the walls; but the frame houses have only tin pipes run between the studding.

The smokeless coal requires very little area of flue, a 9 inch by 14 inch flue would generally be too large. The business of the chimney-sweep seems to be almost unknown in Philadelphia, and to look down upon the city from any lofty point is to notice not only a general absence of chimney pots, but an absolute absence of smoke, except that pale blue and sweet-smelling smoke from an occasional wood-fire. At the same time there are dotted over the view little cloudlets of white vapour from the steam escape pipes of the numerous engines working the elevators,

dynamos, and other machine appliances attached to every block of business premises. This clearness of atmosphere in a city of so large an area as that of Philadelphia makes a remarkable impression upon a new-comer fresh from the murky dimness of London, Manchester, or Liverpool; and on returning home, of course, if he has no vested interests in bituminous coal mines, he is fired with zeal to agitate the country on the desirability of using nothing but anthracite coal.

American houses have many labour-saving contrivances in connection with the kitchen, butler's pantry, and larder which might be more generally adopted with us. A simple kind of lift, or dumb-waiter, is made to lower dishes of food direct to a cool, dry cellar, from which they can be raised again without needing to use the cellar stairs. The flour barrel is frequently fitted into a sort of locker with trunion fittings, so that the barrel may easily be tilted to any angle until emptied; a lifting flap in the dresser covers over the barrel.

An American housewife demands a liberal supply of cupboards and commodious wardrobe closets throughout her house, and all the modern houses are well provided in this respect. In hiring city flats many heavy pieces of furniture may be dispensed with by the tenant, because fixed wardrobes, nests of drawers, fixed lavatories, broad window-ledges serving for dressing tables, handsome chimney-pieces with overmantels and mirrors are provided by the landlord. I have no doubt good interest is returned upon his outlay for such fixtures, because, though rents are apparently high, they are made inclusive of this kind of accommodation, as well as of such others as lighting, heating, &c.; and the somewhat migratory propensities of Americans are met by the provision of as many conveniences as possible within the tenement.

Some notice may be directed to American frame-houses. The skill in building these has provided numerous convenient and tasteful homes in villages and semi-rural neighbourhoods contiguous to large towns, for as soon as railway facilities are established these residential villages spring up with remarkably rapidity. First as to laying out these villages. The roads are formed primarily with perhaps a mere sprinkling of gravel, but with avenues of trees; the kerbs of the footways are only hemlock planks on edge, held by stakes in the ground; the foot-crossings are three planks wide, with slight inclines at each kerb, enabling the cyclist to ride across (he invariably takes the footpath); one-half of the sidewalk is a gravel path, and the other half a grass patch which each householder keeps in order as far as his frontage. This is very primitive in appearance and inexpensive, but it is neat and orderly; and improvements grow with the rising neighbourhood, cemented footwalks, electric lighting, asphalted roadways, &c., following in due course.

The houses, mostly detached, are set back 30 or 40 feet, and the front lawns finish with neatly trimmed edges at the footwalk, often without any fence or other boundary line. And yet there is no idea of trespass or of injury to lawn, shrubbery, or flowers. The lots are fairly wide and deep, and there is an air of spaciousness with room for foliage everywhere, and plenty of garden cultivation front and rear. The houses, too, are designed as though to be seen on all sides. Where land is comparatively cheap, and a fresh start is being made in laying out residential property, there are many good points we may study and adopt from the picturesque semi-rural townships of the Eastern States of America.

As previously hinted, the "frame house" grows very rapidly, and its system of construction permits of very great variety of plan and elevational design. As regards plan, the ground and first floor plans may differ materially—divisional and cross walls and partitions need not come one over the other, a jutting staircase landing, or a projecting gable end is easily indulged in wood framing; and convenient closet spaces and cupboards are readily

schemed on upper floors without close reference to the divisional walls of the floor below.

In this wooden construction the carpenter goes ahead steadily from beginning to end, uninterrupted by other trades. There is no damp to dry out of the walls, as there would be with brickwork or masonry, and the successive coats of plastering—being all lath work—set with little delay; paperhanging need not be long deferred, and the house is soon dry and ready for occupancy. The painting of the exterior may be very tastefully varied, and the colour scheme be changed in following years if desired.

With outer walls not more than six inches thick, the American frame-house is warmer through the rigorous cold winters than are the more solidly built English houses in a less severe climate; but then the American heater supplies a more scientific method of warming than the much beloved but wasteful open fire. After several years' experience, I prefer the warmed-air system to either hot-water or steam heating for houses, and I think it might always be adapted with us as supplementary to an open fire, which I should be very loth to abandon. Briefly, the frame-house is put together without any framing, *i.e.*, the wire nail seems to have superseded the mortise and tenon, and though at first the American carpenter's general abstention from old-fashioned carpentry struck me as being very "jerry," I gradually acquired a great respect for the wire nail, for it certainly undertook a great many duties very effectively. The better class of houses often have brick or stone walls to the ceiling level of the ground floor with framing and hung tiles, or covering of shingles or clamp-boarding for all above that level.

The ordinary frame-house begins on the top of the cellar walls; the cellar is generally dug 5 feet below ground level, and invariably made under the entire area of the house; the ground floor is always raised 3 feet above the surface, so that the cellar is always well lit, and airy and dry, with cemented floor. A 6-inch by 4-inch plate on the top of cellar walls takes the 4-inch by 4-inch angle posts and the 4-inch by 3 inch studs with 16-inch centres; these go in one length up to the eaves plate. Very little diagonal bracing seems to be necessary, because the whole of the exterior is covered with 1-inch thick hemlock boarding or "sheathing," until the building looks like a huge packing-case; upper floor joists have their ends side nailed to the studs.

Before the "clap-boarding," or shingle covering is laid on, felt or strong "building paper" comes between it and the sheathing. This paper, carefully finished at all angles and around door and window openings, effectively excludes cold air and draughts from getting through the outer covering, and upon this paper greatly depends the warmth of the house. Interior walls are just studded partitions; everywhere "sheathing" covers the rafters, and the felt or paper is again laid on under the shingles or slating; and I have never known the finest drifting snow to get through where this paper is properly laid on in this way. Of course the plastering is on lath throughout; but do not try to hang a picture without a picture-rail, or a wall-bracket, unless you can find a stud to drive your nail into. As to the risk from fire, perhaps the warming by heaters in the cellar instead of by open fires has reduced much of the danger. From what I have observed I do not think there is a larger percentage of risk than with English houses. Frame-houses are not permissible in the cities, and they are not built in rows, but nearly always detached or semi-detached. I should mention that verandahs or "porches" form a great feature of the frame-house; they are 2 feet 6 inches all over surface. Only one step below the ground floor, they often surround the house, and have a part devoted to the servants' use. There is much open-air life on the "porch." They have boarded floors, with good air-space under them, and are consequently drier and warmer than the tile or flag floors we put to our verandahs, which often feel too chilly to use in the evening.

In a country which has still to be largely developed this

ready method of building suits the needs of the people very admirably. Our building laws would seriously hamper the growth of the rapidly increasing tendency to find residential districts in pleasant spots not too far removed from the crowded manufacturing cities, where much-needed quiet rest and fresh air restoratives are more obtainable than in the busy towns.

THE NORTHERN ASSOCIATION, NEWCASTLE.

Summary of Annual Report 1895.

The Annual Report for the Thirty-sixth Session of the Northern Architectural Association records that during the past twelve months 5 Members, 12 Associates, and 12 Students have been elected. The total number of members in all classes is now 139, comprising 45 Members, 57 Associates, and 37 Students. The Council were glad to be able to state that almost all the older and leading members of the profession in Northumberland and Durham were now connected with the Association; they trusted that the six gentlemen connected with the Royal Institute of British Architects who were not yet members of the Association would allow themselves to be enrolled. In this connection, reference was made to the fact that in the case of members of the Institute belonging to an Allied Society, one fourth of their annual subscription to the Institute was returned as, or towards, their subscription to such Allied Society. Although the number of Student members have increased, the Council regret that they are not yet able to arrange for the services of a special Professor of Architecture in connection with the Durham University College of Science. In consideration of his valuable services to the Association, as one of the founders, as a former President, and as Hon. Secretary, Mr. Thomas Oliver [*F.*] had been elected an Hon. Member. In response to the Council's offer of two prizes, value two guineas and one guinea, for the best set of Measured Drawings, and similar prizes for the best set of Sketches, twelve sets, comprising 77 sheets of drawings, were submitted, and adjudicated upon by Mr. Joseph Oswald [*F.*] and Mr. E. J. Hansom [*F.*], respectively President and Past President of the Association. The first prize for Sketches went to Mr. G. C. C. H. Crawhall; the second to Mr. R. P. Twizell. Measured Drawings—first prize to Mr. S. M. Mould; second to Mr. G. Brumell, jun. The value of the prizes was given in books. The judges in their report recommended that, in future competitions, sketches, whether in pencil, ink, or colour, should be submitted as printed on the spot, without being touched up afterwards, and should be of distinctly architectural, not mere picturesque, subjects. Measured Drawings should be accompanied by the rough sketches and notes made on the spot from which they were compiled. The importance of plotting dimensions on the spot, including joints, could not be over-rated; it was the only way to achieve accuracy. The greatest care should be taken with such work; the finished drawings, preferably without shadow lines, should show the best draughtsmanship the competitor is capable of.

The following prizes were also offered to Associates and Students:—A first prize of two guineas for the best sheet of diagrams of constructive masonry arches, vaults, or groined vaults, with the projections of the arch and vault stones. This, if the competitor thought fit, to be supplemented by complete drawings of a groined vault of any period between A.D. 1150 and 1500, from actual measurements, in plans and sections, with details of mouldings, ribs, and surfaces, accompanied by a full description of the construction and a short historical account of the building from which taken. A second prize of one guinea for the best sheet of details of joiners' work in doors, windows, and fittings, shown in plan, elevation, and section, to a scale of one inch to the foot, with details of mouldings framing. Six sheets of drawings were submitted, and reported upon by the President and Vice-President above-mentioned. For the first prize there was one competitor

only, Mr. S. W. Mould, who, having failed to comply with the suggestion that measured drawings from an ancient example should form part of his work, was awarded a prize to the value of one guinea only. For the second prize there were five competitors, and the judges considered the work of Messrs. J. L. Nicholson and M. G. Martinson to be of equal merit, and divided the prize between them. The prizes again took the form of books.

The course of Cambridge Extension Lectures delivered in Newcastle and Sunderland by Mr. D. H. S. Cranage had had valuable results. Fifteen members had entered for the subsequent Cambridge Extension Examination, and all passed, the following four with distinction:—Messrs. J. W. Boyd, H. Cayley, M.A., F. D. Hayton, and M. G. Martinson.

By means of circulars and advertisements in the local newspapers the attention of architectural students had been directed to the Institute Examinations, candidates having been supplied with full particulars, and the necessary application forms. Since the previous Report the following members had passed these Examinations:—Messrs. S. M. Mould and A. K. Tasker in the Preliminary; Messrs. S. E. Barrow and R. H. Morton in the Intermediate; and Messrs. I. E. Coates, C. S. Errington, J. C. Maxwell, and J. Spain in the Examination qualifying for candidature as Associate. The four last-named gentlemen had since been elected Associates R.I.B.A.

During the year the Newcastle Literary and Philosophical Society and the Public Libraries in Northumberland and Durham, as a result of the representations of the Association, have added to their collections the works recommended to students by the Royal Institute, all of which are now accessible to students preparing for the Institute Examinations.

The Council of the Association have held many meetings for the discussion of the Revised Rules, which were at length printed and approved of at a Special General Meeting. The Rules were subsequently sanctioned by the Council of the Royal Institute of British Architects.

The Library has made satisfactory progress, and is in frequent use. There is a demand for a greater variety of text-books, which the Association hopes before long to be able to meet. Some valuable donations have been received during the year, notably, a complete set of bound copies of *The Dictionary of Architecture*, presented by Mr. Thomas Oliver [F.]; a number of bound volumes of the building journals from Messrs. Emley & Son; several valuable works from Mr. William Glover; donations of two guineas from Mr. Henry Grieves, and £2 10s. from Mr. A. B. Gibson, unhappily lately deceased.

The Students' Sketching Club, which have held frequent meetings for the purpose of measuring and sketching buildings of architectural interest in the district, have done good work and had many enjoyable meetings. At the annual social gathering on 5th February there were considerably over 100 members and their friends present.

The Financial Statement submitted with the Report shows the affairs of the Association to be in a satisfactory condition, the balance in hand at the close of the financial year amounting to over £18.

GLASGOW SCHOOL OF ART.

The Glasgow School of Art, under the direction of Mr. Newbery, the Headmaster, and a local committee of members of the Glasgow Institute, has been endeavouring this Session to meet in a complete way the requirements of students qualifying for membership, and in addition to the course by Mr. McGibbon [A.] on Gothic Architecture, a *résumé* of which appeared in the *JOURNAL* for the 28th February, another series by Mr. W. J. Anderson [A.] on the History of Architecture is in progress. The eighth lecture of this course, delivered on the 14th inst., brought

the lecturer down to English Gothic Architecture, which was considered under the heads of (1) the principles governing Gothic Architecture in general, (2) the characteristics which distinguish it from other styles and mark its different periods, and (3) the general forms of the buildings, with reference to particular churches and cathedrals, leaving details for a subsequent occasion. The preference for natural forms, variety, and change, the principle of equilibrium by counter-thrust, the adaptability to a small stone system of building, and the subdivision of its constructive members were touched on. Generalising on the question of differences from other forms of Gothic, it was stated that the English appeared to prefer multiplicity of parts to bigness of scale, and were more refined in their proportions and treatment of details than logical in their constructive scheme. Artistic taste was displayed by the English by the grouping of the central and western towers quite as distinctly as by the chevet of the French interior, and constructive requirements to better advantage in the octagon of Ely and the fan vaulting of Henry VII.'s chapel at Westminster, than in the soaring vaults and tiers of flying-buttresses at Beauvais and Bourges. Indeed, if such examples are to be praised in the prevailing fashion as the only true Gothic architecture and the logical outcome of the Gothic idea, it would seem, from what we know of their appearance and of the expedients necessary to make such buildings secure, as if the Gothic idea carried to its conclusion was opposed to æsthetic effect and sound constructive science. To aim at an impression of great internal length was, to say the least, as legitimate as the design of excessive height, which on the exterior would have destroyed the effect of the towers. In illustration of the lecture most of the cathedrals of England were fully illustrated by lantern along with French examples. Remarking on Scottish Architecture, Mr. Anderson held that it does not differ in essentials so much from English work as some writers had affirmed, Fergusson for example. A peculiarity was the conservatism which retained the form of the lancet and round arch, and used them where convenient along with the details of the pointed style of the age. Some of the transitional work, when the pointed arch is combined with the square abacus and arch-order of the Norman style, bore a slight resemblance to early French Gothic, and in the last period there was no perpendicular tracery, except for the well-known example at Melrose; but, speaking generally, the signs of French influence were few and far between compared with English. The lecturer strongly urged the continued study of a style which had built beauty and interest into the remotest corner of English ground to a degree and extent unsurpassed in other lands.

LEGAL.

The London Building Act 1894.

SHOOLBRED v. WALLEN.

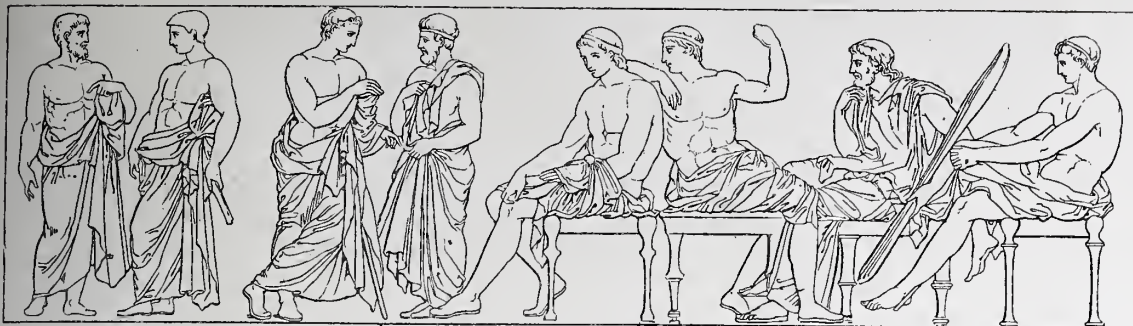
The case of *Shoolbred v. Wallen*, before Sir John Bridge, on 11th March, raised several questions on the London Building Act 1894. Messrs. Shoolbred submitted to Mr. Wallen, District Surveyor for West St. Pancras, plans for new buildings to be erected at the corner of Tottenham Court Road and Grafton Street. On the plans, as at first submitted, it was proposed to have sleeping accommodation for 100 employees. This part of the plan was abandoned at the suggestion of the Surveyor; but he objected to the amended plans on the grounds that the proposed buildings were of the warehouse class, and that the provisions of Section 41 of the new Act as to air-space were not complied with. Messrs. Shoolbred then, under Section 150 of the Act, summoned the Surveyor. This section provides for an appeal to a Petty Sessional Court, but does not

indicate how the appeal should be instituted. The Surveyor objected to being summoned as if he had done something wrong; and it seems to have been agreed that such appeals will for the future be by notice instead of summons, although some difficulty will probably arise as to the fees and costs. The points of substance raised in the case were: (1) Whether the proposed buildings were warehouses (this, however, the Surveyor waived or abandoned); (2) whether the proposed building was a domestic building; (3) whether the air-space was sufficient. The Surveyor could not explain, nor the magistrate understand, section 41, with its complexity of "horizontal" and "diagonal" lines and angles of 63½ degrees, and the plane of the line of the base of the circumambient space. Sir John Bridge said he was glad he was not bound to determine the case on the construction of any of the sections of the Act that had been quoted, as they appeared to him to be so drawn as to be perfectly unintelligible. He found, as a matter of fact, that the buildings were meant to be used principally as offices and counting-houses, and therefore did not fall within the scope of section 41, not being a domestic building within section 39. The result of this decision, says the *Law Journal*, was to release the building owner from the obligation either to have an air-space 10 feet broad at the back of the whole new block, or to restrict the height of the building with reference to the dimensions of such open space. But it is to be noted that under section 211 of the Act any subsequent conversion of the block into dwelling-houses will not be permissible without compliance with the rules as to domestic buildings.

LONDON COUNTY COUNCIL v. GROVER.

Mr. John Grover was summoned on the 19th March before Mr. Hannay for making openings in a party-wall in a new building at the corner of Harewood Place and Oxford Street, contrary to section 13 of the Metropolitan Building Act 1855 (now section 54 of the London Building Act 1894). On the site of the buildings there had formerly stood stables two storeys high. These had been pulled down, and a new building, six storeys high, had been erected, with window openings in the upper part, made with the consent of the adjoining owner. Mr. Avory appeared for the County Council, and Mr. H. F. Dickens, Q.C., for the builder. The magistrate viewed the site, and gave the following decision, which is reported in the *Law Journal* as follows:—The question is whether a wall which is in fact an external wall where the windows are placed in it, although a party-wall lower down, must be held to be a party-wall above the point where it ceases to separate two buildings. This must depend upon the terms of the Building Act 1855, for it could scarcely be maintained that a wall acquires a character at its base which, like a tree, it carries to its summit. Turning to the Building Act we find the following: "External wall shall apply to every "outer wall or vertical inclosure of any building not being a "party-wall." If the expression "party-wall" is here used in its popular sense, the definition would be conclusive in the defendant's favour, but it must probably be taken in the sense intended by the Act, in which case little can be made of it for either side. "Party-wall shall apply to "every wall used or built in order to be used as a separation of any building from any other building with a view "to the same being occupied by different persons." This definition applies, of course, to so much of the wall in question as separates the new building from 291, Oxford Street, and from the back premises of 12, Hanover Square, but neither branch of the definition applies to the upper part of the wall, which is not used, nor was it built in order to be used, as a wall of separation. The definition cannot, therefore, afford support to the complainant's contention, unless the lower part of the wall determines its character throughout without reference to its use. Mr. Avory relied on section 17 of the Act of 1855 (section 59 of the Act of 1894) in support

of this proposition. This section does not, as Mr. Dickens pointed out, say that a party-wall so carried up shall continue to be a party-wall above the roof, but I think it may be granted that it is when it separates the roofs of two buildings in different occupations. The Act could not have said that a party-wall shall continue to be a party-wall, however high it may be carried above the adjoining roof, without becoming self-contradictory to some extent, as there are rules respecting party-walls in sections 13 and 28 of the Act of 1855 (sections 54 and 77 of the Act of 1894), some of which cannot possibly be applied to a wall from the point where it ceases to separate two buildings. This affords an argument in favour of the defendant's contention, for if this wall is a party-wall all the rules of the Act should be inapplicable to it. Again, under section 88 of the Act of 1855 (section 95 of the Act of 1894), the expenses of repairing a party structure, which includes a party-wall, are to be borne by the two owners in proportion, regard being had to the use which each owner makes of such structure. Would the owner of 291, Oxford Street and 12, Hanover Square be liable for any part of the expense of repairing the defendant's wall above the point where it ceases to be a wall of separation? Surely not, as he makes no use of it. I think, therefore, that there is nothing in section 17, or in any other part of the Act, to support the complainants' contention, while there are some things which, to say the least of it, favour the defendant. What authority there is is also in his favour. In *Weston v. Arnold*, 43 Law J. Rep. Chanc. 123; L. R. 8 Chanc. App. 1084, both Judges of the Court of Appeal expressed the opinion that the same wall, considered vertically, may be partly an external and partly a party-wall, though Lord Justice Mellish guarded himself by saying that they were only deciding the matter where a right to light had been gained. In *Knight v. Purcell*, a case under the Building Act, it was decided that a wall may be a party-wall for a portion only of its length. To hold the contrary can easily be shown to be absurd, and why, it was forcibly urged for the defendant here, should the supposed rule as to the identity of character of a wall operate vertically when it does not operate laterally? No reason can be given, unless it can be found in the Act, where I have failed to find it. . . . I come, then, to the conclusion that the wall in dispute being where the windows are placed, an external wall in fact, there is nothing in the Building Act, or in any reported decisions, to make it a party-wall in law. To put a case that might easily happen: Suppose that the proprietors of one of the large new hotels which are springing up in London were to build for their own purposes a laundry sufficiently large to come within the Building Act against the back wall of the hotel, and were afterwards to let the laundry. According to the construction put upon the Act by the complainants, they might be ordered to close every window on that side of the hotel. Could such a thing ever have been intended? I cannot bring myself to think so. There may, of course, be some additional risk of fire spreading where windows are placed, as some of these are, above the roof of an adjoining house. But this will not warrant me in putting a forced and unnatural construction upon the Act. Some day the wall in question may become a party-wall. I am only dealing with the existing state of things. I have not touched upon the point that this wall is built upon the defendant's land, as it is use, not ownership, that determines its character. Nor have I noticed a circumstance upon which Mr. Avory seemed to lay some stress, that the wall has been carried up for the regulation distance of a party-wall above the roof of the new building. That cannot make it a party-wall, whatever the architect may have thought, and it was clearly impossible to leave it without some sort of finish. The summons is dismissed.—Mr. Hannay allowed £10 10s. costs to the defendant.



THE USE AND ABUSE OF MARBLE FOR DECORATIVE PURPOSES.

By Professor AITCHISON [*F.*], A.R.A., WILLIAM YOUNG [*F.*], and
W. BRINDLEY, F.G.S.

Read at the General Meeting, Monday, 22nd April 1895; and, with the illustrations, registered at Stationers' Hall as the property of the Royal Institute.

I. By Professor AITCHISON, A.R.A.

STONES are classed in common parlance as precious stones, fine stones, marble stones and common stones. Of late years we have generally dropped the word stone after marble, but I cannot exactly tell you when it was dropped. Chaucer uses the words "marble-stoon" and "marbul-stones," and, as you will see hereafter, Philemon Holland uses "marble stone," and his *Pliny* was published in 1634.

The word "marble" is of Greek origin, and means a stone that is white and glistening. For the ordinary purposes of life, all stones that are not fine or precious and will take a high polish are called marbles, whatever be their constituents, whether they be of aqueous or of igneous origin. Thus, we class porphyry, granite, serpentine, and silicious stones as marbles, as well as the hard carbonates of lime; although there is some hesitation in classing as a marble any opaque-looking stone, in spite of its taking a high polish, such, for instance, as Hopton Wood or Istrian.

Marble has many great qualities. Much of it is very strong, and is found in immense masses, so that monolithic shafts and obelisks can be quarried from it. Some sorts can be worked almost to the fineness and precision of metal, and a large proportion of the coloured varieties, including black and white, are beautiful.

It will, perhaps, show more humanity if the undoubted advantages and merits of marble be first spoken about; for, though we cannot pass over its faults and drawbacks, we can at least give it this advantage: we can first enlarge on its great qualities and general good behaviour, so as to create a bias in its favour, before we set out its disadvantages and shortcomings.

The Greeks seemingly chose marble mainly on account of the perfection to which it could be worked, and the delicate modelling it would express; and the Italians followed in their footsteps. I have seen a marble Renaissance medallion, of the full face of a man, on a chimney-piece at the Ducal Palace, Venice, whose greatest relief is about $\frac{1}{16}$ inch. But, setting sculpture aside, I may say that some of the annulets at the Propylæum still show the sharp and vigorous shadows they were meant to produce, almost as perfectly as they could have done when they were first made, more than two thousand years ago; and this merit is not to be overlooked. As far as the structural workmanship is concerned, Beulé said that the temples on the Acropolis were put together like a piece of cabinet-work. Polished white marble has, too, this great charm, you seem to see into its substance; and the Athenians

were lucky in having mountains of white marble close at hand. The only coloured marble used at the Acropolis is the black marble of Eleusis at the Propylæum.

It is, however, to the Romans we must look for the first development of a strongly pronounced taste for coloured and variegated marbles. Monsieur Charles Garnier says of the Romans:—"They sent discoverers of quarries from all parts; they excavated mountains; they destroyed plains. Every discovery became the occasion of a public festival. Every new marble had the honours of a triumph, and when a bed furnished a block of extraordinary size they made a column of it; they erected it in a public square, and gave it up to the admiration of the multitude."

The introduction of marble into Rome, except for temples, was at first looked on with great disfavour. M. Brutus called L. Crassus "the Palatine Venus," because he had some small marble columns in his house; and the elder Pliny was very indignant at people running risks and quarrying mountains, for the fashionable Romans to have their bedrooms lined with variegated marbles; and he inveighs against the invention of veneering. Philemon Holland's translation of this passage of Pliny is quaint enough to give:—"For as yet I do not reade or find by any sign, that Italy knew how to slit marble into leaves. But surely, whosoever devised that invention, to saw marble stone, and to slit it into leaves for to serve the turne of riotous and wastful persons, had a perillous head of his own, and a shrewd" (Pliny, *Nat. Hist.* xxxvi. 6. F.). Though before Pliny's time the use of marble was comparatively common, as we learn from Horace and others, while Augustus and Tiberius had a passion for the serpentines of Egypt. The pontoon that brought over the obelisk in the days of Claudius was used for the foundation of one side of his harbour at Ostia; and from some porphyry statues being presented to him, porphyry was called Claudian marble (*marmor Claudianum*). The younger Pliny did not share his uncle's horror of marble, for he tells us in his letters that at his Tuscan villa the dado of one of his rooms was of carved marble. He had an alcove in another room supported by four cipollino columns, and a summer-house of exquisite marble.

Eventually every country in the known world, not to speak of the Roman dominions, was ransacked for marble, and the Roman quarries became the property of the emperors; and doubtless a large revenue was raised by farming them. To show that it was not the Roman dominions alone that produced the marble they used, I may say that Corsi found at Rome a rare yellowish marble of no beauty, called Astracan, which has only been found in India, near Agra. The great Roman general Lucullus gave his name to a plain blackish marble called by the Italians Bigio Morato, mulberry grey, that he had brought from the island of Melas in the Nile, and this marble was called Lucullean. Another Roman, since his death, has given his name to a marble—the breccia of Septimius Bassus, from its having been found at his villa. The Italians call it Breccia de Sette Basi, which amused the late William Burges, who said it meant a marble of seven bases, so he bought a piece, and had it worked, and put it in the hall of his house at Melbury Road.

It is difficult for us to realise the enormous quantity of precious marbles used by the Romans, even when we picture to ourselves the marbles of Rome since transported to various countries; those that have been cut up for pavements, for slabs, vases, and articles of *virtu*, not to speak of the lime they have furnished; but we can form some idea from our reading. The country house of the Gordiani in one single portico had two hundred columns, fifty of Carystian, fifty of Claudian, and fifty of Numidian marble; in the same villa were three basilicas having a hundred columns each. The poets of the silver age were sufficiently interested in marbles to give us accounts of their colour and beauty. Statius, who lived in the first century, celebrated the Baths of Etruscus, and speaks of the Giallo Antico, and even mentions the blood-red veins of the pavonazzetto of Phrygia; while Martial speaks of the

onyx, the green porphyry, and the serpentine, as well as the Giallo Antico and the pavonazzetto of the same baths (Martial, *Epig.*, vi. 42); and Paul, the Silentiary, wrote a poem in Greek, on the marbles used at St. Sophia.

Faustino Corsi, a Roman barrister, became an enthusiast on the subject of ancient marbles, and devoted a good part of his life to identifying the marbles mentioned in the Roman writers, with those found at Rome, and wrote a book on the subject.* He had good-sized specimens squared and polished; these he sold to a former Duke of Devonshire, who presented them to the University of Oxford; by the kindness of Sir H. Acland they were brought out into the light and dusted for me to see. Corsi's own private collection, composed of small pieces about an inch square set in two slabs of marble, is at the Geological Museum, Jermyn Street.

I have said so much of the Roman use of marble, because all through the Dark Ages and up to Mediæval days the greater part of the marbles used were taken from Rome or from Roman buildings. Justinian got the columns and slabs for St. Sophia from all parts of the Roman dominions. Abd-el-Rahman is said to have got most of the capitals and columns of his mosque at Cordova from Roman buildings or their ruins in Spain, and as presents from the French king. Charlemagne got permission from the Pope to plunder Ravenna for his palace at Aix-la-Chapelle. Some of the early Popes are said to have destroyed more Roman buildings for their churches than the Goths, the Huns, and the Vandals. In Renaissance days the marbles still left at Rome were used for churches and palaces by the Popes and great people, or were given away to potentates. The column in the Piazza della Justizia at Florence came from Caracalla's Baths. Should an epoch of wealth ever occur again, and the rich spend large sums on rare marbles, the blocks of marble at the Marmoratum may be dug up and used.

Since the taking of Algeria and Tunisia by the French, the quarries of Numidia have been re-opened, so that many of the marbles formerly called "Antique," to show that the quarries were unknown, are antique no longer—the Giallo Antico, for example. The quarries of the Rosso Antico, the Carystian, the Verde Antico, the green porphyry of Taenarium, and other Greek marbles have been rediscovered. Mr. Brindley has also found the old Docimian, Synnadic, or Phrygian quarries, as well as the granite, porphyry, oriental alabaster, and serpentine quarries in Egypt; while new quarries have been opened in America and in various other parts of the world.

The great drawback to the use of flowered marble for columns that bear weight, except the cost, is its liability to flaws and defects, and there is nothing to be done but to have the shafts tried by the hydraulic press before using them. Granite and porphyry were preferred by the Romans for heavily laden columns of large size, as we see at the portico of the Pantheon, and inside Santa Maria degli Angeli; while white marble, Giallo Antico, Carystian, Phrygian, Grechetto duro, and occasionally Verde Antico and, they say, oriental alabaster were used for smaller columns, such as those inside the Pantheon, and to the Temple of Antoninus and Faustina.

There is not much objection to the internal use of marble in England, except that it looks and feels cold in winter; and when buildings are not warmed the marble condenses the damp. The marbles mainly formed of carbonate of lime are worse than useless when employed outside; the polish rapidly perishes, and so far from their looking, as Monsieur Garnier says, "like shabby gentlemen," they look like sweeps. The only objection to the proper use of marble is lest the more beautiful and costly sorts may usurp the place of statuary (which is bronze figure-work), pictures, and sculpture.

In old work we see, not only the sumptuousness of marble, but the harmonising hand of time. In a smokeless atmosphere, even when marble crumbles, as it does with the sea air at Venice, there is a preciousness about the tints that is charming. In speaking of marble used

* *Delle pietre antichi*. By Faustino Corsi, Romano. Third edition. 8o. Rome, 1845.

outside, and of the perishing of its face, Monsieur Garnier says:—"Do not fear too much this softening effect; if marble allows some of its brilliance to be veiled in the open air, it always preserves its peculiar aspect; its tints are seen, its texture shows itself, and the firmness of its substance is preserved; it is no longer marble coloured and resplendent, but it is always marble—that is to say, it is refinement, elegance, and harmony. It shows its origin, distinguishes itself from other materials as a tatter of silk is always distinguishable from a tatter of cloth." But I beg you to observe that he speaks of the atmosphere of Paris.

The use of marble for decoration is to colour harmoniously by means of a particularly beautiful and specially coloured material; and though marble is greatly restricted in its gamut of colour, its texture when polished and its diaphanous quality are most grateful to the eye; for even when it is of one colour this colour is never uniform, but has infinite varieties, which prevent satiety, and remove it from the category of inartistic human manufacture; the finer flowered sorts have in their colouring every sort of motive and caprice that can astonish and charm us.

In marble there are no blues except in name, "blue imperial" and "blue Belge"; and if we want an azure we must employ fine stones, such as lapis lazuli or turquoise. Although there are many greens—verde antico, Genoa green, Pyrenean green, Irish green, Anglesea green, and Greek green, the brightest perhaps being the green porphyry of the Morea—none are brilliant, except the yellow green of Irish and the green avanturine of India. There is a silicious breccia with a green ground from Egypt; and some sorts of cipollino are of a dull green, in stripes, in curls, or in waves. There are pure whites, pure blacks, and there is a pure red, rosso antico; and many impure reds, such as porphyry, Irish red, Verona, rouge griotte, Languedoc, and a red Numidian breccia, not to speak of the poor reds of Devonshire and Belgium, and red alabaster. There are no pure browns, but there are those as tawny as a lion's skin, and generally marbles are more or less variegated. But when we see what the Saracens did with tiles, when they were restricted to a white ground, to two or three greens, two blues, and a purple, we need grumble at nothing but our own incapacity, if we cannot produce all sorts of happy effects with marble. Many of the marbles are charming from their strange contrasts and bold flowering, and some have divine harmonies, such as peach blossom; some look like a leafy forest, as verde antico, while the pavonazetto and veined beautiful in themselves, are of infinite value as connecting-links between heavier masses of colour.

Marble has, too, this great merit, that, besides its own intrinsic beauty, it enables us, by inlaying it, to make imperishable coloured decorations. The hope of fame, and even the hope of our work lasting, encourages us to make prolonged efforts to insure success, while nothing is so disheartening as the probability of the early destruction or perishing of our work. Painted decoration soon gets grimy in London, and, under the happy leasehold system, the next tenant may cover the finest decoration with three oils and flat, which happened to a decoration by Godfrey Sykes. To do anything connected with architecture well not only wants genius but knowledge; it would take ages to learn by trial and failure what may be learnt in a few years by the study of existing successes in marble, formed by juxtaposition, by inlays, or by both.

As there is monumental form, so is there monumental colour, and it is as hard to get one as the other. When you see many specimens of coloured marbles together, the softness and broken quality of the colours make us think it would be impossible to make frightful discords with them; but such is the skill of man that he has been able to get vulgarity and repulsiveness out of marbles. Veneered marble pedestals and terminals for busts or statuettes frequently give us the horrors.

The safest course to take is to adhere to one colour, or to some strong contrast of two colours, such as black and white, dark purple and white, or dark green and white; and one of these courses has often been pursued when monumental effect has been aimed at. In marble

mosaic black and white has always a dignified effect, if a proper proportion between them is adhered to; but I do not know that it is more dignified than that superb pavement called *opus Alexandrinum* after Severus Alexander, a mosaic of red, green, and black porphyry inlaid in white marble, twisting like a serpent round great slabs and roundels of porphyry. This pavement is often imitated in limestone marbles, and looks very well when new; but the marbles quickly lose their polish and colours by being walked on, while walking over porphyry only polishes it. Black and white used for columns, balustrades, and walls has a very dignified effect: this may be seen in churches abroad, and in some of the large tombs at Westminster Abbey. But in this case, as in pavements, the white must greatly predominate, or else the effect is too funereal. The Italian *Quattro Centisti* produced great impressiveness by large slabs of purple porphyry in their white marble tombs, as may be seen in those at La Badia at Florence by Mino da Fiesole. Where monumental effect is wanted everything should be sacrificed to it.

We do not, however, always want to be safe, nor do we always want to produce an austere effect; we sometimes want to produce richness, magnificence, or gorgeousness; sometimes we want delicacy or loveliness. The same rules hold good in marble as in painting: if you want to have a white or light ground, with colour interspersed, you must either have the other colours very light, or bright colours in small pieces; while if you have a dark or low-toned ground, then white or very light tones are your jewels, and must be used sparingly.

A few maxims may be given about the use of flowered marbles. Their beauty is best shown in slabs or large masses, and the surface should not be broken up by mouldings, especially by small ones; and though such marbles have been carved in classic days, it was generally when taste had somewhat decayed. There are effective carved pieces of coloured marble, mostly *verde antico*, to be seen at Ravenna and at Constantinople. It is well to make contrasts vigorous; and it is not amiss to use plain marble to contrast with flowered. Dark marbles absorb so much light that slight variations of colour are scarcely perceived; for example,



FIG. 1.—INLAID VERDE ANTICO, FROM THE JESUITS' CHURCH AT VENICE.
 Sketched by Cav. G. Boni.

Genoa green, Belgian blue, common grand antique, and Pyrenean green are scarcely to be distinguished from one another, unless they be in a very strong light. White capitals and bases, as a rule, look weak if used in conjunction with dark flowered shafts, I think even with pavonaz-zetto shafts. For study in the use of coloured marbles the interior of the Pantheon may be recommended for solemnity, St. Mark's and St. Sophia for dignified richness, and the interior of Siena and Pisa Cathedrals for striking quaintness, the Mausoleum of the Medici for funereal effect, and the interior of the Cathedral at Genoa for cheerful magnificence. A deep green shaft of insufficient length at the north-west end of this cathedral has been eked out with white marble, and is by no means objectionable. The pulpit of St. Mark's is well worthy of study, with its golden cupola, the pulpit of porphyry, the reading-desk of verde antico, supported on columns of rare marbles; and so is the little isolated chapel in the north aisle, with its dark shafts and roof of gleaming white.

In my young days the use of marble was confined to hall-paving, chimney-pieces, and tombs. The first instance I recollect of marble being largely used as decoration in my time was at Mr. H. Hope's house in Piccadilly, now the Junior Athenæum; the cage of the staircase was decorated with slabs of marble. Subsequently Mr. Holford had his staircase at Dorchester House, as well as its cage, of marble, and the door-cases of the first floor were made of splendid Chian marble, called by the Italians Africano, a breccia of black, white, crimson, and flesh colour or pale green, in large masses. The staircase cage of Lord Leconfield's mansion in London is lined with pavonaz-zetto, with a black marble skirting, and the balustrades are of Rose du Var capped with Genoa green, and with monolithic shafts of red Devonshire. At Goldsmiths' Hall the staircase and its cage are of marble, and some of the steps are the largest monoliths in London.

Nothing can give such an air of stateliness to the inside of a building as marble if properly used, while effects of loveliness, of richness, of dignity, of magnificence, and of sumptuousness can be obtained; and how can wealth be better bestowed than in presenting this stateliness, especially if it be enriched with the finest sculpture this age can produce! "A thing of beauty is a joy for ever," and the finding of one sculptured sarcophagus at Pisa led the way to all the lovely sculpture of the Renaissance. But I most earnestly beg of you to avoid the use of marble if you have not that rare gift of being able to harmonise colours, and have not perfected that gift by study, observation, and trial; for nothing is easier than to give the wrong effect. I have seen dining-rooms lined with marble that had the appearance of mortuary chapels; and hard though it be to effect, I have seen staircases made more vulgar by the injudicious use of marble than they could have been made by the commonest paper, and which might have been wholly avoided by a coat or two of zinc white; so many people mistake costliness for artistic beauty. It is always difficult to gauge our own incapacity, but we ought to try when so costly a material as marble is to be used.

Of late years the taste for marble has enormously increased; it has been much affected for some of our public buildings, as well as for the staircases and grand dining-rooms of hotels and restaurants. Numidian marble has been largely used at the upper halls of the National Gallery, and in the hall of the New Gallery in Regent Street, and in the latter with an intermixture of green Carystian. Quite lately Mr. Collett has built a magnificent hall, wholly of red marble, at the Holborn Restaurant, where red Verona is accentuated by shafts of crimson Numidian breccia, and by pedestals of rouge griotte. We may hope to see a general revival of this and other magnificent tastes—as coloured mosaic on a gold ground is now much used for exterior decoration in London—and we may live to see Monsieur Garnier's vision of Paris realised here. He says: "The inflexible Commission of Public Ways will have its period of reaction, and without hurting anyone, everyone may build his house without making it match

“his neighbour’s; the ground of the cornices will shine with eternal colours, the piers will be enriched with sparkling panels, and friezes of gold will run the length of our buildings; monuments will be of marble and enamel, and mosaics will make all admire colour and movement. This will not be false and paltry luxury; it will be opulence, it will be sincerity. Our eyes, familiarised with all these marvels of colour and of brilliance, will force on us a modification of our dress, which will be coloured in its turn, and the whole town will be an harmonious reflection of silk and gold.”

II. By WILLIAM YOUNG.

THE object of the Papers and discussion to-night is not to go into the question of marble itself; that has been done before, and we will all agree that it is one of the most beautiful, if not the most beautiful material which nature has provided for the architect’s use. The idea we have in view is to consider how we can best use it in our work. My remarks will be confined to the use of marble in interiors—or we have some little preliminary difficulty in our climate, not to mention cost, in the use of marble to any extent externally; and they shall be only the remarks of a working architect gathered from his own experience and observation, and not those of the theorist critic or *dilettante*, who from his easy-chair criticises our works and tells us exactly what to do and what not to do, without knowing anything of the difficulties and conditions under which an architect works, and the sacrifices he has sometimes to make in order to do anything moderately good at all.

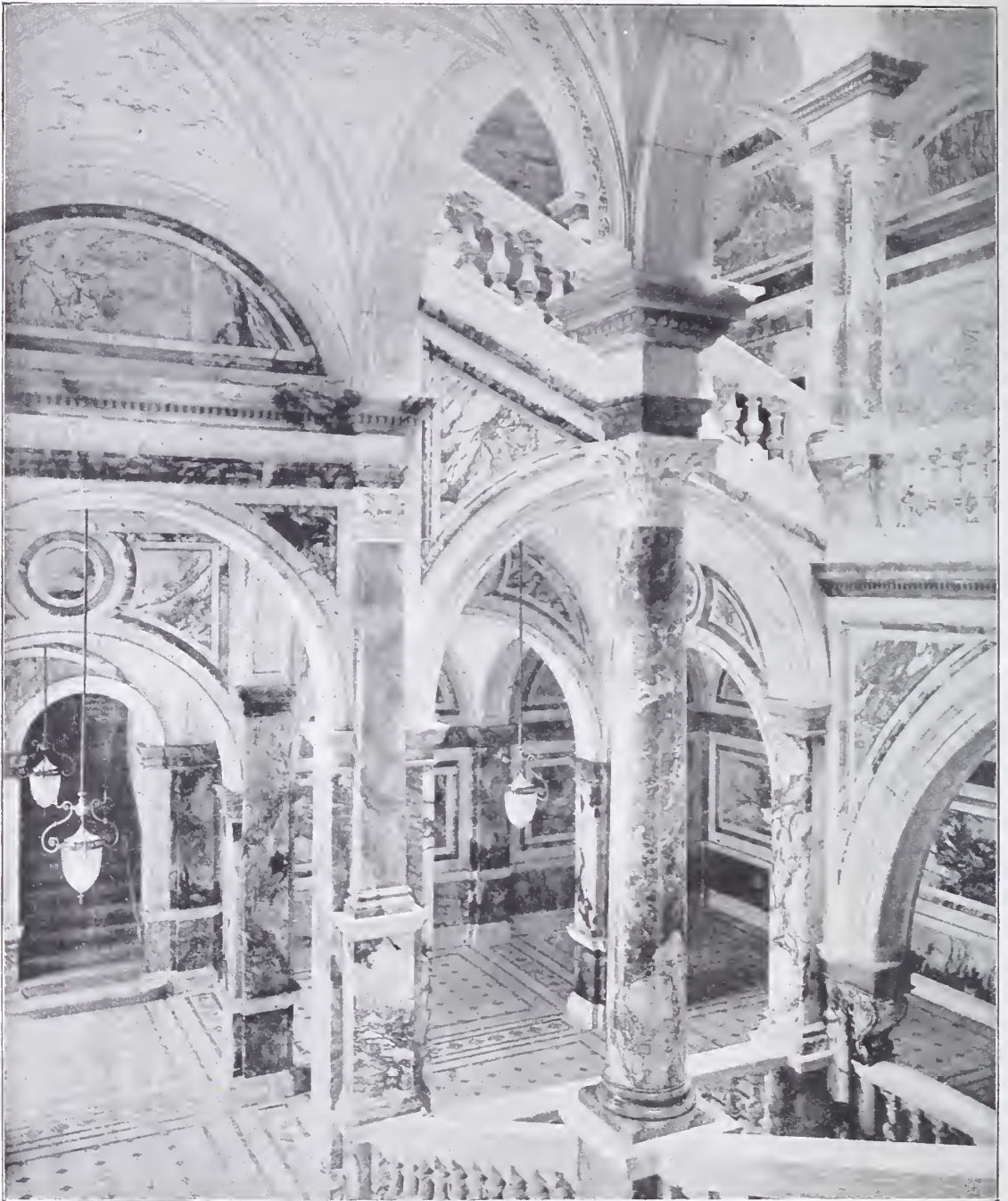
Marble has never been a popular material in English architecture. If we look down the course through which architecture in Great Britain has come down to us, for, say, 1,000 years—and that period nearly covers our architectural history as a nation—we shall find marble conspicuous by its absence in our buildings. If we go further east, and go back another 1,000 years further, to a time when the architecture of the ancient Briton was as scanty as his clothing; if we go to Italy and Greece and look at their architecture, at the beginning of the Christian era and before it, we shall find marble conspicuous by its presence.

During the great cathedral-building era in England marble was but little used, probably because at that time it was not procurable in sufficient quantity, as well as that it was not suitable for the richly clustered columns and elaborate and deep-cut mouldings of Gothic. But even at a later date, in our own beautiful St. Paul’s, which is eminently adapted for marble—marble in construction as well as decoration—it is only in our own time that any serious attempt has been made in the use of marble. In domestic architecture of the past, if we look at Queen Anne and Georgian, which is so popular at present—I should like to italicise *at present*, for we have changed our architectural love a good deal during the last fifty years, and it remains to be seen whether we shall be more constant to our last new love than we were to those which went before—we remark that even in Queen Anne and Georgian we see only a very timid use made of marble, mostly in chimney-pieces—beautiful chimney-pieces certainly, rich both in colour and real sculpture—and perhaps a hall floor and columns at the end of a room, although we must admit that the columns are not always real marble.

If we want to see marble used in architecture we must go to Italy, the home of marble-work—go to Genoa, to Venice, to Rome, where we shall see marble used in architecture not only in decoration, but in construction, in halls and staircases, in churches and cathedrals.

It will, I think, be admitted that the employment of marble in building has developed very much within the last forty years in England, and is perhaps developing more at the present moment than it has done at any time during the present century, and there is every appearance of its being still more used in the future.

Much beautiful work in marble chimney-pieces and halls has been done in recent years; but the question is, Do we always use it in the best way and in the right place? If not, the



Photographed by Bedford Lemere

FIG. 2.—MARBLE STAIRCASE, MUNICIPAL BUILDINGS, GLASGOW

sooner we know of it the better; and it is to be hoped that the discussion of the subject to-night may assist us in this matter, for, if I interpret the feeling of present-day architects aright, it is that we have got past the days of prejudice and routine in our work, and are

anxious to make the best and truest use of marble, as of every other material. In accounts of some new building just completed one reads of its magnificent marble hall; we go and see it, and what do we find?—a great hall having the walls lined with marble from floor to ceiling, and a marble floor and stair. But how is it done? The walls are lined with slabs of marble, often each slab beautiful in itself, but set in courses marked off by horizontal and vertical joints, just after the manner of the marble wall-papers with which the walls of the passage and stairway of every ordinary house were covered some years ago. Surely the true use of marble means something more than this. Is it not the architect's work to use marble as he does other materials, to follow a certain order and scheme to bring out his design?

It is only repeating a truism to say that marble lends itself to simplicity of design and delights in broad surfaces. But, still, it requires design to become architecture. To cover a wall with slabs of marble laid at random as they come to hand, even supposing each individual slab quite beautiful in itself, cannot be called design, and only produces confusion, a too much repetition of beautiful objects without order, of which the eye wearies and the mind gets tired. It is the architect's province to so arrange, adapt, and apply all this beautiful material as to bring order out of confusion, and in so doing even bring out more fully the beauty of the material itself. Someone may say that, as the material is beautiful in itself, it wants no aid from the architect. It seems to me that, just because the material itself is rich, rare, and expensive, it is only an additional reason why we should bestow all the more thought and skill on the way it is used. To illustrate this let me draw a simile. Let us picture to ourselves a painted hall which is also beautiful. We admit at once that the beauty is due to the skill with which the paint is arranged, and not the material itself, although, taken to pieces, every separate colour in itself may be beautiful. So it should be in the use of marble. We should use it as a painter does his colour, and make the marble our servant, our vehicle to realise our idea.

Select a large and beautiful piece of marble with life in it, as they say; make this a centre, and work round it with quieter-coloured marbles and smaller pieces, to bring out more fully by contrast your beautiful piece, in place of wasting its beauty by crowding around it pieces all equal to it, so that the eye does not know on which piece to rest.

Let us not forget that it requires the handiwork of the workman to bring out the beauty of marble. It requires the labour of the hewer, the sawyer, and the polisher before the beauty of marble is revealed; but when we go thus far it is only a beautiful material. To make it beautiful in architecture we must go one step further, and add thought and skill. This is the same thing as a great painter recommended—mixing brains with your colours. We should mix brains with our marbles. A little bit of Mr. Alma Tadema's picture "At the Shrine of Venus" will explain my meaning. There you have a dado of a light tone with simple vein, above it the wall has a large and beautiful piece of marble as a centre or panel, around it first a narrow band of lighter tone, and outside a margin of darker tone, the whole upper part being stronger and richer than the lower part. Of course the arrangement could be reversed—dark below and light above. There is the opposite extreme to the marble-lined hall with slabs taken at random, without design and arrangement, and that is where there are too much design and too many colours. I have in my mind now a great marble hall, erected thirty or forty years ago, which from its size would have been magnificent, but owing to the use of too many colours, badly arranged and out of harmony, the effect is ruined and made vulgar.

In using marbles in a large way I would say the first thing is to let your marbles be few but well chosen; and the second, let your mouldings be simple and not too many of them.

Not only is there an infinite variety in marbles, but there is such a great variety in each particular marble. For there are *colour, tone, and expression* in marble. In some places you want marble with life in it, in other places you want it quiet, so that three or four different

marbles will generally be found sufficient for any work, from brilliant to sombre. Fix your keynote for the leading tone, and let all the others blend with it and enhance it. Are there

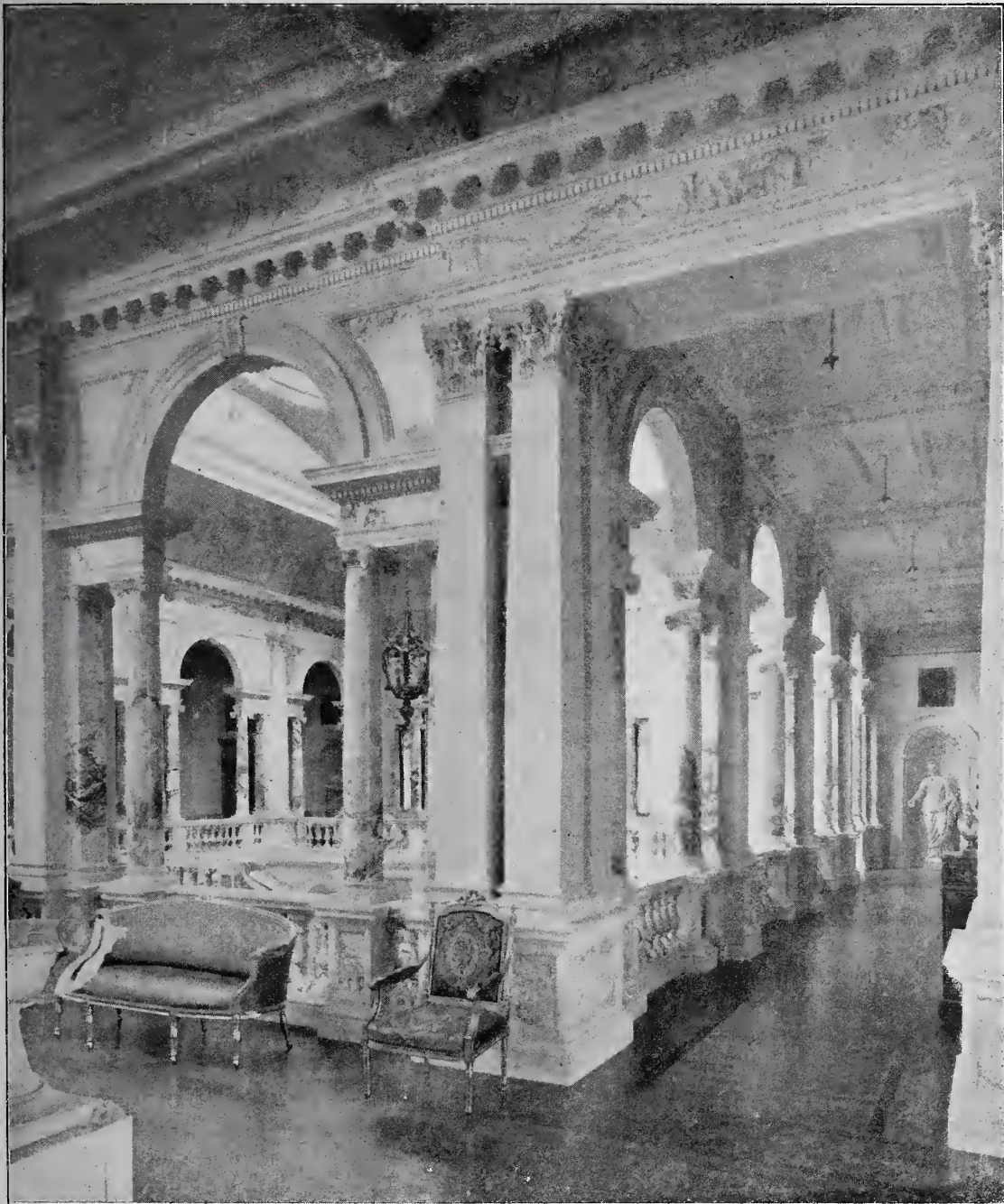


Photographed by Bedford Lemere.

FIG. 3.—STAIRCASE HALL, GOSFORD HOUSE.

not only four strings to a violin, and is there anything in the whole range of musical art that cannot be accomplished with the four strings when touched by a master's hand? So in architecture, with three or four different marbles handled by a master, there is nothing within the

range of architectural art, from simplicity to magnificence, that the architect cannot accomplish with them. A material rich in itself does not require too much trimming. A garment of



Photographed by Bedford Lemere.

FIG. 4.—STAIRCASE HALL, GOSFORD HOUSE.

rich material and rich colour is only made vulgar by the use of too many different colours in the trimming. This brings us to the good old rule which we find exemplified in all the great architecture of the past. In all our magnificence let us study simplicity; in all our

richness let us study repose : sound, wholesome rules for life ; and sound, wholesome rules for architecture.

Hitherto I have referred principally to wall-surfaces. But the same reason for selection applies to columns, arches, &c. ; using any block of marble that comes to hand will not produce the effect we desire. We may have to cut up many blocks of marble before we get the special piece required for a particular place. Take a column, for instance. Suppose you specify a breccia column ; and it is just the same with most other marbles, you may be supplied with a column which is breccia, but not at all what you want—in fact, quite out of tone with the place for which you want it, and out of harmony with the surrounding work. Sometimes much difficulty will arise in finding the particular type of marble you want. I remember as an instance that for the front column in fig. 2 the contractor had not got any marble that would suit the purpose, and we had to search through all the marble stores in the country before we found what we wanted. The same thing occurred with the alabaster columns in the upper tier. We could get dark alabaster like the pilaster behind, but even the quarry could not at the time produce the lighter coloured columns that we wanted. I need not say that all this took much time and trouble ; but you may always put it down that good marble work cannot be done in a hurry.

If we use marble columns let them be constructive, and not useless columns planted on for decoration ; and, if possible, let them be monoliths. There is nothing absolutely wrong in jointing a column ; but there is a dignity, an impression of work well done, in having columns in one piece, which the jointed column never has. Square pillars should also be solid marble, and not brick cased with one-inch slabs of marble, jointed so as to imitate solid masonry. This is a deceit soon detected, and gives the impression that the work is all cheap veneer done for much show, at the smallest possible cost, but at the expense of sacrificing truth. Better genuine solid stone than this. Where it is necessary to carry through the colour of the marble, panels can be inlaid so as not to imitate solid masonry. There is no sham in this. The same applies to walls, which have been referred to ; for to build walls with solid blocks of marble would be useless waste ; but let the marble be treated so as to show that it is a lining, as in the picture, “At the Shrine of Venus,” I have referred to, and not to imitate solid masonry.

While on this subject of marble linings I am almost forced to refer to a use, or rather a misuse, of marble which has become so common with us that we look upon it as a matter of course, and do not see the sham of it. I am reluctant to mention the box marble chimney-piece, made by the thousand, and seen everywhere. This is not a true use of marble, and it is not architecture ; but so general is this use of marble that it seems to me that it has created the impression, both with the architect and with the mason, that marble blocks should be cut up into 1-inch or $\frac{1}{2}$ -inch slabs, just like a log of wood, and used in the same way, with this difference : the wood is made to look like framing and panelling, which it is, but the slabs of marble are used, one in front and one on each side, to try and look like a solid block, which it is not. This practice has become so common that the true idea that marble should be used solid, like stone, seems for the time being to have been overlooked.

In sculpture white marble should, of course, be used ; but for ornamental carving pure statuary is not essential. In fact, statuary marble is too pronounced a white to go with coloured marbles.

In the carved capitals shown in fig. 2 we used blocks of white alabaster, which is not a pure white, but a very light tone, almost white, with here and there a little cloud of deeper tone. This, in my opinion, was more in tune with the coloured marbles than pure statuary would have been. Istrian stone is also a good material to use for carved work, and indeed

also for sculpture in conjunction with marble. I used it for a richly-carved chimney-piece in a marble hall, and it harmonised well with the marble work.

In mouldings it is not necessary to have a uniform colour: sometimes it is much better that the colour should be broken. This, however, brings us to a larger question, and one in which there will probably be much difference of opinion—viz. Should Colour follow Form? On this question Mr. Ruskin, in the “Lamp of Beauty,” arrived at the conclusion that in nature colour never follows form, neither in animal, bird, nor flower, but goes a free way of its own, independent of form, or what we may call construction, and he sums up his careful study of the matter thus:—“I hold this, then, for the first great principle of architectural colour, “Let it be visibly independent of form.” Some of you will differ from this view; but in my opinion, based on some years’ experience in the use of marble in a large way, I consider there is much sound truth in it as a principle and theory for our guidance—although when we come to actual work in architecture we find that colour must, as a rule, follow form. But there are exceptions to this rule, as to every other. For instance, in the large picture panel I mentioned before, one wants, indeed must have, a different colour following the lines of form to emphasise it, just as we do in the frame of a picture; although some painters, I am aware, do not always do this, but run the colour of the picture through the frame.

In architecture, however, this must be done with great caution, and not too often. In the spandril panel in fig. 2, for instance, you will see that it is necessary for the architecture that the colour should follow the form; again, in the cornice dividing the lighter wall below from the dark frieze above, colour must follow form, or the effect of the frieze would be destroyed. But in the same example there is an instance where the cornice is also dark marble over a lighter coloured arch, where a splash of light tone runs through the cornice, in an erratic way if you like, and connects the light tone of the marble below the cornice with the light ground of the lunette panel above it. In this instance the colour does not follow the form, and, in my opinion, it has a much better effect than if the cornice had been of one tone throughout.

In some of the spandril panels illustrated, the colour does not entirely follow the moulding, or the form of the panel, but runs through them all in a broken way; and it gives, in my opinion, a feeling of softness by not emphasising the form, but at the same time not entirely obliterating it.

Bases and caps, as a rule, may be of different colours from the shaft of a column; and, as a rule, it is better that the base should be a strong colour if the shaft is a strong colour. In one of the columns in fig. 2 where the colour is strong the base is dark and veined; and, in my opinion, it gives a much better rest and support to the shaft, by spreading the colour at the bottom, than a white base would. In the columns placed over those to which I have referred, white bases were used; but the shafts are also light in tone, and on the whole I do not consider the white base gave so good a result as one as dark as or darker than the shaft.

So it comes to this: if you make colour follow form strictly and severely, the result will be that your work will be hard and mechanical; if, on the other hand, you let the colour break up the form too much, the result will be that your work will be restless—and we know that anything that destroys repose is fatal to good work. By this reasoning we arrive at the conclusion, which is exemplified in all the great architecture of the past, that in this matter, as in everything else, there is a true, intelligent medium to be observed: a medium which is the outcome of careful study—a medium, as I said before, which tempers magnificence with simplicity, and richness with repose.

Hitherto I have considered only *how* to use marble; but there is a question which should take precedence of this, and that is *where* to use marble. If the *where* is wrong the *how* can

never be right. We may or may not have used it where we ought not to have used it—but one thing is certain: we have not used it where we ought to have used it. We have marble in our clubs and restaurants, our shop fronts and fish-shops; but in our churches marble is conspicuous by its absence. It is difficult for us to take a true view of this matter, because we cannot help looking at things through the medium of a large amount of inherited influence and prejudice, and as much surrounding influence and fashion.

At the present day there is an unhealthy idea abroad among architects that we are the sole arbiters of what is good and bad in architecture. We are too much in the meshes of fashion and change, and seeking after some new thing. What we thought was right and admired thirty years ago is now passed by with contempt; and what we bow down to, and copy, and worship now, we shall pass by with a shrug of the shoulders twenty years hence. All this is not a true understanding and appreciation of architecture. It is only a temporary fad, a malady due to living too fast, and over-eagerness to be original and fashionable; but it will pass away in due course. We ought to know from our knowledge of architecture in the ages which have passed that what is really good in one age is good in all ages. At present with us there is too much disregard of the architects of the past, and a total indifference as to what may be the opinion of those of the future regarding our work. Let us try for a moment to throw off this modern influence which envelops us like a net, and endeavour to see ourselves, or rather our work, as others will see it and criticise it with regard to this question of the use of marble. For the future will sit in judgment on our work, and reverse a great many of the verdicts we arrive at now amongst ourselves as to what is good work in architecture and what is not, and the architects of the future will be in a much better position to give a true opinion on this matter than we are. Will you permit me to try and get a forecast of such an opinion?

Let me for a minute take myself away to a point of view 500 years hence, and throw back a spirit-light view on the screen of your minds. You may call it looking backward. Say it is the year 2395. I am present at a meeting of an Institute of Architects, and one of the members is reading a Paper. The subject is, "The Use, Non-use, and Abuse of Marble in the Architecture of England at the End of the Nineteenth Century," and I note these words as they fall from the speaker's lips: "In the palaces of the nobles and in the homes of the princes of trade and commerce marble was used to a large extent. Their club-houses and municipal buildings were enriched with marble work, but it is supposed that in all buildings erected by the Government the use of marble was prohibited by law, as we can see no traces of it. Their restaurants and halls, where the people assembled to eat and drink and amuse themselves, were made sumptuous with marble and gilding. And even their drinking saloons, which they called 'Gin Palaces,' were made over-gorgeous by the *abuse* of marble, gilding, and ornamentation. But if we turn to their churches, where we should most expect to see beautiful marble work, we find it conspicuous by its absence, and in its stead there is dingy brick and plaster, and sometimes one of their cheaper kinds of stone, *sparingly used*. When we consider that at the end of the nineteenth century England was richer by far than she was in the earlier twelfth to sixteenth centuries, when she raised noble cathedrals in every part of the land; and when we consider, further, that many of the people had come to know, as we know now to a certainty, that all this great advance in civilisation, in knowledge, in power, and in riches beyond the dreams of Roman emperors, to which England had attained, was due entirely to one cause, viz. *The Christian Religion*—when we consider this, it will strike us as a strange anomaly that, while they made their palaces of pleasure and halls for eating and drinking magnificent with marble work, they could have been content with dingy brick and plaster for their churches. While they used for their places of amusement

“and indulgence the richest and most expensive material which God had made; they at the same time used the cheapest and commonest material for what they themselves called the “House of God.” Now let me put away the lantern and its light, and without trespassing further on your time and patience leave this picture to speak for itself.

III. By WILLIAM BRINDLEY, F.G.S.

PROFESSOR AITCHISON has just told us that polished white marble has this great charm: you seem to see into its substance. Now this seeing into the material is one of the most expressive remarks that can possibly be made, and defines precisely the white marbles used by the classic Greeks and early Romans, and later by the Byzantines; but this definition rarely applies to the white marbles, now commonly used, coming from Carrara. The bulk of this material is of a bluish tone, of amorphous crystallisation, and more or less opaque. White marbles, as a rule, ought not to have a glass polish. Down to the fifteenth century in Italy they usually worked the surface with the chisel, sand-rubbing it up at the most. When boldly crystalline white of warm tone is carved (as in “egg and tongue”), and decorated with ochres, heightened with deep-coloured dead gold, an effect is obtained which can never be got by the painter-decorator. It is refined and classical. The polishing of coloured marbles is requisite, but some of these, like the ancient Synnadic, must not receive more than an egg-shell polish.

No doubt the Romans were right in making their coloured marble columns monoliths; the grandeur of effect produced is worth the cost and trouble. Where the block varies in colour from end to end, the deeper colour had better be selected for the bottom. When they have to be jointed, a shaft of three stones is better than two, if plain columns; but if reeded and fluted, then make the joint at the top of the reeds one-third up, as in the giallo antico columns of the Arch of Constantine. If jointed, the markings ought to go the same way of the bed, not—as in The Oratory, South Kensington—any way the stone will make. When pilasters have to be cased with marble to carry out the colour scheme, they rarely look consistent if treated with an entasis; it is best to keep to the orthodox rule, and make them straight—in addition to which the entasis is a costly business.

For surface decoration of walls and floors, there is much difference of opinion as to the opening out of slabs to produce a pattern, either continuous or in panels. My opinion is that it is thoroughly legitimate, for it in no way represents a sham. It is the method used in St. Sophia and at St. Mark's, also in San Vitale, Ravenna, which are the best examples we have. If horizontal courses, then, as in Northern and Central Italy, in broad and narrow courses, the latter, dark. Architects, when designing, often start with the painter's contrast scheme of colour; but this rarely succeeds for marble, owing to the changing freaks of nature in the same block. The safest way is to work for “values,” and decide the colours afterwards by putting the actual materials in juxtaposition. Use as few colours as possible. Frequently, pleasing results are obtained by the lighter and darker parts of the same marble, such as the plain cream statuary white out of the modern pavonazzetto used as bands to panels of the richer marked portions. Mr. Ernest George has produced good work treated boldly on this principle. Light and dark alabaster go very well, and may be supplemented with a light greyish green cipollino. This latter treatment may be seen at the Jews' Synagogue, Bayswater. Light giallo antico with statuary, or pale sienna and statuary, produce delicate work.

Walls of circular plan always look well when treated with long, narrow, upright slabs with “ribbony” markings, making a series of polygonal faces; this is both the Byzantine and Arabic

method. Old cipollino is a suitable marble for this work, or for a continuous deep dado, as in the gallery of St. Sophia; it produces a chevron pattern, much like some of the old tapestries one sees about Nuremberg. Mr. Alma Tadema has treated his studio with upright long panels of cipollino, not quite vertical; the effect is good and the method new. Walls to receive marble slabs should be dry, and the work is best fixed hollow.

Black and white and Verona red and white are always safe for pavements, but it must be borne in mind that the dark parts become paler and softer in effect with wear and age. When making notes of old marble work in Italy I specially note those combinations which are not quite satisfactory, and make memoranda.

Marble mouldings want special study. They require all the undulating delicacy of the Greek. Almost a different section might be made for each coloured marble. Much remains to be done in this way. There are a few younger men certainly on the "right track." Differences of opinion again occur—as in the boxing-up of chimney-pieces—but the beautiful examples of the "Adam" style surely show that the method is right, even if it is abused by bad Belgian work sold by ironmongers throughout the country. The Adam chimney-pieces are always cut out of the choicest materials; they are, as a rule, of delicate workmanship, and their method of construction, I think, is worth study. The original drawings of many are at Sir John Soane's Museum. Chimney-pieces with bold mouldings in coloured marbles, with sections of flat, round, and hollow, such as Mr. Norman Shaw delights in, are always grand. One of the most difficult marbles to use is the Mexican onyx. A large ecclesiastical edifice is now being lined with it. The effect is as bad as the material is choice. The French seem to be the only people that are successful with onyx, when they use it with gold and ormolu. It certainly suits Paris better than London; it may be that the climate helps it.

For exterior work, plaques of porphyry, red and green, might be used, as in the Palazzo Doria, Venice. Some of the serpentian greens, like the Connemara, stand very well. The purple-coloured Levant brèche is used very freely in Paris, and retains its colour well.

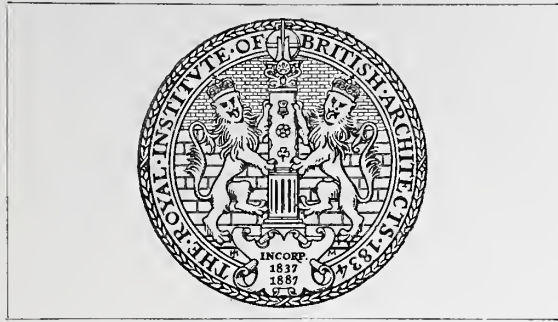
MR. L. ALMA TADEMA [*H.A.*], R.A., thought it a great privilege to be allowed to propose a vote of thanks to the readers of the admirable Papers to which they had been treated. They had learnt a great deal from them, and he should like to add two or three things within his own experience. In his studies in Italy he had found that the oldest houses were decorated with slabs of imitated marble painted on the wall. In many houses he had found that the pivots of doors contained large pieces of beautiful onyx and precious marbles, inlaid with gold, and he had come to the conclusion that the use of precious marbles in Italy was much older than they thought. Where could they have got those beautiful marbles from? Besides that, Mazois, in describing the ideal Palace of Scaurus, speaks of the atrium having columns of Etrurian marble many metres high. That the Romans had a great love for their columns was proved by the fact that when Julius Cæsar was in want of money he taxed the marble columns, and filled his coffers. In reference to certain remarks in Mr. Young's Paper, he should like to say that he himself was always afraid of breaking up the marble. A flat surface might be broken up as

much as they liked, but it was a pity to break up a marble with a beautiful, refined moulding. As for the view that their successors might have 500 years hence, it was interesting to think that perhaps in judging of the use of marble in the present day they would take into account the political state of England at this time, when the workmen were told that there was no greater happiness than to have a good dinner; while no workman was ever told, by the so-called friends of the workmen, that there was happiness in working and producing something. So, naturally, what they liked most and cared for most were the places where they went to amuse themselves; and, of course, the churches were not considered at all. They had been shown by Mr. Young some delightful views of a building decorated with marble. He was afraid he could not admire very much those marble pictures; he should prefer pictures with subjects. It was always interesting to see, as they could see in so many ancient buildings, the history of the place depicted. It was a bit of artistic decoration which must not be forgotten.

MR. GEORGE SIMONDS seconded the vote, and said that, as a sculptor who had used marble

for a great many years, the Papers had been a great treat to him. He thought that the authors had been rather unnecessarily down on the use of marble for exterior purposes. It was all very well to say that the climate was bad, and that marble would not stand out-of-doors; but there were certain kinds of marble that stood out-of-doors uncommonly well. For instance, there was the Ravacione marble, which was common at Carrara, which would stand out-of-doors, and bear the winters as well as Portland stone. He knew of a case in point. A few years ago he had to make a fountain in which part of the work was of bronze; the figures were bronze, and some rock was of Portland stone and some basins were of Ravacione marble. That fountain had stood for four or four years through extremely bad winters, and the Portland stone, which, of course, was always wet, had cracked to some extent with the frost; but the Ravacione marble, which contained water which had been frozen solid through three winters, was just as good and fresh as when first put up. So he thought it was unfair to say that the climate of England was so bad that no marble could stand out-of-doors. It was true that the precious marbles lost a certain amount of their polish; but what material was there that would stand without any care, and why was it that they in England thought it essential that all the materials with which they made works of art should be left to themselves for ever and a day without the friendly touch of a cleaning hand? Their statues were left to get dirty, and then a man was told off to paint them bronze. Marble columns were put up, and the dirt and soot and rain allowed to get into them, and when they were thoroughly bad, and past praying for, they were scraped down and sanded off, and a fresh polish put on, and they were told that it was necessary to do this every year or two. It was not, if they would just give them a rub and a clean now and again.

* * See, in reference to the subjects treated in the foregoing papers, TRANSACTIONS, Vol. III. N.S. (1887), pp. 45-56, "Marble: its Uses as suggested by the Past," with a list of the principal quarries worked in the time of the Romans, by Mr. Brindley; also some Addenda by Dr. Edwin Freshfield [H.A.]—the whole accompanied by illustrations of marble pavements and wall decoration. See, further, TRANSACTIONS, Vol. IV. N.S. (1888), pp. 5-14, "The Ancient Quarries of Egypt; with an Account of a Recent Journey across the Eastern Desert," by Mr. Brindley, with illustrations of porphyry pavements and pulpits and wall mosaics in Coptic churches. References to marbles and marble ornament found in North Africa are given in TRANSACTIONS, Vols. I. and II. N.S., in Mr. Alexander Graham's Papers on the Roman Occupation of Algeria and Tunisia respectively, with copious illustrations.



9, CONDUIT STREET, LONDON, W., 25th April 1895.

CHRONICLE.

THE MARCH EXAMINATIONS.*

Final Examination: for Candidature as Associate.

The President announced to the General Meeting of last Monday that 95 persons were admitted to the Final Examination, qualifying for candidature as Associate, held from the 29th ult. to the 5th inst., and that 86 of these attended and were examined. This number included 75 who had been relegated from previous examinations, five Students, and six practising architects and chief assistants. The Examination was conducted simultaneously in London and Manchester, with the following results:—

	London.	Manchester.	Total.
Passed	24	2	26
Relegated in part	53	3	56
Relegated in all	3	0	3
Not passed	1	—	1
	81	5	86

The names and addresses of the twenty-six who have passed, and are qualified for candidature as Associate, here follow:—

- ALLBERRY: Harry; 145, Brixton Road, S.W. [*Probationer* 1892].
- BESANT: Robert Saxton; 26, Bedford Row, W.C.
- COLLINS: Edward George; 47, Henslowe Road, East Dulwich, S.E.
- COWAN: George; 21, Sussex Road, Southsea.
- DELVES: Stanley William Worth; 23, Mount Sion, Tunbridge Wells [*Probationer* 1890; *Student* 1893].
- DUNN: Alfred John; 22, Bristol Road, Edgbaston, Birmingham [*Pugin Student* 1895].
- GREENOP: Edward; Bonham House, Bonham Road, Brixton Hill, S.W.
- HAIR: Charles James; 7, Copthall, Twickenham.
- HENDERSON: James Guthrie; 99, Fordwych Road, West Hampstead, N.W.
- HUTT: Harry; Ivy Lodge, Brunswick Hill, Reading.
- LEEDS: Percy; 7, Gilmore Road, Lewisham, S.E.
- LOFTHOUSE: James Alfred Ernest; 62, Albert Road, Middlesbrough.
- MAYOR: Charles Kay; 4, Mauldeth Road West, Fallowfield, Manchester.
- MESSENGER: Robert; 28, Mayflower Rd., Clapham, S.W.
- MIDDLETON: Orlando; 6, York Terrace, Cheltenham [*Probationer* 1890; *Student* 1891].

* The results of the Intermediate Examination held in March are given at pp. 375, 376.

MORRIS : Francis Edward ; 156, Friar Street, Reading.
 PECK : Frank ; 19, Queen Anne's Gate, Westminster, S.W.
 PENFOLD : Edward ; High Street, Reigate.
 PETTER : Frederick William ; Bridge Chambers, Barnstaple.
 REAVELL : George John Thrift ; 42, Narbonne Avenue, Clapham Common, S.W.
 SHARP : Cecil Alexander ; Fir Tree Road, Banstead, Surrey.
 SHAW : James Hewitson ; 58, Granville Road, Walthamstow.
 SHINER : Christopher Mitchell ; 2, Walbrook, E.C.
 STORY : Herbert ; 1, Hamilton Square, Birkenhead.
 WATKINS : Harry Garnham ; Leyland House, Lincoln [*Probationer* 1891 ; *Student* 1893].
 WAYMOUTH : William Charles ; The Ferns, Highgate, N. [*Probationer* 1889 ; *Student* 1891 ; *Arthur Cates A.A. Scholar* 1892].

Preliminary Examination : for Registration as Probationer.

The President further announced to the General Meeting of Monday that at the Preliminary Examination held in London, Bristol, and Manchester on the 19th and 20th ult., 55 applicants had been exempted from attending ; and out of the 83 examined, 59 passed, 22 were relegated to their studies, and 2 failed to pass. The total number examined in London was 47, of whom 32 passed ; in Bristol 8, all of whom passed ; and in Manchester 28, of whom 19 passed. The names and addresses, with other particulars, of the 114 newly registered Probationers, given in alphabetical order, here follow :—

ALLEN : Francis Henry ; 28, High Street, Kettering [*Masters* : Messrs. John Ingman & Shaw].
 ANDERSON : George ; 41, Desswood Place, Aberdeen [*Masters* : Messrs. W. & J. Smith & Kelly].
 APPELYARD : Henry Milnthorpe ; 41, Canning Street, Liverpool [*Master* : Mr. Edmund Kirby*].
 AYLES : Herbert Weston ; "Ventura," Trinity Road, Weymouth, Dorset [*Master* : Mr. A. J. Bennett].
 BAILLIE : William ; 160, Hope Street, Glasgow [*Master* : Mr. G. T. Ewing].
 BALL : William John ; 17, Wellfield Street, Warrington [*Master* : Mr. J. Thompson].
 BEESLEY : Percy Montagu ; 18, Bold Street, Warrington [*Master* : Mr. T. Beesley].
 BELL : Arthur Edward ; Normanby House, South Park, Lincoln [*Master* : Mr. W. Watkins*].
 BIGGS : Alfred Ernest ; 57, Compton Road, Highbury, N. [*Master* : Mr. R. M. Drake].
 BIRD : Lennox Godfrey ; 35, Castletown Road, West Kensington [*Master* : Mr. G. H. Fellowes Prynne*].
 BLUNT : John Silvester ; 2, Ivy Villas, Lincoln Road, Peterborough [*Master* : Mr. H. M. Townsend*].
 BRIDGWATER : John Percival ; Shawe Hill House, Alum Rock Road, Saltley, Birmingham [*Masters* : Messrs. Ingall & Son].
 BROWN : Guy Alexander ; 21, Falkner Square, Liverpool [*Master* : Mr. James Rhind].
 BROWN : Herbert Elisha ; 92, Woodchurch Road, Oxton, Birkenhead [*Master* : Mr. H. Story].
 BROWN : John ; 37, Albion Hill, Leicester [*Masters* : Messrs. Keites & Fosbrooke].
 BUTTERWORTH : Robert Hepburn, B.A. Cantab. ; 38, Upper Bedford Place, W.C. [*Master* : Mr. John Slater*].
 BUTTERWORTH : Walter Cecil ; 38, Upper Bedford Place, W.C. [*Master* : Mr. John Slater*].
 CARTER : James ; The Fernery, Low Birthwaite, Windermere [*Master* : Mr. Robert Walker*].
 CHAPMAN : John Boswell ; Cooper's Hill College, Englefield Green, Surrey.
 CHORLTON : John Henwood ; Pitsmoor Vicarage, Sheffield [*Master* : Mr. J. D. Webster*].
 CLAYTON : Harold Robert ; St. Cuthbert's, Whitstable Road, Canterbury [*Master* : Mr. W. J. Jennings].
 COLLINGS : Tilleard Horace Osman ; Trafalgar House, Petersfield, Hants [*Master* : Mr. H. T. Keates].
 COMYN : Charles Heaton Fitzwilliam ; Manor House, Manor Rd., Folkestone [*Master* : Mr. Bedford Joy, M.A.].
 COOKE : Henry Fothergill ; Hambrook, Bristol [*Master* : Mr. F. Bligh Bond*].
 COOKE : Isaac, jun. ; 19, Hertford Drive, Liscard, Cheshire [*Master* : Mr. T. Harnett Harrison*].
 COPLAND : George Donaldson ; 20, Sandyford Place, Glasgow [*Masters* : Messrs. Clarke & Bell].
 CORK : Harry Haighton ; 29, Regent Street, Bacup [*Master* : Mr. Henry Ross*].
 COTMAN : Grahame ; 10, Boscobel Place, Alpha Road, N.W. [Architectural School, Polytechnic].
 DALLAS : James ; 3, Bright Buildings, Asylum Road, Birmingham [*Master* : Mr. J. G. Dunn*].
 DANBY : Harold Henry ; 10, Trinity Road, Scarborough [Denstone College, Staffs].
 DARBYSHIRE : Percy William ; Manor Park, Knutsford, Cheshire [*Masters* : Messrs. Darbyshire* & Smith*].
 DAVIS : Charlie ; 12, Castle Street, Swansea [*Masters* : Messrs. Bucknall & Jennings*].
 DICKINSON : Edgar Gustav ; 9, Belgrave Road, Birkdale, Southport [*Masters* : Messrs. Grayson* & Ould].
 DRIFFIELD : William ; Beech Mount, Harlow Road, Harrogate [*Master* : Mr. W. G. Penty*].
 DUNAND : Claud Germain ; 19, Birchington Road, Kilburn, N.W. [*Master* : Mr. Philip E. Pidditch].
 EDWARDS : George ; Osnaburgh House, 4, Osnaburgh Street, Regent's Park, N.W. [*Master* : Mr. G. W. H. Gordon*].
 ELLISON : Walter Watkin ; Eastbrooke, Midland Road, Wellingborough [*Master* : Mr. H. A. Cooper].
 EMERSON : William Ernest ; 8, The Sanctuary, Westminster [*Master* : Mr. William Emerson*].
 FARMER : Frank Quentery ; Millbrook Vicarage, Stalybridge [*Masters* : Messrs. Potts*, Son*, & Pickup].
 FORREST : Frederick Victor ; 100, Elgin Crescent, Bayswater, W. [*Masters* : Messrs. Perry* & Reed*].
 FOWLER : Frederic Douglas ; Plymleigh, near Plymouth [*Master* : Mr. H. J. Snell].
 FROST : James Ernest ; Saltlands, Bridgwater, Somerset [*Master* : Mr. A. Basil Cottam*].
 GILFORD : Hubert Ernest ; Edwalton Lodge, Edwalton, near Nottingham [*Masters* : Messrs. Brewill* & Bailly].
 GREGSON : Thomas Sedgwick ; Scarborough [*Masters* : Messrs. Malcolm Stark & Rowntree].
 HALE : Charlie ; Fairfield, Queensberry Road, Kettering [*Masters* : Messrs. Talbot Brown* & Fisher].
 HALL : Charles Llewellyn ; The Glyn, Whalley, near Blackburn [*Masters* : Messrs. Stones* & Gradwell].
 HALLEY : James Mitchell ; 325, Byres Road, Hillhead, Glasgow [*Masters* : Messrs. J. Thomson* & Sandilands].
 HAYES : James William ; 9, Grosvenor Gardens, St. Leonards-on-Sea [*Master* : Mr. Henry Ward*].
 HAYWOOD : Percival Joseph ; 3, Norfolk Road Villas, Norfolk Road, Bayswater, W. [*Master* : Mr. C. R. Guy Hall*].
 HEATH : Charles Simkins ; 45, Lower Paddock Road, Bushey, Herts [*Masters* : Messrs. Pridmore & Anderson*].
 HEATH : John Stanley ; Kingsbridge House, Westcombe Park, Blackheath [*Masters* : Messrs. T. Roger Smith* & Son*].
 HIGGINBOTHAM : Frederick William ; Glenmaurice, St. Lawrence Road, Clontarf, Co. Dubliu [*Master* : Mr. R. J. Stirling].

- FIGSON: John; 87, Preston New Road, Blackburn [Master: Mr. H. S. Fairhurst*].
- HIORNS: Frederick Robert; Viewfield House, Pasley Street, Devonport [Masters: Messrs. Hine* & Odgers].
- HODGSON: Victor Tylston; Harpenden, Herts [Masters: Messrs. Waterhouse* & Son*].
- HOPE: Arthur John; 4, Lane Ends, Atherton [Masters: Messrs. Bradshaw* & Gass*].
- ISAACS: Charles Henry; 77, Netherwood Road, Sinclair Gardens, West Kensington, W. [Master: Mr. C. H. Flack*].
- JAMESON: Norman Harold; 106, Gilnow Park, Bolton [Master: Mr. Thos. E. Smith].
- JARDINE: Henry; 63, King's Road, Queen's Road, Peckham, S.E.
- JEFFES: Reginald Herbert; 123, Glyn Road, Lower Clapton, N.E. [Master: Mr. P. E. Murphy].
- JEFFRIES: Rupert; 74, Corporation Street, West Walsall [Masters: Messrs. Bailey* & McConnal*].
- JENKINS: William; Abbotshill, Llandilo, South Wales [Master: Mr. David Jenkins*].
- JONES: David; Penlan, Pentrevoelas, Bettws-y-Coed [Master: Mr. William Owen*].
- JONES: Edward Oliver; Penrhyn Isa, Llandudno [Master: Mr. R. G. Thomas].
- JONES: John Ivor Price; Ashdene, Cathedral Road, Cardiff [Masters: Messrs. J. P. Jones, Richards & Budgen*].
- KIMBER: Frederick Henry; Carnarvon Street, Newbury, Berks [Master: Mr. W. H. Bell].
- LACEY: Albert Edward; "Burleigh," Carlton Road, Bournemouth [Masters: Messrs. Pinder* & Fogerty*].
- LAWSON: Herbert Sleeman; 7, All Saints Road, Clifton, Bristol [Master: Mr. W. S. Paul*].
- LEED: James Constable; c/o Mr. R. M. Roe, 62, Basinghall Street, E.C. [Master: Mr. R. M. Roe*].
- LEWIS: Arthur William; Ditton Lodge, Widnes, Lancashire [Masters: Messrs. Pierpoint & Fraser].
- LEWIS: Charles Martell; 14, Charlotte St., Newport, Mon.
- MACALISTER: Robert Alexander Stewart, B.A. Cantab.; 41, Torrington Square, W.C. [Master: Mr. A. S. Flower,* F.S.A.]
- MACGIBBON: Alfred Lightly; 65, Frederick Street, Edinburgh [Masters: Messrs. MacGibbon & Ross].
- MARSHALL: Ernest William; 17, Lansdowne Road, W. [Masters: Messrs. Waterhouse* & Son*].
- MELLON: William Arthur; 73, George Street, Edinburgh [Master: Mr. H. J. Blanc].
- MILNER: Stanley Joseph; 7, St. Andrew's Crescent, Cardiff [Masters: Messrs. J. P. Jones, Richards, & Budgen*].
- MILLWARD: James; 12, Albemarle Street, Clerkenwell, E.C. [Master: Mr. T. M. Ellis*].
- MORPHEW: Reginald; Rhuolas, Woodfield Avenue, Streatham [Master: Mr. A. J. Gale*].
- MORTON: William Singleton; 3, Institute Road, Hendon, N.W. [Master: Mr. B. W. Adkin].
- NEWMAN: Francis Winton; "Wolvesey," Poole Road, Parkstone, R.S.O., near Bournemouth [Master: Mr. S. J. Newman*].
- NEWMAN: Henry Arthur; "Wolvesey," Poole Road, Parkstone, R.S.O., near Bournemouth [Master: Mr. S. J. Newman*].
- PARRY: Albert Edward; 137, High Road, Balham, S.W. [Masters: Messrs. Albert W. Parry & Son].
- PEVERILL: William Frederick; 17, Kempson Road, Harwood Road, Walham Green, S.W. [Master: Mr. Arthur Cates*].
- PICKUP: Arthur; 33, Park Avenue, Blackburn, Lancashire [Masters: Messrs. Stones* & Gradwell].
- PLOWMAN: Arthur Robert; 76, Lebanon Gardens, Wandsworth, S.W. [Masters: Messrs. Cole & Mansergh].
- POLEY: Percy Charles; Willowbark, Hampton Hill, Middlesex [Hampton Grammar School].
- PRICHARD: Walter John; 81A, Edmund Street, Birmingham [Master: Mr. C. E. Bateman*].
- PROCTER: Basil; 2, Otterburn Villas, Newcastle-on-Tyne [Master: Mr. F. W. Rich].
- ROBERTS; John Rowland; 95, Ashted Row, Birmingham [Master: Mr. D. Arkell].
- ROBERTS: Reuben; 35, City Road, Chester [Masters: Messrs. T. M. Lockwood* & Sons].
- ROBINSON: Thomas Henson; Home Cottage, Crabtree, Pitsmoor, Sheffield [Masters: Messrs. Flockton* & Gibbs*].
- RODWAY: Ernest George; 6, St. John's Terrace, Weston-super-Mare [Master: Mr. H. D. Bryan].
- ROYLE: John Bedward; Hough Green House, Chester [Masters: Messrs. Willink* & Thicknesse].
- SALMON: Nathan Thomas; 21, Castle Street, Reading [Master: Mr. W. G. Millar].
- SCHOFIELD: William Peel; 3, De Grey Terrace, Woodhouse Lane, Leeds [Masters: Messrs. Howdill & Howdill*].
- SHEPHEARD: Thomas Faulkner; 136, Lloyd Street, Greenheys, Manchester [Masters: Messrs. Goldsmith & Son].
- SHEPHEARD: Ernest Edward; 37, Eldon Street, Newcastle-on-Tyne [Masters: Messrs. Plummer* & Burrell].
- SMITH: Peter Chalmers; 4, Mount Street West, Aberdeen [Master: Mr. Alexander Smith].
- SOMERSIDE: Robert James; 84, Great Hamilton Street, Glasgow [Masters: Messrs. W. J. Anderson* & A. N. Paterson, M.A.*].
- SUTTON: Charles Ernest Burgett; Bank Villa, Great Sankey, near Warrington [Master: Mr. Wm. Owen*].
- TABBERER: Francis Edward; The Holt, Leicester [Masters: Messrs. R. J.* & J. Goodacre*].
- TANNER: Henry, jun.; Rothbury, Brackley Road, Beckenham [Master: Mr. Henry Tanner*].
- TODD: William; 1, Hillsborough Square, Hillhead, Glasgow [Master: Mr. J. Thomson*].
- TUCKER: Walter Stephen; 7, Radnor Terrace, Glasgow [Masters: Messrs. J. Salmon & Son*].
- VENABLES: Arthur Bertie; 31, Prebend Gardens, Chiswick [Master: Mr. F. W. Roper*].
- WATKINS: William Henry; Summerhill, St. George, Bristol [Master: Mr. F. Bligh Bond*].
- WATSON: George; Walnut Cottage, Ruthrieston, Aberdeen [Masters: Messrs. Matthews & Mackenzie].
- WHEELER: Frederick Christopher; Fenside House, Horsham, Sussex [Master: Mr. F. Wheeler*].
- WIDDOWS: George Henry; c/o Mr. W. G. Penty, Clifford Chambers, York [Master: Mr. W. G. Penty*].
- WILES: Joseph Gilbert; 1, Sion Villas, Kew Road, Richmond, Surrey [Master: Mr. F. J. Brewer*].
- WOOD; Arthur Phillip Lomax; c/o Messrs. Grayson & Ould, 31, James Street, Liverpool [Masters: Messrs. Grayson* & Ould].
- WOODHOUSE: Alfred Ernest; 10, College Road, Windermere [Master: Mr. Robert Walker*].
- WRIGHT: Gordon Lorimer; 14, Belhaven Terrace, Kelvin-side, Glasgow [Masters: Messrs. Burnet*, Son* & Campbell].
- YOUNG: Clyde Francis; Ingleside, Oakhill Road, Putney, S.W. [Master: Mr. William Young*].

The asterisk * denotes a member of the Institute.

The Twelfth General Meeting.

The Meeting of the 22nd inst., for the reading and discussion of Papers on the Use and Abuse of Marble for Decorative Purposes, was held under the management of the Art Standing Committee;

but unfortunately Mr. Carøe, the Senior Hon. Secretary of that Committee, was unavoidably detained in Devonshire, and could not attend to direct the arrangements. Professor Aitchison lent several of his water-colour drawings, and others executed by the late W. W. Deane were kindly lent by his widow. Mr. Young's views of the interior of the Municipal Buildings of Glasgow, of Gosford House, and of other buildings, in which he had used marble to a very large extent, were hung around the Meeting-room. Messrs. Burke & Co., at the request of Professor Aitchison, sent some specimens, and Messrs. Farmer & Brindley also contributed a large collection of beautiful marbles. The reading of the Papers and the exhibition by limelight of Mr. Young's views occupied almost the whole of the usual two hours, and no time remained for the general discussion which had been contemplated. It may interest those who are now discussing in the *JOURNAL* the question of "Sound in its relation to Buildings" to know that the huge white cloth for the limelight exhibition had a perceptible effect on the voices of the speakers, who could not be heard even at a short distance—though under ordinary circumstances the Meeting-room, which is almost a square, is acoustically good.

A new Chair of Architecture.

The following is an extract from the report of a meeting of the Governors of the Glasgow and West of Scotland Technical College, held 17th inst. :—The Conveners of the Teaching and Staff Committee directed attention to the success of the courses in Architecture and Building Construction conducted by Mr. Gourlay [A.], and suggested the desirability of both recognising this success and strengthening the department by raising the lectureship into a professorship. On it being intimated that Mr. Gourlay was willing to devote his whole time to the work of the department, and to conduct day classes in architecture, it was unanimously agreed to recommend the Governors to create a Chair of Architecture and Building Construction, and to appoint Mr. Gourlay as its first occupant. The minute was approved; and if it be permissible to make any observation upon so welcome a piece of news, an inquiry may be raised as to the propriety of dividing Architecture and building construction with a copulative conjunction. Is not building construction a part of Architecture? If not, what is meant by Architecture? Is it merely a matter of design or composition, and draughtsmanship? And do not the technicalities of building construction—in other words, the details of constructive science—form an indispensable part of an architect's functions?

J. B. Papworth and Sir M. Digby Wyatt.

Two small framed drawings have been recently received—the work of J. B. Papworth (the father

of Woody Papworth and Wyatt Papworth) and of Matthew Digby Wyatt. The first named—an interior, in Indian ink, of a chapel—was left by Wyatt Papworth, who, in his will, offered it as a gift from him in memory of his father; the second is a coloured interior of the Church of San Benedetto, Subiaco, drawn by Sir Digby, and presented as a souvenir of him by his nephew, Mr. T. H. Wyatt [H.A.]. Both have been hung in the Council-room.

The late Arthur Lett [F.].

Mr. Arthur Lett, whose death was announced at the General Meeting of the 25th February, was born 25th March 1846. He became an Associate of the Institute in 1867 and a Fellow in 1892. Mr. Lett's principal architectural works include the St. Lawrence Institute, Kilburn, several blocks of flats for private investors, and many warehouses in and around London. He had the superintendence of the extensive alterations necessary to fit the old Soho Bazaar for the publishers Messrs. Adam & Charles Black, when they transferred their business from Edinburgh to London. Mr. Lett had also the management of many important estates, and he laid out several large estates in the north and south of London, including the Dulwich House Estate for the trustees of the late Mr. Thomas Lett, and for several companies and private clients.

International Sanitary Exhibition in Paris.

It appears that the house drainage of Paris is to be re-arranged in the course of the next three years on a plan similar to that now generally adopted in England; and so the Parisians, taking time by the forelock, are organising an International Sanitary Exhibition to be held in what was once the Champ de Mars, at the Palais des Arts Libéraux, from the 1st June to the 15th September of the current year. In the business-like circular by which the coming Exhibition is announced to the world, the promoters state that owing to the new law, which is to revolutionise the sanitary arrangements of Paris, "there will be a great demand for approved forms of sanitary apparatus," and that the Exhibition affords "a good opportunity for those manufacturers in England who wish to place their goods on the French market." The exhibits are to be divided into ten classes: (1) Hygiene of Dwellings (to which, it may be assumed, architects' drawings will be admitted); (2) Municipal Hygiene; (3) Prevention of Infection (influenza, it is to be hoped, to be classed herein as an infectious disease which may be avoided or checked like cholera and typhoid); (4) Demography and Sanitary Statistics; (5) Sanitary Science; (6) Hygiene applied to Infancy; (7) Industrial and Professional Sanitation; (8) Alimentary Hygiene; (9) Hygienic Clothing; and (10) Physical Exercises.

The Special Commissioner of the English section is M. Maurice Pérèz, Sanitary Engineer. Among the "Committee of Directors" are two Hon. Corresponding Members of the Institute: M. Achille Hermant, who is a Vice-President; and M. Émile Trélat. Among the "English Committee of Patrons" are Sir Robert Rawlinson, President of the Institution of Civil Engineers; Sir Henry W. Acland; Mr. Binnie, the Engineer-in-chief of the London County Council; Professor Corfield; Sir Douglas Galton; Sir Philip Magnus; and Mr. Shirley J. Murphy. The offices of the administration and direction are at 103 Boulevard Haussmann, Paris.

Additions to the Library.

From Messrs. Longmans, Green & Co. has been received a new edition of *The Ruined Cities of Mashonaland*, being a record of Excavation and Exploration in 1891, by J. Theodore Bent, F.S.A., F.R.G.S. Recent excavations, and the numerous ruins brought to light in opening up the country, have provided the author with a mass of fresh material, the most interesting points of which have been embodied in the new edition. Mr. R. M. W. Swan contributes to the work a chapter on the Orientation and Measurements of the Zimbabwe Temples. The illustrations are numerous and excellent.

Two elementary text-books on mechanics, recently added to the Physical Series of the Cambridge Natural Science Manuals—viz. *Statics and Dynamics*, by R. T. Glazebrook, M.A., F.R.S.—have been presented by the Syndics of the Cambridge University Press. The subjects are treated both from a practical and a theoretical point of view. Messrs. E. & F. N. Spon have presented their *Engineers' and Contractors' Illustrated Book of Prices for 1895-96*.

Donations from members include from Mr. Henry Lovegrove [A.] a Third Edition of the great work, in two volumes, by Francesco Milizia, entitled *Memorie degli Architetti Antichi e Moderni*, published at Parma in 1781; from Mr. E. W. Wimperis [A.], for the Loan Collection, *The Soil in relation to Health*, by H. A. Miers, M.A., and R. Crosskey, M.A.; from Mr. John Holden [F.], a Catalogue of the Loan and Reference Library of the Manchester Society of Architects; and from Mr. F. M. Gratton [F.], a bronze replica of the Shanghai Municipal Jubilee Medal designed by him.

Among the purchases are J. H. Parker's *Introduction to the Study of Gothic Architecture* (Oxford, 1849); *The Englishman's House*, by C. J. Richardson (Lond. 1870); Gwilt's *Rudiments of Architecture*, 2nd edition (Lond. 1839); Smith & Porcher's *Discoveries at Cyrene* (Lond. 1864); S. Riou's *The Orders of Architecture* (Lond. 1768); J. Van Campen's *Stadthuys van*

Amsterdam (Amsterdam, 1664); and an Album of Photographic Views of various parts of Helmingham Hall and Church.

Herr Ferdinand Fellner, of Vienna, has presented a portfolio containing a large collection of prints and photographs of theatres erected from the designs of his firm in various parts of Austria, plans, elevations, and sections being given of most of the buildings. A collection of photographs has also been presented by Herr Alexander Wielemans, of the same city, comprising views, exterior and interior, of buildings and monuments carried out by him, and specimens of some exquisite cabinets and other articles made from his designs.

Erratum.—In the obituary notice of Mr. H. A. Gregg, at p. 379, the date of his election as Associate should have been 1887, not 1877 as there printed.

REVIEWS. XXIV.

(71.)

PERSPECTIVE FOR ARCHITECTS.*

Architectural Perspective: the Whole Course and Operation of the Draughtsman in Drawing a Large House in Linear Perspective. Illustrated by numerous Progressive Diagrams, Bird's-eye and other Views of a House, Views of Interiors, &c. With Hints on Pen-and-ink Drawing. By F. O. Ferguson, Architect and Surveyor. Second Edition, revised, with additional illustrations. 8o. Lond. 1895. Price 3s. 6d. [Messrs. Crosby Lockwood & Son, 7, Stationers' Hall Court, E.C.]

When a book has once run the gauntlet of criticism, and attained the dignity of a second edition, the reviewer is inclined to think that it has passed beyond the reach of praise and blame, that nothing remains for him to do save to point out the improvements which have been made in the new edition and to dismiss the book with a careless word of praise. The copy of Mr. Ferguson's *Architectural Perspective* which lies before me is the "second edition, revised, with additional illustrations," and the usual thought arises that criticism is unnecessary. But a perusal of the book reveals imperfections; and, for the sake of the young student for whom the book is intended, these ought not to pass unmentioned. In the note to this edition we are told that "it will be found materially improved by the addition of "three new plates . . . and of a new Fig.," and that "a few corrections have also been made." Naturally enough the reader turns first to the new plates. The first of these is Plate 4, described "Pen-and-ink drawing." As a perspective drawing little or no fault can be found with it; as an

* See Mr. E. Ingress Bell's review of the first edition in THE R.I.B.A. JOURNAL, Vol. VIII, N.S. p. 119.

example of black and white, however, it is not so successful. The draughtsman is evidently more at home with his ruling pen than with the ordinary nib. The drawing, nevertheless, is a considerable improvement on the older drawing, Plate 3. So also is Plate 5, notwithstanding the Lilliputian tennis-net, and the somewhat haphazard manner in which the shadows are projected. The third new plate, 7, is the least laboured and the most successful, but is marred by the incorrect drawing of the panelled soffits of the four main arches. If the author had only thought of his own Rule IV.—and this ought not to have been a difficult matter after his instruction on page 29: “Keep Rule IV. well in mind”—he would not have been guilty of this error.

Little need be said about the older part of the book. The author's method of teaching perspective is extremely simple and clear, and will commend itself to the very young student. Nothing, however, is said as to the greatest angle which can correctly be included in the view; this omission will undoubtedly lead the student to bewail a distorted perspective sooner or later. So also, but in a greater degree, will the author's unsystematic disposal of the picture-plane: this ought to be at right angles to a line bisecting the angle of vision, but it never is in Mr. Ferguson's book. Again, the picture plane is here invariably shown touching the salient angle of the buildings: this method has the merit of simplicity, but it ought to have been explained how, by advancing or withdrawing the picture-plane, a larger or smaller drawing could have been obtained from the same plan. The complications arising from the use of only one height-line have not induced Mr. Ferguson to explain the method of obtaining others, and the application of the ellipse in drawing arches and circles in perspective is not illustrated. What Mr. Ferguson means by Rule VI. I really cannot say; how a *side* (of a bay) can be parallel to a *point* passes my comprehension. It is to be regretted that Mr. Ferguson and his publishers have not seen fit to take advantage of more of the corrections and emendations suggested in these and other columns on the first appearance of the book. This edition is an improvement on the first, but it might have been better. G. L. SUTCLIFFE.

(72.)

SAFE BUILDING.

Safe Building: a Treatise giving in the simplest forms possible the Practical and Theoretical Rules and Formulae used in the Construction of Buildings. By Louis de Coppel Berg, F.A.I.A., Member American Society of Civil Engineers. 2 vols. La. 8o. Boston, 1892. Price, £2. 2s. net. [Messrs. Ticknor & Co., 211, Tremont Street, Boston, U.S.A.; Messrs. Macmillan & Co., Bedford Street, Covent Garden, London.]

This book is not, as might be supposed from its title, about the building of safes, but of ordinary

structures in a stable manner. One of the sentences of the Introduction raises an important question:—

While, of course, the work will be based strictly on the science of mechanics, all useless theory will be avoided. The object will be to make the articles simply practical. To follow any of the mathematical demonstrations, arithmetic and a *rudimentary* knowledge of algebra and plane geometry will be sufficient.

An architect's mere elementary knowledge of these subjects is to be deprecated, and it is questionable whether such superficial qualification is sufficient to solve the more abstruse questions of applied mechanics. There is very little doubt that boldness of conception is frequently restrained by the architect's ignorance in this direction, and as a consequence it has been reserved for the nineteenth century to furnish that curious product of modern practice—the architect's engineer. “We are mere operatives, empirics, and egotists until we learn to think in letters instead of figures.”

Some of the author's statements are distinguished by their artlessness. For instance: “Cements or limes that will set under water are called hydraulic.”

The arrangement of the book, by which advice on the art of building is mixed with the formulæ, is perhaps hardly so convenient as the ordinary practice of keeping the subjects separate, of which latter course Gwilt's *Encyclopædia* and Rivington's *Building Construction* are admirable examples. From the last-named work some quotations are given in this book.

As might be expected in an American work, iron and steel construction are prominent features, but we find no mention of the expedient adopted in American cities for the foundations of their very high buildings—a grillage of iron and concrete; nor to the steel frames, which form so large a part of their enclosing walls. Nor do we find any allusion to the newest theories of wind-pressure on buildings, which may be expected to materially modify the existing ones.

In the section relating to tall chimneys, Portland cement mortar appears to be recommended; lime mortar is usually preferred; and the common practice of building a detached fire-brick lining for a certain distance above the base is not mentioned.

Most of the usual expedients of good building are described, and it is, of course, not the writer's fault that they are familiar. One piece of good advice, probably derived from an experience of tall buildings, is as follows:—

In all walls try to get all openings immediately over each other. A rule of every architect should be to make an elevation of every interior wall, as well as of the exterior walls, to see that openings come over each other.

The uniform use of the same letter to express a particular meaning in the whole of the various

formulæ is a sensible practice. There is rather more information in the tables as to the transverse strength of stones than appears in our English text-books; but it is, nevertheless, meagre, and mostly relates to American stone.

On the whole the *original* information is essentially American, as in the table of brands of iron and the frequent reference to Georgia pine—seldom used in this country. It is consequently of small use to the English student of building; a remark which applies to the valuable works of Trautwine and some other American authors of technical books.

Subject to the foregoing strictures, this work evinces great care and pains, is sensibly and clearly arranged, and, as might be expected, is worthy of the reputation of the publishers.

JOHN LEANING.

NOTES, QUERIES, AND REPLIES.

Sound in its Relation to Buildings [p. 353].

From Professor AITCHISON [F.], A.R.A.—

In my remarks [p. 372] I spoke of the brazen vases found in theatres mentioned in the *Classical Museum*. It is, perhaps, as well to give the place and particulars. They are referred to in *A Description of some important Theatres and other remains in Crete from a MS. History of Candia*. By Onorio Belli in 1586. Being a supplement to *The Museum of Classical Antiquities*, by E. Falkener. 8vo. London, 1854. The date of Onorio Belli's letters is 1586: he died in 1604. At page 13, speaking of the larger theatre at Hierapytna, Onorio Belli says:—"The theatre has at least one row of bronze *echeia*, the cells of which are very visible." In the theatre of Lyttus "there were three rows of brazen vases (*echeia*) in this theatre, almost all the cells of which are still visible" (page 19).

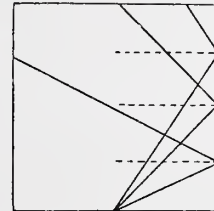
From Mr. FALKENER—

Buildings as connected with sound may be divided into two classes: Those intended for music, and those used for lectures and public speaking. Not being a musician, I can say nothing about the former, except to express my surprise and delight to hear that music requires a building to be in harmonic relation with it, in its proportions and material, as we find in the violin.

As regards buildings for public speaking and lecturing, I cannot help thinking that much that has been said about the acoustic properties of several forms of buildings proceeds from fancy rather than reality: for we find opposite opinions held in nearly every case. In buildings for such purposes we have to consider principally, not so much the faint echo which comes back to the speaker at the end of a long room, as the power of

a speaker at one end of a room to make himself heard at the further end. If a speaker knows that those at the further end of a room can hear him, he will not trouble himself at the faint sound which reaches his ear, if he listens to it, when it is drowned by the loud sound of his own voice; and if he speaks in a low voice he will hear no echo at all. Echo, therefore, and the power of hearing should be considered separately.

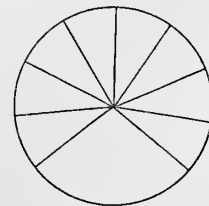
The square, and especially the cube, has been pronounced the worst form for acoustics. I have been in some of the committee-rooms of the Houses of Parliament when business has been going on—square rooms, with lofty ceilings approaching a cube—and I heard perfectly every word that was said, and was not sensible of any echo; and, indeed, how can there be



when sounds reflected from the side walls can never return to the speaker? It is only the opposite wall that would bring back the sound, but that is so near that the echo, if any, would be the mere prolonging of a sound, as the note of an organ is distinguished from that of a piano; a softening and mellowing, which would be an assistance, if anything, to rough voices.

But the circle is pronounced to be still more vicious. It is said that at the London Colosseum, a building 130 feet in diameter, "a word is repeated a great many times; an exclamation is like a peal of laughter, while the tearing of a piece of paper is like the patter of hail"; and at the Dublin Rotunda a person said, "It appeared as if someone were in front soaking up my words with a sponge as soon as the syllables had left my mouth."

No doubt, anyone standing in the centre of a circular building, and trying his voice, would have every sound proceeding from his mouth brought back to him from every inch in the circumference, and from each of these points there would be an echo if sufficiently far off, and a wonderful increase of sound under all circumstances; for each line of sound would return in the same line, and this, coming equally from all points of the circle, would have a stunning effect. But why should a person studying acoustics stand in the centre, instead of near the circumference? Again, the "whispering galleries" of St. Paul's and of St. Peter's at Rome are considered as evidence of acoustic defect. These are in galleries, where you are obliged to stand close to the wall, and you place your mouth against the wall, and direct your voice in the line you wish it to take; and the sound is held together along the



wall, not being able to escape, and so becomes increased in power. It is merely a child's plaything on a large scale. But in a large circular room you are no more obliged to stand whispering, with your mouth against the wall, than you were in standing in the centre of the room and shouting.

Instead of being a bad form, the circle, or rather the half-circle, is the very best form that can be used, when the speaker is sufficiently removed from it—as in the Greek theatre, where, all lines of sound from the speaker's mouth being reflected into the body of the theatre, no sound was lost. When we consider the enormous size of some of these theatres—that of Lyttus being 350 feet in internal diameter, and capable of holding 40,000 spectators—we must be convinced of the wonderful acoustic capability of such buildings; evidenced also by the twelve brazen vases, *echeia*, in each of the three precincts, each of which took up a different note in music.

The principal cause of echo, then, is produced by a long room, where the further wall is so distant that the time occupied in the return wave is sufficient to produce a distinct repetition of the sound, which thus becomes an echo. It has been suggested that the side walls should be broken up by recesses, or projections, or drapery, in order to prevent the waves of sound from being reflected by the back wall. No doubt this would lessen the effect of echo; but then it would seriously affect the power of hearing, which would be still worse; for we all know how the power of the voice is increased when we speak in an empty room devoid of furniture. The more even the side walls are, the greater will be the power of hearing. The echo of the distant wall will be better destroyed by breaking it up with galleries, alcoves, or recesses. A long room, therefore, with deep recesses at the sides, is the most difficult to be heard in, as each of these recesses prevents the sound from going further. Few people, at the further end of the nave of a church, the side walls of which are broken up by deep windows, can hear the preacher, and this difficulty is still further increased when, in a large church, the pulpit is placed against a pier at the angle of the chancel and transept, instead of at angle of nave and transept, as in that case the walls of the transepts prevent many of the waves of sound from going further.

The power of hearing forwards, sideways, and backwards is in about the proportion of 3, 2, and 1; the best proportions of a room therefore for hearing would be 4 × 3, in which case the speaker's seat being in the middle of the largest side, his voice would reach three squares in front, and two on



each side; but as his seat would be against the wall, he would have the benefit of the back sound, which would be reflected forwards, and thus enable his voice to extend four squares forwards, instead of

three; and it would thus become a square room, which is pronounced to be the worst form possible! This would be appropriate for a lecture-room; but in a court of justice, or place of meeting, the back part of the room would form a *daïs*; and the judge or chairman would have his seat at A, and his voice then would extend three squares forwards, two sideways, and one backwards, thus producing the same result.



We must be careful that we do not confuse the so-called "acoustic vases" found in some domes with the acoustic vases, *echeia*, already mentioned. I cannot conceive how such vases, when covered over with mortar and plastered on the outside, could be sonorous. Certainly the vases in the vault of an oven, of which I made a sketch in 1847, at Pompeii, were not intended for acoustic purposes. I believe they were only used for strength, lightness, and avoidance of thrust.

There are other things which have to be considered. For instance, much has been said about *echo*, and my remarks are principally directed to that subject; but *echo*, being the *distinct repetition* of a sound, is only one of the impediments of hearing; and for this a remedy may be found in the *form* of a room. But, on attending a Court of Petty Sessions yesterday, a room of correct proportions according to Vitruvius, I was struck with the difficulty of hearing. There were only two magistrates attending, owing to the season; and there were only two cases, and about half a dozen witnesses and police. The consequence was—the room not being large enough for an echo, and the walls and floor being quite bare—there was a confused *noise* or buzzing. This evil, therefore, has to be guarded against, as well as echo; and I have no doubt that the two evils are often spoken of as one and the same thing. But they are quite distinct; and I recommended that the room should be lined with felt, or battened and plastered, and the floor covered with matting; but I was told the County Council would not allow the expense. When the Court is full of people, this evil is not so apparent. This shows that in comparatively small rooms, when the walls are like "sounding boards" all round, you require the room to be full of people; or the floor carpeted, and the walls lined with pictures, and the windows with drapery. All this you cannot have, except in private houses; but with rooms devoted to public business the evil of *noise*, as contrasted with echo, is greatly remedied, and, indeed, becomes nugatory, by their being filled with people. A man standing in the centre of a circular room, when empty, and trying his voice, is quite opposed to this.

I omitted to mention—in speaking of the lines of voice from an actor in the Greek theatre being reflected in a different direction from every inch of the circumference—that not only no sound was

lost, but this circumstance of the constant divergence of the lines of sound prevented the possibility of echo, which was what they had to guard against.

From WILLIAM WHITE [F.], F.S.A.—

In order to obtain successful acoustic results for music-halls and other public buildings, it has been commonly considered that certain numerical ratios should be employed for determining the dimensions. But we must not rest content merely with the employment of arithmetic or progressive multiples of a given unit. This will become pedantic and misleading unless care be taken to choose only such as shall fall also—approximately at any rate—within simple principles of geometry, and shall bear really an intimate connection with geometric forms based upon the equilateral triangle and angles of 30°, 60°, and 120°, as opposed to 45°, 90°, and 135° (there being no such angle as 180°).

The worst of all possible proportions, whether æsthetically or acoustically, is the perfect cube. We must strive to avoid it, and get as far as possible away from it and its relations, which we may do by basing our proportions upon the equilateral triangle. For lecture-rooms, or for chamber music, my "model of proportion" is a parallelogram (figs. 1 and 1A), taking for its breadth the

According to the size and purposes required, I should employ reduplications or subdivisions of my "model" for all the dimensions of the room, thus bringing all more or less into some sort of recurrent harmony. But for a music-hall, for orchestral music, or for the organ, I should give a greater dimension to the height instead of the breadth of the room.

In selecting a numerical ratio it might seem perhaps at first sight that there could be but very

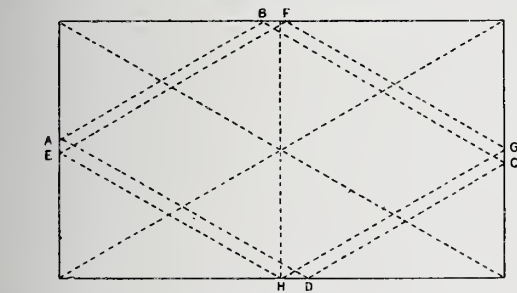


FIG. 1.

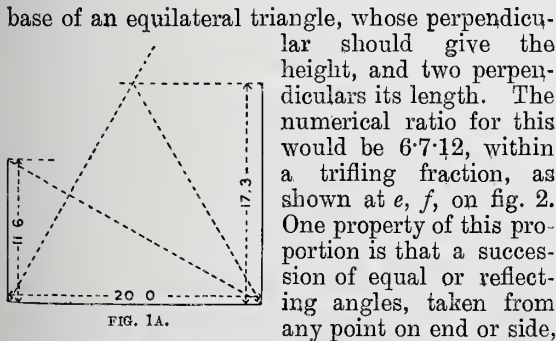


FIG. 1A.

would then, as it were, be such as might be repeated concurrently all round the room, as shown on fig. 1 at *a, b, c, d, a* and *h, e, f, g, h*. The same coincidences would not occur or apply in the same manner in rooms of other proportions, nor with other angles.

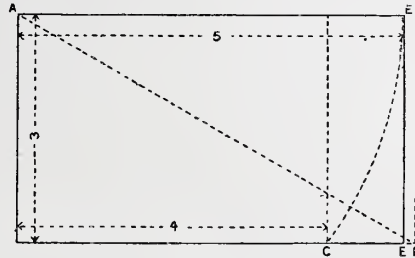


FIG. 2.

little to choose; for instance, between 3·4·5 and 4·5·6. But the 3·4·5 really is the proportion of a parallelogram whose sides and diagonal have a simple harmonic ratio to each other; thus, $3^2 + 4^2 = 5^2$. This is not so with 4·5·6, for $4^2 + 5^2 = 41$, instead of 36, or 6^2 . Moreover, in 3·4·5 (fig. 2) we have not only the harmonic ratio of *a, c = a, e*, but also, excepting the small fraction *e* to *f*, we have an intimate relation with the double equilateral triangle, shown on fig. 1, which is wholly absent from 4·5·6 (fig. 3), the harmonic lines *a, b, c* and *a, f* here falling considerably outside it.

Three of the instances given in Mr. Burrows's Paper as successful are as 2·3·5. Here the principal relation is the same (as in fig. 2) of 3 to 5, whilst the 2 is just half of the 4. But to harmonise accurately with the triangular proportions

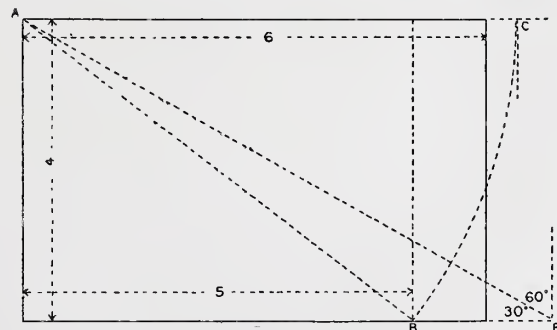


FIG. 3.

this ratio should be as $1\frac{3}{4} \cdot 3 \cdot 5\frac{1}{4}$, instead of the 2·3·5.

Then I would instance a class-room which is so distinctly bad for sound as to be a serious inconvenience. If the ceiling were 15 inches lower its ratio would be as of 3·5·7. It is 28 feet long by

20 feet wide (or 7 to 5), and 12 feet 9 inches high. The length is as nearly as possible that of the diagonal of the square of the width, but it is very far away from all relation to the triangular system as shown in the plan (fig. 4) and section (fig. 5).

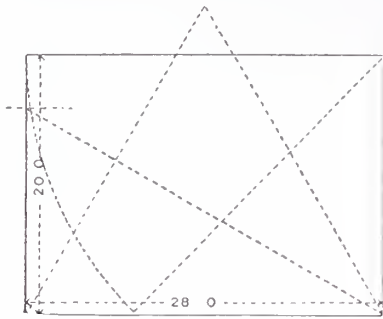


FIG. 4.—PLAN.

An echo may arise from various causes, but I believe it may be produced by the abrupt interception of the waves of sound against a plain wall or ceiling reflected back in a direct line upon the speaker, instead of their being transmitted, from nearer points of contact, through harmonic angles of reflection. And, whatever may be the treatment

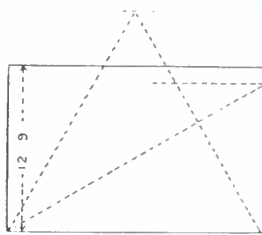


FIG. 5.—SECTION.

of form, material, or construction to moderate or to modulate resonance, some harmonic system of proportion ought in all cases to be observed, for what purpose soever the building may be required, whether for music or for reading and speaking. An echoing room for music might give an agreeable fulness to the sound, but at the sacrifice of that distinctness of note for which the musical ear craves, and which can be obtained only through making the proportions of the room in some sort sympathetic with the harmonic principles of music. These principles, so far as they have been crystallised in the chromatic scale agreed upon by musical experts, were fixed at last definitely by consensus of opinion after long deliberation and experiment. And the progressive ratio is very far from that of simple arithmetic. An octave of the number of vibrations in a second, forming the pitch of each note respectively, is here given, taking the medium pitch of 528 vibrations for "C" in the third space of treble, for the numerical increase on each respectively.

Number of Vibrations in a second.											
242		264	297	330	352	396	440	495	528		597
C		D	E	F	G	A	B	C			C
Rate of numerical increase in each.											
	17	33	33	22	44	44	55	33		(69)	

This, in the main, seems to agree with our equilateral progression of 3.4.5. And the number of vibrations in F and G (the upper note of the 5th in the scale), being 352 and 396, are in the exact ratio of the perpendicular to the base of an equilateral triangle.

Whether this view of the principles which exist in common between music and architectural proportions be accepted as correct or not, it is quite certain that there is a wonderful and very beautiful connection between form and musical sounds, as seen in the operation of the phonograph; as also in the elaborate forms of the geometric gyrations of strings vibrated in musical chords, which greatly encouraged me in my investigations.

From MAX CLARKE [A.]—

In my opinion any simple table giving the sizes of halls, and then taking these sizes and saying that the proportions are such and such, is so much waste material, as it is impossible to deal with the subject without giving the full particulars of each hall, such as the following:—

Length: where it is taken to at each end.

Breadth: whether the dimension is taken, say, from wall to wall on the ground floor, and if this wall is carried up vertically; also whether the side walls are parallel.

Height: whether the dimension is the same throughout the length given. Whether the ceiling is a flat surface or coffered. If arched, what is the section.

Further, the number of galleries; their projection from the walls; if close together, enough to form the major reflecting surface, and what shape on plan.

It would also be necessary to give the material with which the walls are covered, the construction of galleries and ceiling, whether all are resonant, such as wood lining; hard reflecting, such as plaster; or absorbent, such as hangings and the like.

There is ample scope for any *dilettante* architect who wants to do the profession a real service with regard to sound in relation to buildings, who would take the matter up and make a detailed description of each public hall of any note, giving their acoustic *reputation* both for speaking and music (for this is the only word which, to my mind, can be used), and following with details of size, shape, and construction so far as it would affect sound.

Below are a few particulars of halls which have not been specially mentioned:—

The large hall of the Public Halls, Glasgow, built by Mr. Campbell Douglas, of which two photographs were exhibited at the meeting. A very good hall, I believe, for sound. Length, 180 feet; width, 76 feet; height, 56 feet.* One balcony. The building has square terminations at each end. No cove or the like in cornice, flat coffered ceiling—in fact, a general squareness necessary to fall in with the somewhat severe style of architecture adopted.

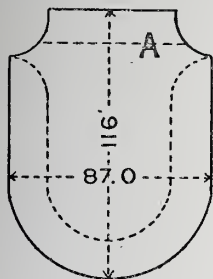
St. James's Hall, London:—Good for sound. Length, 139 feet; width, 59 feet; height, 59 feet

* *The British Architect*, 1880.

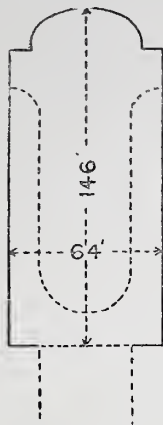
6 inches.* The proportion does not fall in with any of the ratios given in the Paper.

Leinster Hall, Dublin:—Very good for sound. Length, 146 feet; width, 64 feet; height, 52 feet. Orchestra end curved; one balcony; ceiling flat, with coved cornice; walls all plastered.

Queen's Hall, London:—Very good for sound. Length, 116 feet to back of orchestra; width, 87 feet; height, 57 feet. Two balconies.



QUEEN'S HALL.



LEINSTER HALL, DUBLIN.

In the Queen's Hall the organ takes up a great portion of the recess forming the orchestra (what Mr. Burrows terms a truncated trumpet-shaped orchestra), although the orchestra platforms are continued under the organ, which extends to the dotted line A on the small sketch-plan; consequently the major reflecting portion or general outline of the hall is bounded by the line A, so doing away with any advantage which might be gained by the particular form mentioned.

The walls are boarded, canvassed, lined with lining paper, and covered with a stamped paper. The ceiling is fibrous plaster, very slightly convex, with a sloping portion all round, also slightly convex.

I think I am correct in stating that the ceiling of the Alhambra Theatre, London, is fibrous plaster; the concrete which has been mentioned forms the outer roof.

The Pamphlet of Subjects for Prizes and Studentships, and Members in the Colonies.

From R. M. HAMILTON [A.], Christchurch, N.Z.—

I see that in the KALENDAR the Almanac of Proceedings runs from November 1894 to October 1895. We received it in New Zealand early in January 1895. Looking through the Prizes and Studentships on pp. 264-279, I see "The Essay "Medal" (open to British subjects under forty). The subject this year interested me: "The Influence of Literature on Architectural Development." I look at the Conditions, and find the Essay must be sent to the Institute before 24th December 1894. I admit that not often would it be

possible for members living in "Greater Britain" to be able to compete in the Studentships, but the subject of the Essay of 1894 is capable of being dealt with by those in the outlying portions of the Empire, though the "General Conditions" debar this. If the subjects could be notified earlier in the year to those interested, or the KALENDAR issued to those farthest away first, there might be a possibility for any British subject to compete in some of them. Englishmen do not recognise how rapidly, with the frequent communication to all parts of the globe, the outskirts of civilisation (British) are becoming suburbs of London. The colonies know more of England generally, and of what is going on there, than England knows of its colonies, for each colony is looking inward to the mother country, while she has to look outward all round.

From WILLIAM H. WHITE [F].—

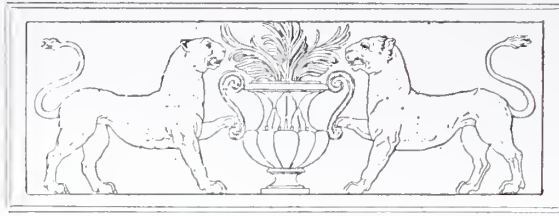
Mr. R. M. Hamilton, who qualified for the Associateship in 1884, and who expresses towards the mother country sentiments prevailing in the minds of all colonial gentlemen, is perfectly right in his contention generally. But he has made a natural mistake in supposing that the section of the KALENDAR 1894-95 devoted to "Prizes and Studentships" is the first announcement of those offered to competition in 1894. It is merely the reprint of a pamphlet published in March 1894, which pamphlet was obtainable at the office of the Institute by all members who chose to ask for it, either personally or in writing; and it was sold to outsiders for threepence, exclusive of postage. Obviously, members in New Zealand were quite unable to take advantage of this, even if they had known it; and though the particular List of Subjects for Prizes and Studentships to which Mr. Hamilton refers was given in the JOURNAL [Vol. I. p. 380] on 12th April 1894, he would not receive the quarterly part containing it until August. It seems, therefore, desirable to publish the Prizes and Studentships Pamphlet as soon after the month of January (when the Presentation of the former year's Prizes takes place) as possible—say the first week in February. If this were done, and the pamphlet issued to every member of the Institute as soon as published, the very just remonstrance made by Mr. Hamilton, and several others in distant parts of the Empire, would be met—and at relatively small cost to the Institute.

"Notes upon the Architecture of China" [p. 37].

From F. M. GRATTON [F.], Shanghai—

I venture to draw attention to an error which has occurred on page 50 of the current volume of the JOURNAL, in which fig. 6 of the illustrations in my "Notes upon the Architecture of China" is described as the "Fokien Guild at Ningpo." This should be "Fig. 6. Plan of the Bankers' Guild "at Shanghai."

* *Building News*, 2 July 1890.



MINUTES. XII.

At the Twelfth General Meeting (Ordinary) of the Session, held on Monday, 22nd April 1895, at 8 p.m., Mr. F. C. Penrose, F.R.S., *President*, in the Chair, with 28 Fellows (including 14 members of the Council), 18 Associates, 3 Hon. Associates, and 25 visitors, the Minutes of the Meeting held 25th March [p. 393] were taken as read and signed as correct.

The decease was announced of the following Associates—viz., John George Hall, Gordon Macdonald Hills, and Alfred Hayles Clark.

The President announced the results of the Final Examination held in London and Manchester from the 29th March to the 5th April, and read the names and addresses of 26 persons who had qualified for candidature as Associate [p. 417].

The President further announced the results of the Preliminary Examination held in London, Bristol, and Manchester on the 19th and 20th March 1895, and read the names of 114 persons who had been registered as Probationers [p. 418].

The following Associates, attending for the first time since their election, were formally admitted, and signed the Register—namely, Henry James Wise, George Patrick Sheridan, Charles Henry Smith, and Vivian Herbert King.

Papers on THE USE AND ABUSE OF MARBLE FOR DECORATIVE PURPOSES, by Professor Aitchison [F.], A.R.A., William Young [F.], and W. Brindley, F.G.S., having been read by the authors, a Vote of Thanks was passed to them by acclamation, and the Meeting separated at 10 p.m.

The Birmingham Association.

The following are the Officers and Council for the year 1895-96, elected at the Annual Meeting on the 22nd March:—President, Mr. Wm. Henman [F.]; Vice-President, Mr. W. H. Bidlake, M.A. [A.]; Council, Messrs. J. A. Cossins, W. Hale [F.], H. R. Lloyd [A.], F. Barry Peacock, E. C. Bewlay, A. Hale [A.], and J. A. Swan; Hon. Treasurer, Mr. A. Harrison; Hon. Librarian, Mr. C. Silk; Auditors, Messrs. A. T. Powell and E. Hale; Hon. Secretaries, Messrs. Herbert T. Buckland and Charles E. Bateman [A.].

The Nottingham Society.

The Annual Meeting was held on the 3rd April, when the Officers and Council for the year 1895-96 were elected as follows:—President, Mr. John Howitt [F.]; Vice-President, Mr. A. N. Bromley [F.]; Council, Messrs. A. R. Calvert, A. H. Goodall, W. D. Pratt, H. Walker [F.], and F. B. Lewis [A.]; Auditors, Messrs. A. W. Brewill [F.] and John Sander; Hon. Secretary and Treasurer, Mr. A. Ernest Heazell.

The Leeds and Yorkshire Society.

The Annual Meeting was held on the 8th April, when the Officers and Council for the year 1895-96 were elected as follows:—President, Mr. E. J. Dodgshun [F.]; Vice-Presidents, Messrs. W. Watson (Wakefield) and W. Carby Hall [A.]; Hon. Treasurer, Mr. W. H. Thorp [F.]; Hon. Librarian, Mr. W. H. Beever [A.]; Hon. Secretary, Mr. F. W. Bedford [A.]; Members of Council, Messrs. W. S. Braitwaite, H. B. Buckley, G. F. Danby, W. A.

Hobson, Jas. Ledingham [F.] (Bradford), and W. C. Williams [F.] (Halifax); Auditors, Messrs. H. S. Chorley, B.A., and L. S. Dodgshun.

The Sheffield Society.

The following is a list of the Officers and Council for the year 1895-96, elected on the 9th April:—President, Mr. Charles Hadfield [F.]; Vice-President, Mr. R. W. Fowler; Treasurer, Mr. F. Fowler; Hon. Secretary, Mr. C. J. Innocent [F.]; Council, Messrs. T. J. Flockton [F.], E. M. Gibbs [F.], T. Winder, J. Smith, W. H. Lancashire, H. W. Lockwood, and W. C. Fenton.

PROCEEDINGS OF ALLIED SOCIETIES.

THE NORTHERN ASSOCIATION.

Theoretical and Practical Notes on Beams, Columns, and Roof Trusses. By J. M. Moncrieff, Assoc. M. Inst. C. E.

Read before the Association at Newcastle, 13th March 1895.

I cannot pretend to lay before you an attractive or fascinating subject this evening, at least as viewed from the standpoint of the students of art. I hope, however, that the few notes which I am about to read may be useful, at any rate to the junior members of your Association. The subjects of the Paper are "Beams, Columns, and Roof Trusses," but my notes are not in any sense to be considered as dealing with these subjects in a general way, but only on certain particular lines. In consequence, the Paper is a fragmentary one and somewhat disconnected.

At the risk of giving superfluous information, I may say that in considering the effect of bending moments the apparent maximum tensile or compressive stress is generally designated by the letter *f*, and I shall follow the usual custom in my remarks, with the exception that in dealing with the transverse strength of *timber* it will perhaps be more convenient to make use of the coefficient of ultimate transverse strength, which is frequently symbolised by the letter *κ*; as, for instance, in the common formula for a beam loaded at the centre, and supported at both ends, where the

$$\text{breaking weight} = \frac{4\kappa b d^2}{l},$$

the length and scantlings all being measured in inches.

I propose to direct your attention, in the first place, to beams of *brickwork*. Brick in cement can be made into beams of somewhat surprising strength, and to illustrate this I may quote some old experiments described by General Pasley many years ago.* These experiments were, among many others, made in 1830 in connection with some military buildings at Chatham, and the cement used was made under General Pasley's instructions. The experiments were made as follows:—

A brick having its length horizontal was attached by neat cement mortar to the vertical face of a brick wall (fig. 1), the cement being well compressed in applying the brick. To this brick was added another in the same manner until eight bricks were in place. The cement set so quickly that not more than six or seven minutes intervened between the fixing of one brick and the following one. These eight bricks stood for twenty-four hours, and then four more were added, making a solid cantilever weighing 73½ lbs., and projecting 2 feet 11½ inches from the wall, nearly 9 inches in width and 4½ inches in depth. On adding a thirteenth brick the mass broke down. Other experiments made at the same time gave similar results.

Similar experiments, also described by Pasley (but not made by him), were made with the lengths of the brick vertical, and gave the following results:—Twenty-two

* Pasley on Cements.

bricks were stuck out, one after another, with neat cement, the intervals between the setting of the bricks being only five or six minutes, and on adding the twenty-third brick the mass fell. As many as *thirty bricks* were stuck out in the same way *in one day*.

Similar cement to that used in the first-mentioned experiment was tested for adhesion by cementing *five* bricks together, and then pulling them asunder, when from 955 lbs. to 1,875 lbs. were required to separate the brickwork at the joints. The bricks would have a superficial area of, say, 40 square inches on their cemented faces, so that the adhesive strength was from about 24 lbs. to 47 lbs. per square inch. The maximum calculated tensile or adhesive stress, *f*, in the brick-in-cement cantilever

Tests of the same cement for adhesion under *direct* pull gave the following results :—

At 40 days old, 66 lbs. per square inch failed to separate the joints.

At 65 days old, 80 lbs. per square inch also failed to separate the joints.

But this gives no proper idea of the real adhesion, as a weaker cement at seventy-four days bore 4,455 lbs., or nearly two tons on the surface of a brick without failure. This gives not less than 110 lbs. per square inch adhesive strength of the weaker cement at seventy-four days old. The sketches of the brick cantilevers are to scale, so as to give a better idea of the experiments. The apparatus

PASLEY'S EXPERIMENTS ON BRICK CANTILEVERS.

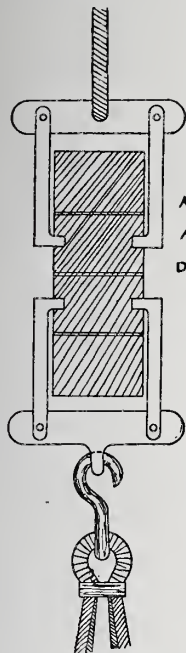


FIG. 3.

AT 74 DAYS
A WT OF 2 TONS
DID NOT SEPARATE
BRICKS.

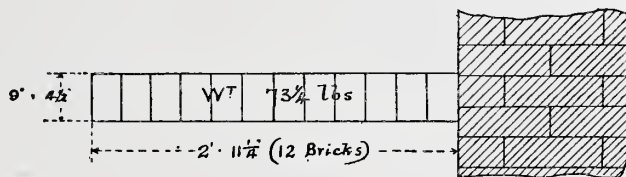


FIG. 1.

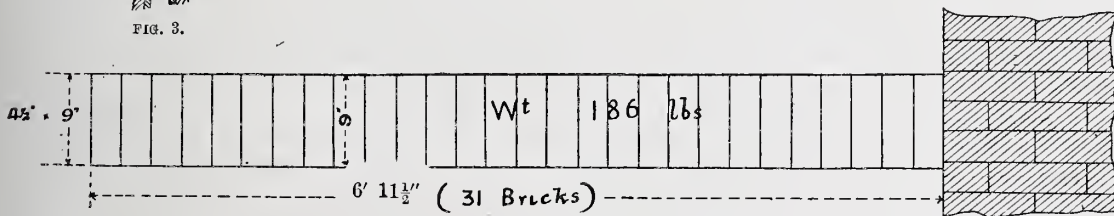
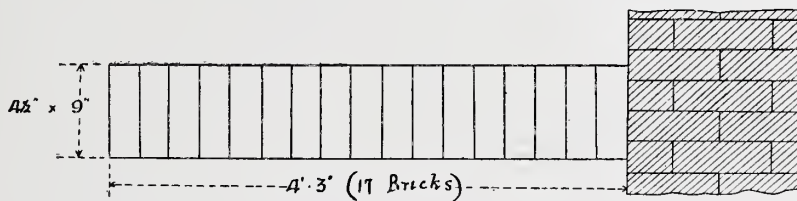


FIG. 2.

tested by Pasley amounted to about 42 lbs. per square inch, which agrees well with the higher result of the test for direct adhesion; but unfortunately the age of the mortar in the tests for direct adhesion is not given by Pasley.

General Pasley subsequently, in 1836, improved his cement and repeated his experiments, with the result that he succeeded in adding one brick after another at the rate of one every day (except Sundays) until thirty-one bricks stood out horizontally from the wall, with a length of 6 feet 11 1/2 inches, and weighing 186 lbs. (fig. 2). The bricks in this case had their length vertical. Assuming these bricks to be similar to those used in Pasley's earlier tests, say 9 in. x 4 1/2 in., the calculated maximum tensile or adhesive stress, *f*, would be about 128 lbs. per square inch, the mortar at the inner end of the cantilever being thirty-five days old when failure occurred.

and mode of testing the adhesive strength direct is also shown by a sketch (fig. 3).

It should be noted that the cement made and used by Pasley was composed of the same materials—chalk and clay—as Portland cement, but in different proportions, and it was probably much quicker setting than the Portland cement now in common use.

The late Mr. John Grant stated that he had found that the adhesive strength of mortar of 1 part Portland cement to 2 of sand amounted to from 15 lbs. to 30 lbs. per square inch at twenty-eight days old, variations in the nature of the bricks having great influence on the adhesion. I have made these references to the *direct* adhesive strength because it is a direct measure of the transverse strength of the brick cantilevers as tested.

Turning now to *brickwork in lime mortar*. Experi-

ments on brickwork beams of large size were made at Narora, in India, by Lieut. E. W. Cresswell, R.E., some years ago, and described in the Roorkee Engineering Papers. The experimental beams were fifty in number, built in English bond in mortar made of two parts of Kankar lime to one part of sand. The dimensions of the beams and mode of loading are shown on the sketch, which is to scale (fig. 4). The beams were 15 feet long by 2 feet 6 inches square, with clear spans of 10 feet. The bricks were all carefully selected, so that the dimensions of all the beams were identical. Ten beams were tested with each of five different thicknesses of mortar joints, $\frac{1}{16}$ inch, $\frac{1}{8}$ inch, $\frac{1}{4}$ inch, $\frac{1}{2}$ inch, and $\frac{3}{4}$ inch respectively. The Kankar lime was partly made from nodules found in the soil and partly from quarried block Kankar limestone. The average tensile strength of briquettes of mortar composed of 1 of Kankar lime to $1\frac{1}{2}$ of sand, as tested by Major Twemlow, R.E., at the Krishna Bridge, was 50 lbs. per square inch at one month old, increasing to 65 lbs. at two months old, and

determine the best thickness of mortar joints, and this alone is sufficient to make the experiments of great value. The beams must have been very well made (in all probability by native bricklayers), as the tests showed remarkable uniformity in strength for each set of a given thickness of joint.

The average load of rails placed upon each set of ten beams was as follows:—

For joint $\frac{1}{16}$ in. $\frac{1}{8}$ in. $\frac{1}{4}$ in. $\frac{1}{2}$ in. $\frac{3}{4}$ in.
6.92 tons 7.79 tons 8.12 tons 5.22 tons 4.92 tons

These loads are rails alone, and the weight of the clear span (10 feet) of the beam itself amounted to 3.42 tons. The beams with joints $\frac{1}{4}$ inch thick gave the greatest average strength, and also the greatest uniformity in strength. In every case the line of rupture of the beam occurred between the stone bearers, and was generally as shown on the drawing.

Calculating the maximum tensile or compressive stress

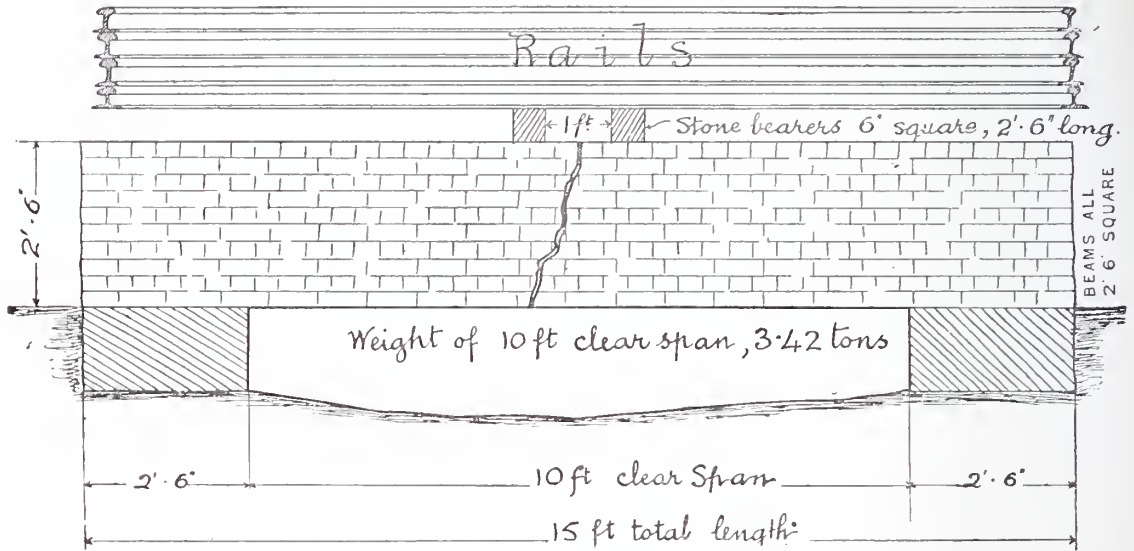


FIG. 4.—TESTS OF BRICKWORK BEAMS WITH VARIOUS THICKNESSES OF JOINTS.

Brickwork in English bond. Mortar :—Kankar lime, 2 parts ; sand, 1 part. Beams, 9 to 11 months old when tested.

Thicknesses of Joints	Average loads of rails which broke beams.					} not including the weight of beam itself.
	$\frac{1}{16}$ in.	$\frac{1}{8}$ in.	$\frac{1}{4}$ in.	$\frac{1}{2}$ in.	$\frac{3}{4}$ in.	
	6.92 tons	7.79 tons	8.12 tons	5.22 tons	4.92 tons	
	Values of "f," or modulus of rupture, including effect of beam's weight.					
All based on clear span being assumed as the effective span	Maximum	133 lbs.	152 lbs.	143 lbs.	115 lbs.	100 lbs. per square inch.
	Minimum	96	101	112	72	72 " " " "
	Average	114	124	129	92	88 " " " "

continuing to increase up to one year old. This gives us an idea of the character of the Kankar lime mortar so far as tenacity is concerned, and from such data as I have been able to find it appears to have been somewhat similar in tensile strength to our hydraulic lime mortar.

In making the beams tested at Narora, a bedding of brickwork laid, I believe, in mud or dry sand was laid over the clear span, and this bedding and the bearings at the ends formed a level plane upon which the beams were built. This bedding was removed before loading the beams, which were made in August 1877, and tested in May and June 1878, so that they were from nine to eleven months old. The load imposed on the beams consisted of rails resting upon two stone bearers 6 inches square and 1 foot clear apart, equidistant from the centre of the span. The rails were piled up successively until the beams broke. One of the primary objects in testing these beams was to

at the bottom and top of the beams we find that, taking the clear span as being the effective span, and including the effect of the beams' own weight, the stresses for the different thicknesses of joints were as follows:—

	$\frac{1}{16}$ in.	$\frac{1}{8}$ in.	$\frac{1}{4}$ in.	$\frac{1}{2}$ in.	$\frac{3}{4}$ in.
f max.	= 133	152	143	115	100 lbs. per square inch
f min.	= 96	101	112	72	72 " " " "
f, avcr. of ten tests	= 114	124	129	92	88 " " " "

As it is difficult to follow a statement of results without seeing them in figures, I have tabulated the results under the sketch of the beam (fig. 4). The uniformity is very surprising when we reflect that the material was nothing but bricks and mortar. In these Indian experiments there can be no doubt but that the bond had a great influence in producing the high results obtained, and in this case the

adhesive strength measured by direct pull would not give us a direct measure of the transverse strength since the bonding interlocks the courses together, whilst in Pasley's tests with brick in cement the bricks were simply stuck to each other and to the wall.

My object in thus directing your attention to the transverse strength of brick beams is not with any idea of inducing anyone to substitute bricks and mortar for steel or iron or timber girders, but only with a view to point out that brickwork has a definite amount of transverse strength upon which we can, with the exercise of proper discretion, to some extent rely. To show the practical value of considering this subject, it is only necessary to ask the questions: (1) Upon what principles should we determine the thickness and proportions of brick footings to walls and columns? (2) What load is imposed by a mass of brickwork on a girder spanning an opening in a wall? (3) Is it safe to cut a large hole in a wall without going to considerable expense in inserting needles and heavy underpinning supports before making the hole?

A little consideration shows that the common footing to a wall or column is greatly dependent on transverse strength in its duty of spreading the superincumbent load

a footing varies as the square root of the pressure per unit of foundation area, and it also varies inversely as the square root of the allowable stress per square inch, in tension, on the material.

Taking a practical illustration of this, let us assume that the ground is of such a nature that one ton per square foot is a proper load to allow, and let our footing project 1 foot and have a thickness of 1 foot 6 inches; then if we have in another part of the work a much harder ground, which can carry four tons per square foot, if the footings still require to have a projection of 1 foot, the increase in the load per square foot requires us to make the footing twice the former thickness, or 3 feet thick in place of 1 foot 6 inches. Briefly, with any given projection of footing, we must make the thickness to carry four tons per square foot twice the thickness for one ton per square foot.

In applying the principles of the strength of beams to footings, the unknown factor is the safe allowable tension on the brickwork, and the experiments on large brick beams previously described give us some idea of what we may expect from materials similar to those from which the beams were made.

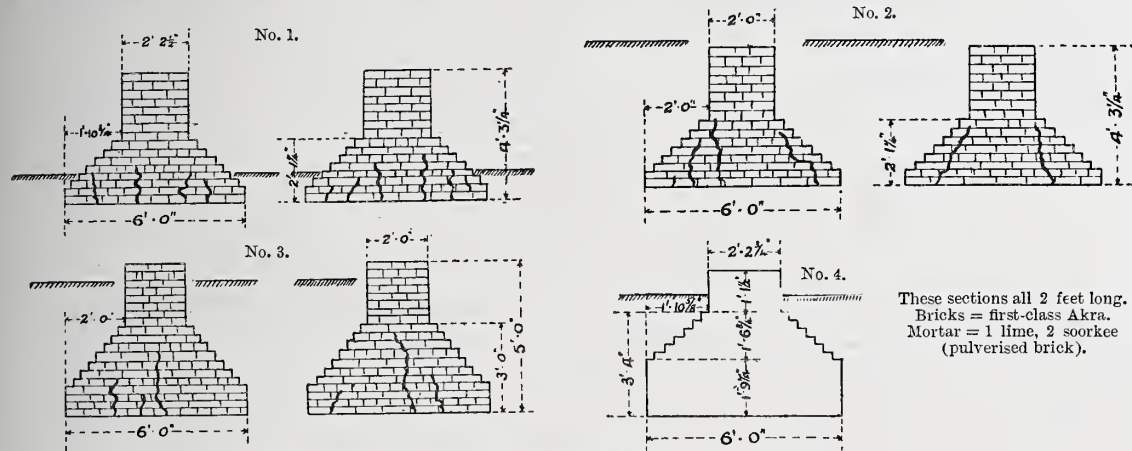


FIG. 5.—MR. HUGH LEONARD'S EXPERIMENTS ON FULL-SIZE FOOTINGS.

- No. 1, 19 days old, cracked at 1.018 ton per square foot. $f = 38$ lbs. per square inch.
- No. 2, 3 months 2 days old, cracked at $1\frac{1}{2}$ ton per square foot. $f = 63\frac{1}{2}$ lbs. per square inch.
- No. 3, 15 days old, cracked at $1\frac{1}{2}$ ton per square foot. $f = 36$ lbs. per square inch.
- No. 4, 3 months old, did not crack at 2 tons per square foot. $f = 29\frac{1}{2}$ lbs. per square inch without causing failure.

NOTE.—The two sketches under Nos. 1, 2, and 3 show opposite sides of the same footing in each case.

over the foundation earth, the more or less concentrated load being opposed by a distributed resistance under the whole width of the footing.

Using the ordinary theory for the strength of beams, and noting that the projecting parts of the footings are simply cantilevers with the distributed load acting upwards, we have $\frac{wl^2}{2} = \frac{fbd^2}{6}$, f here being the maximum

safe stress per square inch, tension or compression, whichever gives the smaller value, the tensile stress here being the governing factor.

Since f is in lbs. per square inch, the other factors in the equation should be also in inches, and w should be taken in lbs. per square inch.

From this equation, by transposition, we obtain the result that

$$\frac{bd^2}{l^2} = \frac{3w}{f}$$

and when $b = \text{unity}$,

$$\frac{d}{l} = \sqrt{\frac{3w}{f}}$$

That is to say, the ratio of the depth to the projection of

The values of f , the ultimate tensile strength, obtained from these experiments only require to be divided by a suitable factor of safety to give us the working stress, f , in the formula just given for the ratio of thickness to projection of footing.

These values of safe stress would of course only apply to brickwork of the same class and of the same age as the experimental beams, and perhaps the best mode of obtaining the proper value for f would be to make direct experiments on full-size footings, and some very valuable tests* were made in 1873 by Mr. Hugh Leonard [H.A.], in Bengal, which I will describe. The footings as constructed are shown on the drawing (fig. 5), together with the load per square foot at which they failed, or, rather, at which cracks were developed. The age of the brickwork at the time of the tests, the position of the cracks, and the values of f , the ultimate calculated stress, are also shown. The bricks were described as first-class Akra bricks, and the mortar was composed of one part of lime to two of soorkee. Soorkee is pulverised brick.

* Engineering, vol. xx. p. 103.

The ratio of the depth to the projection in the first experiment was 1.11, so that as the footing failed when the load on the ground was 1.018 ton per square foot, or nearly 16 lbs. per square inch, the calculated maximum tension, f , would be nearly 38 lbs. per square inch, the masonry being nineteen days old. In the second footing the brickwork cracked when the load was $1\frac{1}{2}$ ton per square foot on the ground, or $23\frac{1}{2}$ lbs. per square inch, and the ratio of depth to projection being 1.05, f works out to $63\frac{1}{2}$ lbs. per square inch, the masonry being three months two days old. Comparing these results we see the increase in strength due to the greater age of the second footing. In the third experiment the ratio of depth to projection was 1.5, and cracks were developed when the load on the ground was $1\frac{3}{4}$ ton per square foot, or nearly $27\frac{1}{4}$ lbs. per square inch, and f works out to about 36 lbs. per square inch maximum calculated tension, the masonry being fifteen days old. Comparing this with the first test, the increase in the strength of the footing due to increased depth is evident. The deeper footing, although having four days less age, carried nearly 72 per cent. more load per square foot, with very nearly the same maximum tensile stress per square inch. In the fourth experiment the ratio of depth to projection was 1.78 nearly, and a load on the ground of 2 tons per

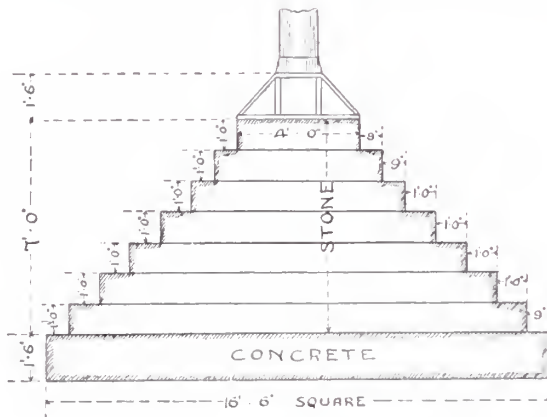


FIG. 6.—TYPE OF COLUMN FOUNDATIONS IN ORDINARY USE IN CHICAGO.

square foot or a little over 31 lbs. per square inch failed to crack the brickwork. This load would produce a maximum calculated tension of $29\frac{1}{2}$ lbs. per square inch nearly, the brickwork being three months old.

These experimental footings all rested upon soft alluvial soil, at the depths shown on the drawings; and from the results of the tests of the brickwork at fifteen days old and nineteen days old, which gave ultimate calculated tensile stresses of 36 lbs. and 38 lbs. per square inch respectively, I think we may safely use 18 lbs. as the *safe* stress per square inch, or working value of f , in ordinary brickwork footings, as the strength of the mortar keeps on increasing with an equivalent increase in the margin of safety, as evidenced by the much higher value of $63\frac{1}{2}$ lbs. per square inch maximum ultimate stress in the second experiment, and the calculated stress of $29\frac{1}{2}$ lbs. per square inch without failure in the fourth test, where the brickwork was in each case about three months old. There was no concrete bedding under these footings, as the object was to test the brickwork only. It will be noticed that, when the extreme toes of the footings were thin, cracks occurred immediately at the toes, pointing to the necessity for keeping them somewhat thicker than was the case in these particular experiments, in order to ensure that the extreme bricks are properly bonded into the body of the footing.

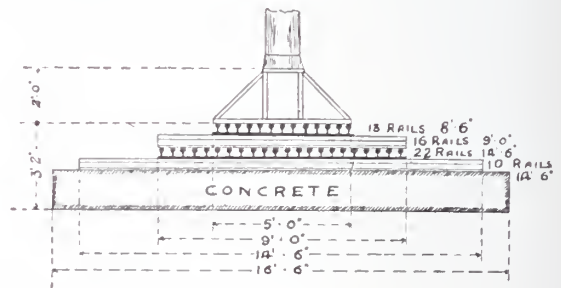
Attention may also be directed to the mode of failure generally, the main cracks occurring in the centre of the

base or thereabouts. A failure of this nature under ordinary circumstances might easily escape notice, and lead to the false conclusion that the movement of the wall was caused by insufficient width of footing causing too great a load per square foot on the ground.

The estimation of the strength of footings in the manner indicated errs somewhat on the safe side, as the surrounding earth, if well rammed down at the sides, will tend to prevent any spreading by providing an abutting surface for the vertical face of the toe; but the calculation can necessarily take no notice of this, as its value is quite indeterminate. Again, the bond of the brickwork brings into play, in the case of a footing, a very considerable amount of friction between the surfaces of the bricks, and it is quite conceivable that even if no mortar were used at all in the lower courses, the calculation of transverse strength would assign a very appreciable value to f , the apparent tensile stress, and it was for these reasons that I suggested the advisability of referring to direct tests of footings themselves rather than to tests of simple beams uninfluenced by such conditions.

The friction between the bricks has the effect of assigning a higher value to the tensile strength of brickwork than would be obtained from simple beams of the same materials, and the value of f , as deduced from the tests of footings, is really a compound of tensile strength and frictional resistance.

Before leaving this subject of footings, brief reference may be made to a type of column foundations in common use in Chicago, that city of lofty buildings, sixteen, eighteen,



and even twenty storeys being not uncommon. The soil on which Chicago is built is of a very yielding and treacherous nature, which has led the architects and engineers of that city to devote great attention to the subject of foundations. The construction of these foundations for columns is shown on the drawing (fig. 6), and hardly needs description.

The foundation consists of a bed of concrete upon which are laid several courses of steel rails, laid alternately across each other and surmounted by the column base. The advantages of this type of foundation, as compared with a foundation of solid masonry, are: (1) A very considerable reduction in the weight of the foundation itself; (2) much less depth of excavation, or, if the depth be the same, much less space occupied in the cellarage. In a particular instance the difference in weight might easily be such as to allow of an extra storey being added to the building without increasing the weight on the ground. For comparison, a masonry base is also shown on the drawing.

Turning now to the question as to what load is imposed by a wall on a girder spanning an opening in the wall, from the experiments which I have described it will be at once seen that the brickwork itself may act as a beam, and, since the weight of the wall increases only in proportion to the weight above the girder, whilst the transverse strength of the brickwork increases as the square of the height, there is then a certain depth of wall which will be entirely self-

supporting, a very short time after the brickwork is laid, and the transverse strength of the brickwork might easily be such as to require little or no assistance from a girder.

Referring to the tests of the large brickwork beams in India, it will be remembered that they were not only self-supporting, but required the addition of very heavy central loads to break them without any assistance from a girder, or other support, after they were a few months old. It can be shown (by very simple calculations, involving only

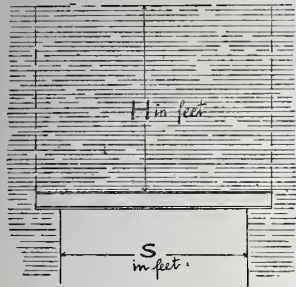


FIG. 7.

H = height of wall in feet.
 s = clear span in feet.
 f = modulus of rupture in lbs. per square inch.

the weight of the brickwork and its transverse strength) that, assuming brickwork to weigh 120 lbs. per cubic foot, the height of the wall, which will be just self-supporting, is

$$H = \frac{5s^2}{8f}$$

H being the height of the wall in feet above the opening, s being the clear span or opening, also in feet, and f being the tensile strength per square inch (fig. 7).

It is quite immaterial how much higher we raise the wall after we reach this self-supporting height ;

any greater height only makes the brick beam stronger and stiffer, and reduces the load on the beam or lintel underneath. Assuming the clear span or opening to be 12 feet, and the tensile strength of the brickwork to be only 5 lbs. per square inch, then a height of 18 feet of brickwork would be self-supporting over the 12 feet opening.

If the opening occurred in a considerable length of wall, the brick beam would be somewhat stronger from the partial fixity of its ends, which has not been taken into account in the formula already given. Girders of timber, iron, or steel are, of course, none the less essential under the brickwork, since a very slight settlement of foundations might cause cracks in the brickwork beam ; but my object is to point out that the supposition of a distributed load of brickwork devoid of cohesion or transverse strength is, to say the least, a very safe one.

Looking at this subject in this light, it would appear to be a wise practice to build the first few feet of brickwork on girders spanning openings, in cement mortar, to ensure having considerable tensile strength in the lower part or tension side of the brickwork beam. The actual load carried by a girder spanning an opening under a wall is also dependent upon the speed with which the brickwork is carried up, and upon the relative stiffness of the masonry beam and the timber or steel or iron girder.

Timber Beams and Framed Floors.—The next subject to which I shall direct your attention is the actual strength of timber beams and framed floors.

The estimated strength of wooden beams is frequently based on the results of numerous experiments made on specimens of small size, and of carefully selected and seasoned timber, with the result that a very erroneous estimate is formed of the strength of timber of the usual working dimensions. As a matter of fact, large-size timber has only from one-half to three-fourths of the strength of small timber, as measured by their coefficients of transverse strength given in the great majority of text-books, by various authorities, on the strength of materials.

The same discrepancy exists between large and small specimens tested for direct compression, column strength, and resistance to shearing. It should also be mentioned that the comparative strength of small specimens of

different timbers is not the same as the comparative strength of large specimens.

A few comparisons of transverse strength may be given to illustrate this. Taking Baltic fir timbers, Riga Memel and Dantzic, fifteen tests, extracted from various records, on small-size test pieces from 1 in. x 1 in. to 3 in. x 3 in., gave an average coefficient of transverse strength, $\kappa = 1,587$ lbs., the maximum being 2,013 lbs. and the minimum 1,148 lbs. Eleven tests of large-size timbers of Baltic fir, principally Memel, ranging from 9 in. x 3 in. to $13\frac{1}{2}$ in. x $13\frac{1}{2}$ in., gave an average value of $\kappa = 761$ lbs., the maximum being 1,000 lbs. and the minimum 533 lbs. The large timbers thus had somewhat less than half the strength of the small specimens.

With red pine similar results are found. Nine tests of small-size pieces not larger than 3 in. x 3 in., mostly American red pine, gave an average coefficient $\kappa = 1,423$ lbs., with 1,680 lbs. maximum and 1,169 lbs. minimum. Five tests of large-size red pine from 6 in. x 6 in. to 12 in. x 12 in. gave 793 lbs. average value of κ , with 873 lbs. maximum and 714 lbs. minimum. The large-size red pine had on an average only 55 per cent. of the strength of the small test pieces.

Pitch pine is credited with an average coefficient $\kappa =$ about 1,700 lbs., but nine experiments on large beams from 12 in. x 6 in. to 14 in. x 15 in. gave an average of 1,245 lbs., the maximum being 1,400 lbs. and the minimum 972 lbs., as the value of the coefficient κ . These large pitch pine beams had only 73 per cent. of the strength of the small specimens, on an average. The same difference occurs with other timbers, and the use of these coefficients based on small specimens should be entirely discontinued.

Table showing Comparative Strength of Timber, in Small and Large Scantlings, when tested for transverse strength.

	Small	Large	Per cent.	Ratio	Large Small
Baltic fir .	1,587 lbs. average	761 lbs.	48	per cent.	
Red pine .	1,423 " "	793 " "	55	" "	
Pitch pine	1,700 " "	1,245 " "	73	" "	

Note.—These values represent " κ " in the formula

$$w = \frac{4\kappa bd^2}{l} \text{ for central load.}$$

Professor Lanza, of the Massachusetts Institute of Technology, has made a large number of tests of large-size timbers of American growth, such as yellow pine, spruce fir, white fir, white oak, and hemlock, which also add their testimony to the inaccuracy caused by relying on tests of small-size pieces. One of the most striking results of Professor Lanza's experiments is that he found that almost as often as not a timber beam will fail by longitudinal shearing, in preference to tearing or crushing, in the manner usually associated with failure under transverse bending. This really means that the shearing strength parallel to the fibres must be carefully kept in mind, and for any particular beam of a given cross-section there is a certain span at which the ultimate load becomes a maximum, and no shortening of the span will enable us to impose any greater load, as the beam at the span of maximum strength becomes dependent on the shearing strength, and not on the tenacity or compressive strength of its fibres (fig. 8).



FIG. 8.
 Failure by longitudinal shear in timber beam.

In the construction of wooden framed floors, the common practice of notching, mortising, and tenoning has a most important influence upon the strength of the work, and to determine this, Professor Lanza made a number of experi-

ments upon portions of full-size framed floors.* These portions of framed floors were of the type shown in the drawing (fig. 9). The wood used was (in one set of tests) American yellow pine, and the joists were framed into the headers by tusk and tenon joints, and the headers were in some instances framed into the blocks at the corners by double tenons and joint bolts, and in other instances the ends of

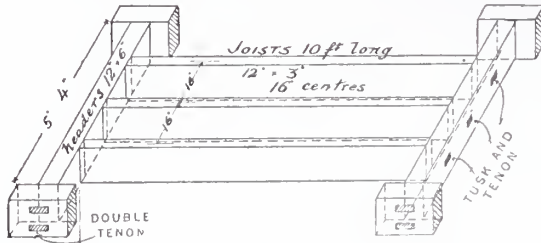


FIG. 9.

Joists covered with 1 inch yellow pine flooring. Test loads applied at centre of joists, and divided equally among the three by iron bridging.

the headers were hung from the corner-blocks by stirrup-irons.

I have calculated the apparent coefficients of transverse strength of the headers thus weakened by the tusk and tenon mortises, and find that they varied from 151 lbs. to 187 lbs., the average of five tests being nearly 156 lbs. for the value of the coefficient κ ; whereas a 12 in. \times 6 in. yellow pine beam of the same span, but uninjured by mortises, had an apparent coefficient of transverse strength of nearly 890 lbs., and this was considerably below the average of a large number of other tests of yellow pine beams. Comparing the mortised headers with this 12 in. \times 6 in. beam of much less than average strength, we see that the effect of the mortises was to reduce the strength to only 17 per cent. to 20 per cent. of what we might have relied on in the uninjured beams. The average strength of the headers was only $17\frac{1}{2}$ per cent. of the uncut beam, or the uninjured beam was nearly $5\frac{2}{3}$ times as strong as the mortised headers. Nine similar tests of spruce headers, 12 in. \times 4 in. and 12 in. \times 3 $\frac{3}{4}$ in., under similar conditions, showed that the strength was only from 20 per cent. to 25 per cent. of the strength of uninjured beams. In some of these tests the joists also showed signs of weakness by splitting under the tusk close up to the headers.

I have called the calculated coefficient of transverse strength in these tests an "apparent" coefficient, because in most of these headers failure was caused by longitudinal shearing at the middle of the depth, just where the mortises were cut into the beams, and the strength was dependent on shearing, and not upon the tenacity or compressive strength of the fibres. It should especially be noticed that the comparison instituted between the mortised headers and the uncut beam is a comparison between beams of usual practical dimensions, and the uncut beam was below the average strength, as measured by the coefficient of transverse strength.

The results of these tests are sufficiently striking, and merit the attention of everyone engaged in the design or construction of timber work.

Steel and Iron Joists.—The use of steel and iron rolled and built girders and joists is now so universal that no excuse is needed for a consideration of some theoretical and practical points in connection with them. The rolled joists of mild steel now in the market are very greatly superior to what can be obtained in iron; and comparing the two materials, steel and iron, strength for cost, steel comes out far ahead of iron, to say nothing of its greater ductility and reliability, especially when in the form of

joists, a section for which steel is more suitable than iron, owing to difficulties in rolling the latter.

As far as corrosion is concerned no doubt iron has some advantage in being less vulnerable; but seeing that steel joists can be bought for the same price as iron, and have about one-third greater strength, there can be but little reason for adopting the older material. It should also be borne in mind that a steel joist has a very much greater ultimate deflection than an iron one of similar section, so that where a steel joist would bend down, and probably give some warning of its weakness, an iron joist would probably snap short (that is, as compared with the steel joist).

The cheaper kinds of foreign rolled joists should be studiously avoided; at the same time, if similar prices be paid, there is no doubt that thoroughly reliable joists can be got from abroad. It is very desirable that no holes be made in the tension flanges of rolled joists. The existence of a single hole in the tension flange, near the centre of span, would immediately reduce the ultimate deflection, and failure would be almost certain to take place at the hole.

In looking over makers' and merchants' tables of safe loads, it is usually found that the most important items of information are omitted, *i.e.*, the factor of safety and the ultimate tensile or compressive strength of the material. If these tables of safe loads were to come into general use, there would be great inducement for makers and merchants to base their estimates of safe loads upon dangerously low factors of safety, with the object of making their joists appear so much stronger than those of their competitors. No true idea of the safe load on any joist or girder can be obtained without careful consideration of the circumstances of each case as it arises, together with a comparison of the maximum fibre stress with the ultimate strength of the material used. The makers' tables of safe loads are, as a rule, based on the tensile strength of the material only, ignoring altogether the fact that the compressive strength both of steel and iron is much less than its tensile strength. In addition to this, it is absolutely necessary to consider the column strength of the compression flange when it is not held rigidly in line at short intervals and prevented from yielding laterally.

The stress allowed should be made subject to the ratio of the width of flange to its unsupported length, and in some measure, also, in proportion to the depth of the girder, where the depth is great in proportion to the flange width.

To show how important it is that these tables of safe loads should be used with the utmost caution, two experiments made at Glengarnock Works in 1893 may be described.

Two tests of mild basic steel joists were made, each joist having a clear span of 15 feet, with a distributed load. The first joist was 12 in. \times 6 in. \times 54 lbs., and failure was caused by a load of 50 tons. On referring to the tables of one of the largest makers of steel joists, we find the safe load on a similar joist stated as slightly over 30 tons.

The second joist was 10 in. \times 6 in. \times 42 lbs., and failure was reached at 34 $\frac{1}{2}$ tons. Again, referring to the same table of safe loads, and making allowances for a slight difference in weight between the joist tested and that in the tables, the safe load should be nearly 18 $\frac{1}{2}$ tons, according to the particular maker's table referred to.

If the tabular safe loads mentioned were actually to be imposed in practice, we should have a factor of safety of about $1\frac{2}{3}$ in the first instance, and about $1\frac{1}{2}$ in the second. The calculated stress, in each case, in the flanges at the time of failure was 21 tons per square inch tension or compression, and failure was in each case caused by the top flange bending out sideways (exactly as a column would do) under compressive stress. The tensile strength of the steel used in the joists was stated to be 27.7 tons per square inch in the 10-inch joist, and 29.6 tons per square inch in the 12-inch joist.

We also frequently find, in these makers' and merchants'

* See Professor Lanza's *Applied Mechanics*.

tables, statements as to the strength of fixed ended beams. The strength of fixed ended and continuous beams is also constantly referred to in text-books on structural design, and formulæ professing to give their strength are often given very fully without any mention being made of the conditions to be met if we are to obtain the additional strength due to continuity or fixity of ends. In ordinary practical work such a thing as a perfectly fixed ended beam or a perfectly continuous girder rarely exists, and the conditions essential to them are so difficult of attainment that continuity and fixity of ends should be entirely left out of account in estimating the strength of the beams, although there are frequently other practical advantages in making beams or joists continuous.

One of the first conditions necessary to obtaining any advantage in strength from continuity is the absolute rigidity and invariability of level of the supports. Let us assume a typical case—say three spans of continuous mild steel girder of uniform section from end to end, each span being 100 inches, and the depth of girder being 10 inches. Let the maximum safe stress per square inch be fixed at 20,000 lbs. (the girder being assumed to be properly supported to prevent lateral failure). Assume the supports to be dead level and the girder to be originally perfectly straight, then the diagram (fig. 10) shows the stresses in the different portions of the girder, by the areas hatched with vertical lines.

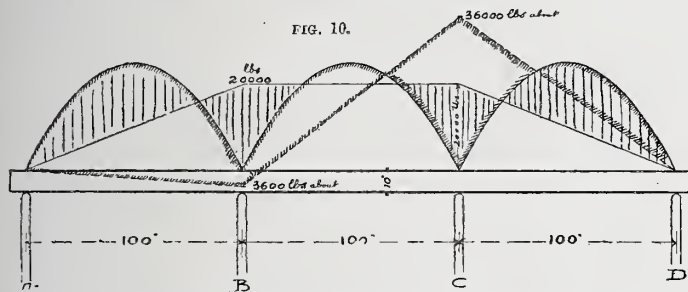


FIG. 10.

ERRATUM.—In this figure vertical hatching should have been shown between the curve and above the upper horizontal line immediately over the middle of the central span.

The continuity causes the maximum stress of 20,000 lbs. to be immediately over the piers. If there were no continuity the stress from the same load on the same girder would have been 25,000 lbs. per square inch at the centre of the spans.

If now the pier B should settle less than half an inch, or, say, four-ninths of an inch, or should be that much out of level to start with, the whole state of things is changed, and the stresses are enormously increased.

The span A B is in worse condition than it would have been had no continuity existed, and the stress over the pier C rises to about 36,000 lbs. per square inch, or 80% more than the maximum safe stress originally decided upon as the limit. The diagram indicates these new stresses by the hatching of diagonal edging lines. The vertical depth of the area included by this diagonal hatching gives the stress at any point.

The same state of things would be caused by the pier B being, say, two-ninths of an inch too low to start with, and settling two-ninths of an inch in its foundations afterwards.

A much less settlement would suffice to raise the maximum stress considerably above the original expectations.

Such delicacy of adjustment or such unyielding foundations can, I think, scarcely be looked for in ordinary building operations. The assumption of beams as being fixed ended is also open to practical objection.

Again taking a typical example, assume the span as 12 feet and the depth as 12 inches, and let the beam be 17 feet long over all, the ends overhanging the points of

support by 2 feet 6 inches at each end, as shown in the drawing (fig. 11). Then, if the load on the clear span of 12 feet be 25 tons (which would be a quite suitable dead load if the fixity of ends were fully realised, the beam being, say, 12 in. x 5 in. x 39 lbs. per foot), we should have to impose

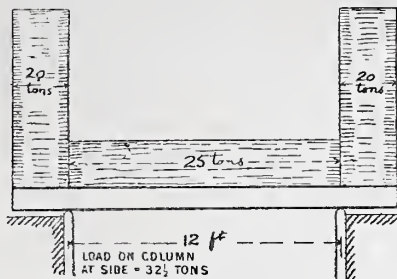


FIG. 11.



FIG. 12.

20 tons on each of the overhanging ends in order to fully obtain the fixity of these ends; and, more than that, we would have to give these fixed ends free scope to deflect downwards under their load of 20 tons each.

These are the conditions under which the formulæ for fixed ends are calculated, and we only need to look at the sketch of a beam end built into a wall (fig. 12) to see how far we are from realising these conditions.

The drawing of the beam, showing the theoretic fixed ends, also shows, to scale, the proportionate loads on the 12-foot span and the 2 feet 6 inches long ends. It is not probable that in ordinary circumstances the load on the clear span will be $2\frac{1}{2}$ tons per lineal foot while the load on the fixed ends is 8 tons per lineal foot, and it is equally unlikely that the provision of a free space under the ends will be made in practice to allow the ends to deflect downwards. The truth is, that in practice the ends of girders are not fixed in the manner assumed in the theory of

fixed ended beams, and a very minute settlement of the side supports or shrinkage of the masonry surrounding the ends of the girder would immediately destroy any partial fixity that may have existed when the work was new.

Columns.—The next subject in my Paper is that of "Columns," considered more particularly with regard to the influence of eccentric loads or loads imposed on the sides of columns. The ordinary column formulæ such as Gordon's or Rankine's, giving the ultimate crippling strength per square inch for columns of different lengths and diameters, do not directly give any idea of the internal state of stress existing in a column.

In some of the older authorities on the strength of materials the statement is made that when a column is less than a certain number of diameters long it fails by crushing, and when it exceeds this length it fails by bending. We now have much better knowledge of this subject, and we know very well that no such sudden change exists practically, although the statements are perfectly correct for materials of perfectly uniform elasticity. The failure of all columns of the materials at our command is due more or less to eccentricity, not of loading, but of resistance, some parts of the columns yielding, in an elastic sense, more than others, and thus causing the centre of elastic resistance to differ from the centre of figure or axis of the columns. This causes flexure under even the smallest loads, and on continuing to increase the loads the column ultimately fails by insufficiency of tensile or compressive strength. A fuller consideration of this subject would be out of place here, as my object is to draw atten-

tion not to eccentricity of resistance but to eccentricity of loading as referred to the axis of the column. Again taking a typical case, let us consider the effects of a side load on a short hollow column such as is shown in fig. 13. Let the sectional area be 20 square inches, and the thickness of the column one-tenth of the diameter.

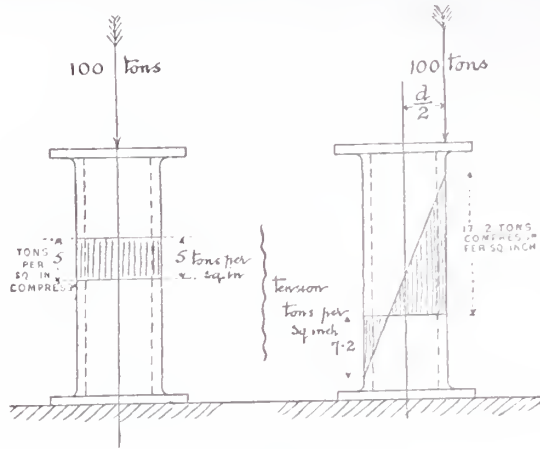


FIG. 13.

Thickness of column = $\frac{1}{10}$ th diameter.
Sectional area of column = 20 square inches.

If the load be 100 tons, the average apparent stress will be 5 tons per square inch with the load central.

If now the load be moved from the centre to the extreme edge of the column, the maximum stress immediately rises to 17.2 tons per square inch compression, and the load produces a tensile stress of 7.2 tons per square inch on the other side. A deviation of the load from the centre, if only .205, or a little over a fifth of the diameter, is sufficient to double the stress, or raise it to 10 tons per square inch in this short column, and in a long column the effect would be much more serious. If loads must be carried on the sides of columns, very careful and full allowance should be made for their effect. The load on a column may (quite unintentionally) be eccentric. This may easily be caused by the deflection of a girder resting on the column head, causing it to bear right on the edge, as indicated in fig. 14.

In order to avoid this, and to ensure that the load should be as far as possible central, columns have been

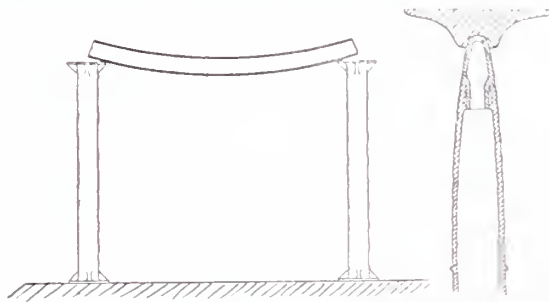


FIG. 14.

FIG. 15.

made with rounded ends, having a cup fitted upon them allowing of a slight amount of rotation (fig. 15). This device was entirely hidden from view by ornamental capitals and bases. Wherever possible, capitals should be purely ornamental, and should have nothing to do with the actual support of the load.

It will be apparent from the preceding remarks that a

large flat capital cast solid with the column may be a very great disadvantage.

It may not be out of place here to mention that the influence of eccentric loading has a great influence upon foundations and joints in masonry. The diagram (fig. 16) shows, for rectangular bases under vertical loads, the effect of the deviation of the resultant load from the centre of the base. The horizontal line at the foot of the diagram represents half the base width. The vertical distance from the base line to the horizontal line immediately above it represents the

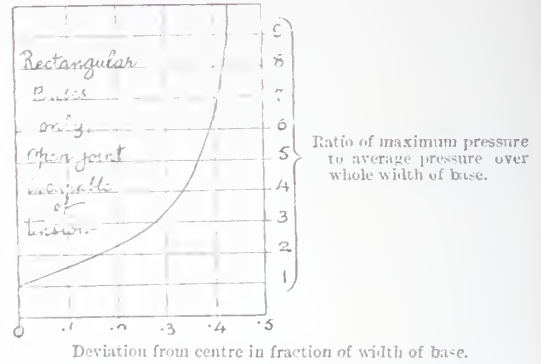


FIG. 16.—Diagram showing increased maximum intensity of pressure on foundation or joint, due to deviation of resultant from centre of base.

uniform pressure per square foot over the whole width of base when the resultant is central. When the resultant passes through any other point than the centre, the vertical ordinate from the base to the curve, measured to the same scale as the average load per square foot, gives the maximum intensity per square foot at the edge of the base nearest to the resultant. Assuming the uniform pressure to be 1 ton per square foot when the load is central, then, when the load deviates from the centre to a distance of only one-sixth of the width of base, the load per square foot is doubled, or rises to 2 tons per square foot maximum. The maximum pressure increases very quickly with the deviation, and when the deviation reaches to one-third of the base width, the maximum pressure is four times the average uniform load caused by central loading.

An unsymmetrical base may thus have much too great a maximum pressure per square foot, and, under certain circumstances, might be much reduced in width, and still afford greater safety. For instance (fig. 17), a base, 9 feet wide, loaded with 10 tons, acting 1 foot 6 inches out of centre, would have a maximum pressure per square foot of $2\frac{2}{3}$ tons, but if the width were reduced to 6 feet by cutting off 3 feet from the greater side the load would be central, and the maximum intensity would only be $1\frac{2}{3}$ ton per square foot, although the base is one-third less in width.

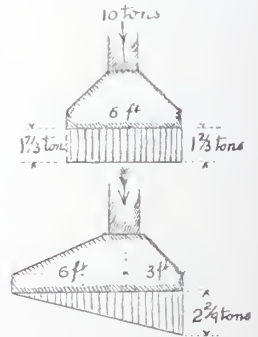


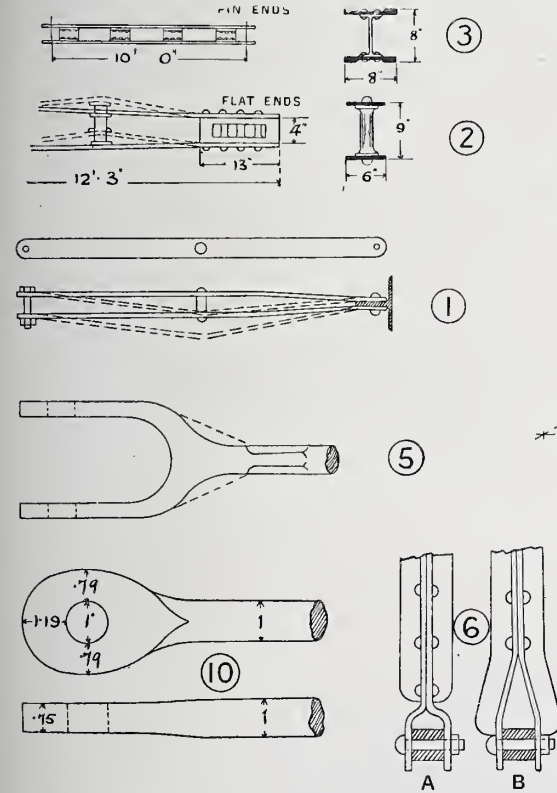
FIG. 17.

In the case of a tall chimney now being built to my firm's designs at Elswick, a large flue-hole is to be left in one side at the very base, and, as the hole is somewhat larger than usual, I thought it desirable to calculate what would be the effect in the maximum pressure per square foot on the brickwork. The chimney is 110 feet high, and weighs 337 tons, and the flue-hole has the effect of shifting the centre of resistance to a distance of 1 foot from the

centre of the main body of the chimney (fig. 18). It was found that this would cause the maximum compressive stress at the points A and B to be 7.65 tons per square foot, from the permanent load of the chimney alone, while a moderate amount of wind pressure would raise the stress to over 12 tons per square foot. To avoid this heavy load on comparatively new brickwork, the mouth of the flue is to be built along with the chimney, and will project for a few feet from the side, instead of being joined into it subsequently. This will to some extent compensate for the weakening caused by the large opening.

Distance between o and x=1 foot.
FIG. 18.

I do not propose to enter at all into their general design, but will only refer briefly to the design of some of their details. In examining some of the designs given in text-books on building construction, some of the details being taken from actual practice, I have frequently



Roof Trusses.—Turning

to the subject of roof trusses of iron and steel,

not any stronger than two perfectly straight flat bars without any distance piece at all. The bends between the distance piece and the principal rafter are especially bad and absolutely unnecessary. It does not seem to have occurred to its designer that there is nothing to prevent failure in the manner shown by dotted lines in the figure, and in the text-book from which this example was taken the statement is made that the strength of this strut is dependent on the length between distance pieces, and not on its total length, which is absolutely incorrect for such a design as this.

A large wrought-iron strut of this character, but much better design, was tested some years ago in America. The strut had flat ends, and proved very weak, failing as indicated by the dotted lines in No. 2, with a stress of 16,000 lbs. per square inch, or a little over 7 tons per square inch. A properly designed strut of the same size and proportion would certainly have carried twice as much at least.

Another similar strut, No. 3, was also tested with pin ends, such as would be used in a very large roof, and failure ensued at a load of only 8,000 lbs. per square inch, or only one-fourth of what a well-designed strut of the same length, width, and flange section would carry.

No. 4 shows another weak detail. It is a fork end for a tension bar, and the legs of the fork appear to be specially designed to fail by being straightened out under load. No. 5 is somewhat better, but still not stout enough in

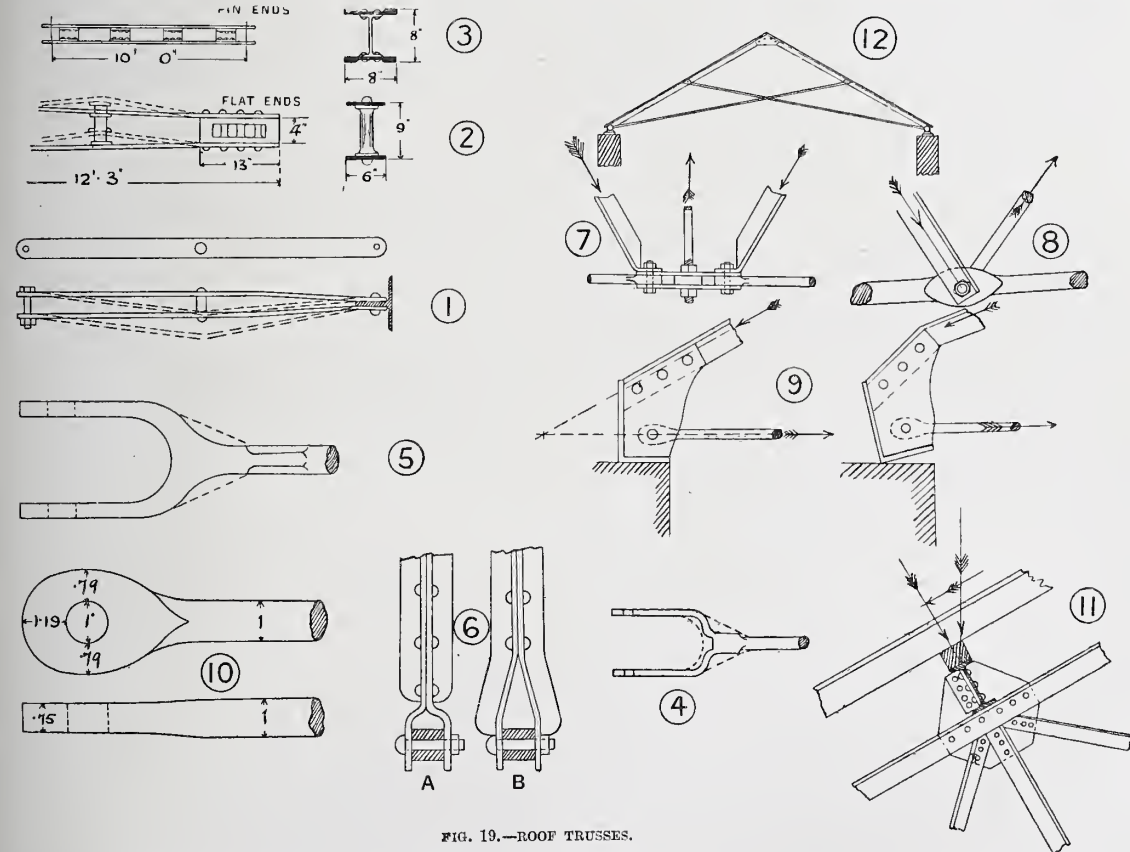


FIG. 19.—ROOF TRUSSES.

noticed the extremely bad design of these details, some of which I propose to mention (see sketches, fig. 19). A very weak form of strut, frequently recommended in text-books, is that formed of two flat bars connected by cast- or wrought-iron distance pieces. No. 1 shows an extremely bad example, and a strut of this description is certainly

the shoulders, in proportion to the diameter of the tie-rod. No. 6A is the end of a strut formed of two T-bars riveted together, with the ends opened out to clasp the main tie-bar and the eyes of a tension member. This is also very weak in proportion to the body of the strut. The sketch (No. 6B) alongside shows a much stronger end.

No. 7 is an instance of a very common defect. All calculations of roof trusses are based on the assumption of the intersection of the various members in certain fixed points; but this principle of intersection is most curiously neglected in practice, with the result that bending-stresses are set up in members in a most unnecessary manner. The tendency of the king-rod in the detail shown in No. 7 is to bend the plate links between the ends of the two diagonal struts, and I do not suppose that its designer ever contemplated such a condition. The main tie-rod, the struts, and the king-rod should all have met in one point. No. 8 has a defect not so easily noticed. The strut and small tie-rod are on opposite sides of the main tie-rod, with the consequence that in the particular design from which this was taken the stress from torsion would probably be nearly as serious for the main tie-rod as the direct tension upon it. The calculations accompanying this design for a roof appeared otherwise complete, but a defect of this sort destroys confidence in them.

Pins and eyes are frequently made much too weak, and I have made a sketch (No. 10), showing what would be fair proportions for wrought-iron tie-bar ends, clasped between two links, each half of the thickness of the eye-bar head. The diameter of the bar being taken as 1, with the thickness of the eye at the end three-fourths of the diameter of the bar, the pin should be equal in diameter to the tie-rod, and the width of the eye over all should be 2.58 times the diameter of the bar, giving 50 per cent. greater section through the sides of the eye than in the body of the tie-bar. The end of the eye should have a length beyond the pin hole of 1.19 diameter of bar. These proportions are based on tables given by Mr. Shaler Smith, an American engineer, who made a large number of tests to determine the proper proportions for various conditions. Unfortunately, Mr. Shaler Smith's tables of proportions are sometimes omitted, and a sketch given purporting to embody his results, which it is impossible to do in any single figure.

No. 9 shows another common defect, which has in one instance at least led to failure. The adjoining sketch shows what the tendency is. The axis of the rafter, the centre-line of the tie-rod, and the line of upward reaction of the wall should all have met in one point, if this overturning tendency is to be avoided.

Wrought-iron and steel roofs are most commonly made of T or angle-bar rafters and struts and round forged iron tie-bars, and while this makes a lighter looking and perhaps more pleasing roof, yet it is neither so reliable nor so economical as a roof made of angle bars throughout, riveted together with gusset-plate connections. It is a great advantage to entirely avoid any forged or machined work in all steel or iron trusses, and it is in this that a riveted truss has advantage over the more common type with forged eye-bars and pin connections. The riveted roof may easily be designed so as to have no work done on the material except cutting, drilling, and riveting, and none of the material need enter the smith's fire, and no welds are necessary. The sections of the various bars, perhaps, may not be so easily proportioned to the various stresses, and a slightly heavier truss is the result; but the cost per ton of a well-designed riveted truss is much less than that of a pin-connected truss with forged eyes, &c., and, owing to the absence of welds and forgings, the riveted truss is much more reliable. These remarks are intended to apply only to roofs. In bridge trusses entirely different conditions may obtain, and the very reverse may, under certain conditions, be the better practice.

There is one matter in the calculation of the strength of roofs to which I have never seen any reference made, and that is in the case of deep rolled joist purlins or principals spaced widely. The strength of the purlin is usually calculated as though the whole load were wholly at right angles to the roof surface, but the permanent load of

roof covering is a vertical load, which requires to be resolved into its components at right angles, and parallel, to the surface of the roof (No. 11, fig. 19) before we can accurately calculate the necessary dimensions of the purlin. The component parallel to the roof surface is by no means insignificant in its effect, and should certainly be taken into account. In a roof recently designed by my firm it was found that this parallel component had a greater influence on the stress in the purlin than the vertical component of permanent load and the whole wind load put together. In addition to this effect of the parallel component of the permanent load, it has also a tendency to overturn the purlin as a whole, and this is particularly the case when the roof is steep. This tendency is carefully guarded against in the case of wood roofs by the cleats spiked to the upper side of the principal rafters; but, as a rule, in iron or steel roofs it is either forgotten or neglected. No. 12 is an extremely bad design, even for a very small roof.

The usual idea in making a truss is to get rid of all transverse stress on its members and to have simple direct tension or compression on the bars. The designer of this truss has evidently had ideas contrary to this, as the tension rods are so placed that they would impose a very heavy transverse stress on the principal rafters, in addition to the direct compression on them. A worse type of iron roof could hardly be designed. The collar beam roof of wood, or a modification of it, should never be attempted in iron or steel.

Collar Beam Roof-couple.—I propose to conclude this Paper by a reference to one of the simplest types of roof

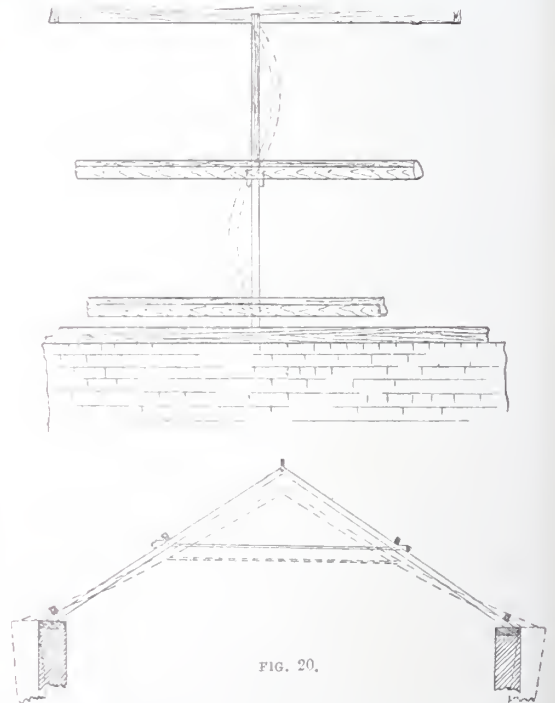


FIG. 20.

trusses of wood, and used only in small spans. I refer to the collar beam roof-couple. Owing to its being necessarily used only for small spans, I presume it has been looked upon as too insignificant to warrant any special attention being paid to the stresses upon it, as these can easily be met by moderate-sized timbers; but it may be interesting to consider this question of stress—in the principal rafter at least.

The nature of the stresses existing in the collar beam couple may be most easily appreciated by exaggerating their

effect in a sketch of two roof-couples (fig. 20), one having the principal rafter very thin and very deep, and the other having a broad and shallow rafter. In the first we can immediately conceive that the rafter would double up like a column, and in the second it is evident that it would bend like a beam. These effects are shown by dotted lines on the sketches. It is not difficult to make an approximate estimate of the effect of, say, vertical loads on a collar beam couple after we make certain preliminary assumptions. Let us assume that three purlins only are used on each principal rafter (fig. 21), one immediately over the wall, one at the end of the tie-beam, and one at the ridge, or incorporated with the ridge-board. Assume also that

the bending moment = $N \times L$, where L = length of principal rafter from tie-beam to end.

Then
$$F = \pm \frac{6NL}{BD^2} + \frac{T}{BD} = \pm \frac{6NL}{AD} + \frac{T}{A}.$$

From this
$$A = \text{sectional area of rafter} \left. \vphantom{\begin{matrix} A \\ \text{of rafter} \end{matrix}} \right\} = \pm \frac{6NL}{D} + T.$$

In the foregoing formula N and T should be taken in lbs. when F is taken in lbs. per square inch, and D must be taken in inches, A being sectional area in square inches; L must also be taken in inches to correspond.

I need hardly say that I have assumed that sufficient breadth will be given to the rafter to prevent it yielding, as a column under compression. The calculations also take no account of the great weakening caused by notching the collar beam into the rafter, or of the loss caused by making bolt holes, &c. These require to be carefully allowed for, and the area A given by the formula is the least area of an uncut rectangular section immediately at the junction of the collar beam with the rafter.

In conclusion I may remark that in making calculations of stress, and determining theoretically the necessary scantlings to resist stress, they should be very carefully and conscientiously made; but at the same time it should be borne in mind that in very many cases, indeed nearly every case, however carefully we may make our assumptions and carry through our calculations, the results are, owing to our ignorance, really very rough approximations. The best practice is based upon the comparison of our calculations with such failures as may from time to time occur. The comparison of our calculations with work which stands proves very little, and indeed I believe that many structures stand because they have never had the loads upon them for which they were designed primarily.

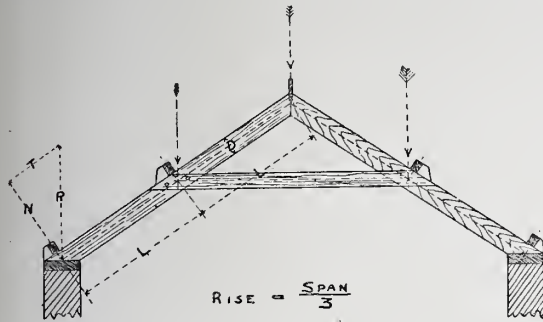


FIG. 21.

$$\text{Area of principal rafter} - A = \frac{6NL + T}{F} \text{ sq. in.}$$

D and L being in inches, N and T being in lbs., and F = lbs. per square inch safe maximum stress.

the walls are so light that they cannot act as an abutment to the outward thrust of the rafter, and that the reaction of the wall is purely vertical in consequence. Now considering the lower end of the rafter, we see that the purlin immediately over the wall has no influence on the stresses in the couple, and we may leave it out of account in what follows. The lower part of the rafter is subjected to the upward vertical reaction of the wall, which must be resolved into its components normal, and parallel, to the axis or centre line of the principal rafter. The parallel component tends to compress the rafter in the direction of its length, and the normal component tends to bend the rafter around the end of the tie-beam.

If we calculate the vertical reaction of the wall, which is simply the whole load on the roof, less the load resting on the purlins immediately over the wall (so far as concerns our present inquiry), then the triangle of forces immediately gives us the values of the parallel and normal components. From these the maximum stress in the rafter can be immediately calculated when we know the size of the rafter, or we can calculate the size of the rafter when we fix upon the maximum stress.

Let the parallel component = T
 " " normal " = N
 " " breadth of rafter = B
 " " depth " = D
 (then Area = $A = BD$)
 " F = maximum stress per square inch allowable

$$\left(\begin{matrix} = \pm f_b \text{ (from bending)} \\ + f_d \text{ (from direct thrust)} \end{matrix} \right)$$

$$\pm f_b \text{ from bending} = \pm \frac{6 \times \text{bending moment}}{BD^2},$$

$$f_d \text{ from direct thrust} = \frac{\text{direct load}}{BD} = \frac{T}{BD},$$

$$F = \pm f_b + f_d = \pm \frac{6 \times \text{bending moment}}{BD^2} + \frac{\text{direct load}}{BD},$$

PARLIAMENTARY.

THE LONDON BUILDING ACT 1894.

Dwelling-houses on Low-lying Land.

The following regulations have been made by the London County Council under Section 123 of the London Building Act 1894 (57 & 58 Vict., cap. ccciii.):—

Every person who shall be desirous of erecting or adapting any building to be used wholly or in part as a dwelling-house on any land in the county of London of which the surface is below the level of Trinity high-water mark, and which is so situate as not to admit of being drained by gravitation into an existing sewer of the Council, shall first make a written application for a licence. Such application shall be addressed to the Clerk of the Council.

Such application shall contain a statement as to the nature and extent of the interest of the applicant in the building or buildings proposed to be erected or adapted, and be accompanied by a plan and section of the lowest floor of such building or buildings and the curtilages thereof to a scale of $\frac{1}{8}$ th of an inch to a foot, and by a block plan to a scale of not less than $\frac{1}{32000}$ (which may be on a sheet or sheets of the Ordnance Survey, or may be drawn on tracing linen), showing the position of such building or buildings and the local sewer into which it is proposed to drain such building or buildings, and the connection of such local sewer with an existing sewer of the Council.

Such plans and sections shall be accompanied by a description of the materials to be used in the construction of such building or buildings, and shall be coloured in accordance therewith. The points of the compass shall be marked on the block plan.

The position and course of the drainage system pro-

posed to be adopted for the disposal of sewage and rain water, and its connection with the local sewer or an existing sewer of the Council, shall be clearly shown on the plans and sections, and the diameter and inclination of the drain pipes shall be figured thereon.

The plan and section shall also indicate in figures the level above or below ordnance datum at which it is proposed to construct the floor of the lowest rooms.

The decision given by the Chief Engineer of the Council upon such application shall be reported to the Building Act Committee, and the Committee shall report it to the Council; and thereupon, if it is to the effect that the erection or adaptation may not be permitted, the Clerk of the Council shall by letter inform the applicant that the Council, acting upon the decision of the engineer, has refused permission. If it is to the effect that the erection or adaptation may be permitted, a licence under the seal of the Council embodying the conditions of the engineer's decision shall be issued to the applicant.

The seal of the London County Council was hereunto affixed on the 3rd day of April, 1895.



H. DE LA HOOKE, *Clerk of the Council.*

Signed on behalf of the Tribunal of Appeal in token of their concurrence in the foregoing regulations.

ARTHUR CATES, *Chairman of the Tribunal.*

8th April 1895.

The following regulation has been made by the Council under Section 122 of the London Building Act 1894:—

It shall not be lawful to place the underside of the lowest floor of any permitted building at such a level as will render it liable to flooding, and every permitted building shall be efficiently and properly drained to the satisfaction of the engineer for the time being of the Council, either into a local sewer or into a main sewer of the Council.

LEGAL.

The London Building Act 1894.

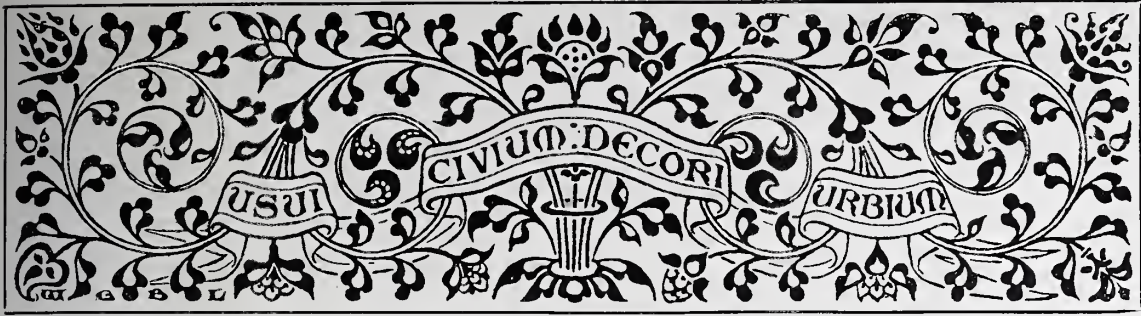
WATKINS v. CROW [p. 320], and REDHOUSE v. CROW.

In the *Law Journal* of the 6th April Mr. Arthur Crow [F.] reports the first decision on the party-wall sections of the London Building Act 1894 as follows:—

In the case of *Watkins v. Crow* the District Surveyor, by "notice of objection" served under section 150 of the new Act, sought to compel the owner of No. 1, Church Street, Minorities, to bring the party-wall next No. 3 into conformity therewith. The facts disclosed at that hearing were, briefly, these: As the result of a fire in November 1894 the warehouse No. 3 was almost entirely down. No. 1 was slightly damaged, and the party-wall between them had been pulled down, under a dangerous-structure notice, to the extent of one-third of its superficial area. At the time that case was heard the owner of No. 1 had given notice, under section 145, of his intention to reinstate the party-wall in question. The owner of No. 3 appeared to have taken no steps towards rebuilding his warehouse. It was admitted that, so far as regarded No. 1, the wall need not be altered, because, since No. 1 had not been destroyed for more than half its cubical extent, the reinstatement thereof would not be "a new building," as defined by section 5 (6); and it was also admitted that, since the party-wall itself had not been destroyed to the extent of one-half of its superficial area, it could not be dealt with under section 208. But it was contended on behalf of the District Surveyor that, as No. 3 had been destroyed for more than half its cubical extent, and the reinstatement thereof would accordingly be deemed to be the erection of a "new building," therefore every part of such building, including this party-wall, must be made to comply with the London Building Act 1894. It

was held by Mr. Haden Corser, after consideration, that, since no notice had at that time been given for the rebuilding of No. 3, and the objection was given on the notice of the owner of No. 1, the party-wall must be considered in its relation to No. 1 only, and that, as No. 1 had not been damaged sufficiently to bring it within the definition of a "new building" under section 5 (6), and the party-wall had not been taken down or destroyed to the extent of one-half, so as to bring it within the scope of section 208, the wall could be reinstated without regard to the requirements of the new Act.

Soon after this decision Mr. Samuel Redhouse, builder, of Notford, Baldock, Herts, gave the District Surveyor notice of his intention to rebuild No. 3, whereupon the Surveyor served on Mr. Redhouse a "notice of objection" with regard (*inter alia*) to this party-wall; and the objection came on to be heard on the 23rd March, before Mr. Dickinson, at the Thames Police Court. Mr. T. Seager Berry, of the Solicitors' Department of the London County Council, appeared for the District Surveyor. A preliminary objection was taken by Mr. Cobban, solicitor, on behalf of Mr. Redhouse, on the ground that the party-wall was the same wall which had formed the subject of the former proceedings, when Mr. Haden Corser had decided that the District Surveyor's notice must be disallowed. Mr. Berry contended that the circumstances had entirely changed, and that they were now dealing with a building which came within the definition of a "new building," and thus a case had arisen such as Mr. Haden Corser had expressly declined to give an opinion on when the possibility of its arising was suggested to him, and it was under these new and different circumstances that the District Surveyor now asked that this party-wall should be amended. In reply to a question from the learned magistrate Mr. Cobban contended that it was immaterial whether No. 3, Church Street, were a "new building" as defined by section 5 (6) or not, but that the question really was as to how far this party-wall had been taken down; if more than half, then it must be rebuilt under section 208; if less than half, it need not be altered. He submitted, further, that both the buildings, No. 1 and No. 3, might be entirely destroyed, and yet if half the party-wall remained intact, even then the wall need not be altered. The magistrate said this was a very strong suggestion to make, and Mr. Berry urged that it was going back on previous legislation, for section 10 of the Act of 1855 clearly laid down that when an old building was more than half destroyed, the remainder, so far as not in conformity with the then new law, had to be pulled down, and the object of section 208 was to supplement section 5 (6), which virtually re-enacted section 10 of the Act of 1855, and not to in any way derogate from such section, and that section 208 referred to the case of a party or external wall *per se*, and intended that, although a building itself might not be half destroyed, yet any one wall of it if destroyed or taken down to the extent of half should be, not of necessity pulled down, but brought into conformity with the new law as regards the whole of such wall. The magistrate, after carefully considering the sections quoted, upheld Mr. Cobban's contention, and decided that section 208, which dealt with party-walls (and external walls), must govern the case, and that notwithstanding the fact that No. 3 was destroyed for more than half its cubical extent, yet, as half the party-wall had not been destroyed, the new law did not require that the wall should be made conformable thereto, and said that he ruled that section 208 ousted the provisions of section 5 (6) as to party and external walls. The District Surveyor's notice was accordingly disallowed. The magistrate expressed his willingness to state a case if asked, and declined to grant costs, saying that he considered it was a proper case to have been taken up by the District Surveyor in the public interest.



REPORT OF THE COUNCIL FOR THE OFFICIAL YEAR 1894-95.

Approved and adopted by the Annual General Meeting, 6th May 1895.

The President, F. C. PENROSE, F.R.S., in the Chair.

THE Council have held 25 Meetings since the adoption of their last Report by the Annual General Meeting of the 7th May 1894, exclusive of Meetings held by Committees of the Council.

The death of Wyatt Papworth who, with his father John B. Papworth and his brother John Woody Papworth, was a most indefatigable worker on behalf of the Institute caused the deepest sorrow to the Council, with whom he had so long been associated. That of Ewan Christian, a Royal Gold Medallist, President in 1884-86, and one of the oldest members of the Institute, has been severely and widely felt; and the Council fully concur in the graceful tribute paid to his memory by Mr. Macvicar Anderson and Mr. G. H. Birch. The loss of Sir Henry Layard, an Hon. Fellow, who had been connected with the Institute for forty-four years, who received the Royal Gold Medal in 1868, and whose services to architecture were so well known, is also to be deplored.

The assassination of President Carnot on the 24th of last June was referred to at the General Meeting of the Institute held the day following, when a resolution was passed expressing indignation at the crime, and offering the sympathy and condolence of the members with their brethren of France. The resolution was communicated in a letter despatched the same evening to the Société Centrale des Architectes Français. A touching reply was received from Monsieur Daumet [*Hon. Corr. M.*], which was printed at page 583 of the JOURNAL for 1894.

The Fellows now number 604, and Associates 921. During the twelve months 5 Fellows (who were previously Associates) and 91 Associates (19 of whom were previously Students) have been elected. Three Hon. Associates—Alfred Gilbert, R.A., F. G. Hilton Price, Director of the Society of Antiquaries, and W. B. Richmond, M.A., A.R.A.—have been elected; and six Hon. Corresponding Members—Charles Buls (Brussels), Barr Ferree (New York), Alois Hauszmann (Budapest), Henri Edouard Naville (Geneva), Emerich Steindl (Budapest), and Louis Viollier (Geneva). There are now 61 Hon. Associates and 55 Hon. Corresponding Members.

The number of *Students* has increased to 143, as against 101 at the corresponding period last year, and the number of *Probationers* to 736, as against 577 in 1894.

The loss to the Institute by death during the year has been as follows:—*Fellows*: Charles Aldridge (Liverpool), R. C. Baxter, Lawrence Booth (Manchester), T. E. Bridgen (Manchester), Ewan Christian, W. G. Coward (Sydney), C. G. H. Kinnear (Edinburgh), Arthur Lett, J. C. Moncrieff (Bristol), James Murgatroyd (Manchester), E. G. Paley (Lancaster), Wyatt Papworth, and Ernest Turner; *Associates*: Arthur Cawston, A. H. Clark (Norwich), C. H. Cooper, Morton M. Glover, H. A. Gregg, H. A. K. Gribble, J. G. Hall, Frederick Hemings,

Gordon M. Hills, and J. A. Macara; *Hon. Associates*: Henry Faija, W. Calder Marshall, and Alfred White; *Hon. Fellow*: Sir Henry Layard.

The Council, having appointed a Committee to consider the question of the Hon. Associate Class referred to in the President's Opening Address, have approved in principle the establishment of an additional class of members who shall be craftsmen in the arts allied to architecture; and have referred the matter back to the Committee to work out. The Council hope before the close of the Session to bring forward a scheme for the consideration of the Institute.

The Preliminary Examinations of November 1894 and March 1895 were held in London, Bristol, and Manchester, and the 217 successful candidates have been registered as Probationers. The Intermediate Examinations were held in London on the same dates, when 57 Probationers passed, and were registered as Students. Examinations qualifying for candidature as Associate were held during the week commencing the 26th November 1894 in Manchester, Bristol, and Glasgow, when 64 passed. The first of the Final Examinations qualifying for candidature as Associate was held in London and Manchester from the 29th March to the 6th April 1895, when out of the 86 applicants who attended 26 passed. The Council again tender the thanks of the Institute to the Board of Examiners for the arduous services rendered by them, and to the Allied Societies at Manchester, Bristol, and Glasgow. Statistics of the several Examinations here follow:—

THE PRELIMINARY EXAMINATION.

DATE.	Attended.	Not Passed.	Relegated for Periods.	Passed and Registered as Probationers.
November 1894.....	115 { Exempted, 60 Examined, 55	2	10	103
March 1895	138 { Exempted, 55 Examined, 83	2	22	114
Totals.....	253	4	32	217

THE INTERMEDIATE EXAMINATION.

DATE.	Probationers Attended.	Not Passed.	Relegated for Periods.	Passed and Registered as Students.
November 1894.....	48	—	19	29
March 1895	54	—	26	28
Totals.....	102	—	45	57

EXAMINATION QUALIFYING FOR CANDIDATURE AS ASSOCIATE.

DATE.	Appliel.	Attended.	Not Passed.	Relegated for Periods.	Passed.
November 1894.....	180	158	4	90	64
March-April 1895.....	98	86	1	59	26
Totals.....	278	244	5	149	90

* * For purposes of comparison the figures for the official year 1893-94 are given: Preliminary: 165 attended, 136 passed. Intermediate: 55 attended, 36 passed. Qualifying: 176 applied, 150 attended, 63 passed.

The Ashpitel Prize was awarded to Mr. W. E. Vernon Crompton, *Probationer* 1891, *Student* 1892, *Qualified as Associate* 1894, he having most highly distinguished himself in the Qualifying Examinations held in 1894.

As a concession to Probationers who are Students of the Royal Academy, the Council, acting on a recommendation of the Board of Examiners, have decided to permit such Students, in lieu of the Testimonies of Study required in the Art Section, to submit their Academy drawings, provided they include sufficient studies of Gothic work to cover the requirements of the Section.

A Statutory Examination for Certificates of Competency to act as District Surveyor in London, and as Building Surveyor under Local Authorities, was held in October 1894. For the former two candidates presented themselves, but neither passed. For the latter there was but one candidate—Mr. Francis Baugh Andrews [A.]—who was granted a Certificate of Competency. Another Examination was held in April when three candidates were examined, and Mr. Arthur Henry Wharton Glasson [A.] and Mr. Hugh Davies (Cardiff) were granted Certificates of Competency to act as District Surveyor and Building Surveyor respectively.

The Royal Gold Medal (1894) for the promotion of Architecture was presented to Sir Frederic Leighton, Bart., P.R.A., on the 25th June 1894. By a resolution of the Institute passed on the 11th March 1895, Mr. James Brooks, *Vice-President*, was elected Royal Gold Medallist for the current year, for his executed works as an architect; and Her Majesty the Queen has graciously signified approval of the award.

The Prizes and Studentships 1894–95 attracted an unusually large number of competitors. The Deed of Award made by the Council under By-law 66 was read at the General Meeting of the 7th January, and printed at page 191 of the JOURNAL. The Designs and Drawings were publicly exhibited in the larger Conduit Street Gallery from the 4th to the 14th January. Previous to the distribution of prizes, the President delivered the Annual Address to Students, which was followed by a critical Paper from Mr. J. M. Brydon on the competitors' works. The task of reviewing the Essays placed second, third, and fourth was kindly undertaken by Dr. Frank Granger, of Nottingham [see p. 254]. While on this subject the Council cannot refrain from acknowledging, on behalf of the Institute, the Studentships generously placed at their disposal by Mr. T. W. Aldwinckle, particulars of which will be found at page 378.

As in former years, a selection of the Prize drawings was forwarded to the Allied Societies at local centres. It included, from the Measured Drawings, the Elevation of the Gateway of St. John's College, Cambridge, by Mr. W. H. Ward (Silver Medallist), and Elevations, &c., of Llandaff Cathedral, by Mr. J. H. James; The Soane Medallist Mr. H. S. East's Design for a Picture Gallery, and Perspectives for the same subject by Messrs. C. H. B. Quennell and H. Jefferis; a selection of the Tite Prize Drawings by Messrs. R. Shekleton Balfour (Tite Prizeman), Banister F. Fletcher, W. T. Conner, and D. W. Kennedy; several drawings by Messrs. A. J. Dunn (Pugin Student), J. A. R. Inglis, and C. C. Brewer; and drawings, sketches, &c., of the Owen Jones Student, Mr. J. J. Joass.

By the courtesy of the French Government and through the good offices of Monsieur Daumet, then President of the Académie des Beaux-Arts, the Council were able to borrow a remarkable series of drawings of the Pantheon executed by Monsieur Chedanne, a "Pensionnaire" of the Academy of France at Rome. These drawings—of rare excellence—were hung in the smaller Gallery from the 7th to the 14th January, during the time the works submitted for the Institute Prizes were on view, and advantage was taken of the opportunity of inspecting them by a large number of members and the outside public. Mr. Phené Spiers at the

Meeting of the 7th January gave a description of the drawings, and at the Meeting of the 14th, when Monsieur Chedanne was present, read a Paper giving an account of the artist's researches at the Pantheon, and of his restorations of that monument.

At the meeting of the 14th January there was also exhibited a collection of drawings of the late Mr. H. A. K. Gribble, including his design for the Brompton Oratory.

Mr. Poynter, R.A., having, on behalf of the Society for the Preservation of the Monuments of Ancient Egypt, invited the Council to appoint one or more members to sit on a Committee for considering the best means of carrying out the proposed archaeological survey of the Nile Valley from Assouan to Korosko—such survey to include the copying of all inscriptions, the photographing of all ancient structures and remains, and the examining of all foundations—the Council, sympathising with the objects of the Society, nominated Mr. Arthur Cates and Mr. Phené Spiers to act on the Committee; and these gentlemen have attended some of the meetings.

On the 2nd July an Anniversary Dinner, in commemoration of the First General Meeting of the Institute in 1834, was held at the Whitehall Rooms of the Hotel Métropole, the President, Mr. F. C. Penrose, in the Chair. Over 200 members and guests were present.

In compliance with the request of Dr. Moline, Hon. Secretary of the British Committee for the International Congress of Hygiene and Demography held in September at Budapest, to send delegates to the Congress, the Council appointed Mr. T. W. Cutler and Mr. John Slater to attend on behalf of the Institute. Mr. Cutler was unable to be present at the Congress, but Mr. Cates kindly consented to take his place. The delegates' report will be found printed at page 16 of the current volume of the JOURNAL. A most gratifying communication has since been received from the Institute of Hungarian Engineers and Architects on that and other subjects connected with it.

On the 29th October the Council received a deputation from the London Lodges Committee for Operative Stonemasons, which stated certain grievances of the London stonemasons through the practice of working stone, intended for London buildings, at the quarries. It was objected, among other things, that quarry-worked stone was usually rough, and that much of it had to be rejected; that it was frequently injured in packing or during carriage, &c., and had afterwards to be "doctored up" to fit it for its purpose; that the stones worked at the quarry were often taken from the softest beds; and that, as the wages of the quarry-masons were lower than the London rate, the contractor for works in the metropolis derived a pecuniary advantage by using this inferior stone. The Council in their reply stated that, as a rule, it was desirable that stones should be worked near the building for which they were required, so that they could be inspected by the architect while being worked.

In consequence of the conditions now attaching to the appointment of District Surveyors in London debarring them from exercising their profession as architects, the question arose whether, under the Charter, District Surveyors appointed under the new Regulations were eligible for admission as Fellows. The matter was referred to the Institute solicitors, Messrs. Markby, Stewart & Co., for counsel's opinion. A case was prepared and submitted to Mr. Arthur Cohen, Q.C., who gave a written opinion that unless a District Surveyor had, prior to his appointment under such Regulations, been in independent practice as an architect for seven successive years he was not eligible for the Fellowship.

On the 4th November the Council directed the attention of the London County Council to the continued paucity of applicants for Certificates of Competency to act as District Sur-

veyor in London, and to their want of knowledge; and at the General Meeting of the 3rd December a Paper was read on the subject by Mr. W. D. Carøe, when a Resolution was passed to the effect that the high status of District Surveyors should be maintained, by allowing them the right of private practice as before. The result of the Meeting was duly communicated to the London County Council, who, in their reply, expressed their determination not to reopen the matter. The Council have since appointed a Committee, consisting of Messrs. W. D. Carøe, T. W. Cutler, Lacy W. Ridge, Charles Fowler, and T. H. Watson, to consider the position of District Surveyors in face of the conditions imposed by the London County Council; and an interim report has been received from the Committee.

The Council, being empowered under section 175 of the London Building Act 1894 to appoint one of the three members forming the Tribunal of Appeal, appointed Mr. Arthur Cates to the office in December. The other members are Mr. D. Cubitt Nichols, appointed by the Secretary of State for the Home Department, and Mr. T. Chatfeild Clarke, appointed by the Council of the Surveyors' Institution. Mr. Cates was subsequently elected Chairman of the Tribunal, he having been Chairman of the two Tribunals constituted under the London Council General Powers Acts of 1890 and 1893 from their commencement.

A Bill for the Registration of Architects promoted by persons whose names are not disclosed has been introduced into the House of Commons by Mr. Atherley Jones, M.P., and read a first time. The Petition against it, on behalf of the Institute, was duly presented by Sir Richard Webster, Q.C., M.P., who, with Mr. Græme Whitelaw, M.P., Mr. James Campbell, M.P., and Mr. Boord, M.P., has given notice of opposition to its Second Reading.

The formal Declaration of Trust, bearing the seal of the Duke of Devonshire, and setting forth the conditions under which his Grace has made over to the Institute the valuable collection of original architectural drawings by Palladio, Vignola, Inigo Jones, John Webb, Kent, and others, was signed by the Duke on the 17th December 1894. The Declaration states that the Collection shall at all reasonable times be open for the purposes of study and reference to all present and future Members and Students of the Institute, under such rules and regulations as the Council may deem necessary or expedient. By clause 6 the Institute is required to insure the Collection against loss or damage by fire and other accident in the sum of £400. The Declaration of Trust and the Schedule of the contents of the various portfolios and boxes comprising the Collection are printed at page 185 of the JOURNAL.

THE STANDING COMMITTEES.

ART STANDING COMMITTEE.

The Art Standing Committee report that ten meetings have been held since the publication of the last Annual Report, and seven since the election of the present Committee. The Committee appointed Mr. Alfred Waterhouse, R.A., Chairman, Mr. James Brooks Vice-Chairman, and Messrs. W. D. Carøe and George Kenyon Hon. Secretaries.

In view of the fact that one or, possibly, two important new bridges across the Thames at Vauxhall and Lambeth were in contemplation by the London County Council, the Committee gave special attention to the matter, with the object of securing for London structures of monumental dignity worthy to rank with Waterloo and London Bridges. Although the Committee regret that their endeavours to secure stone structures have been unsuccessful, they nevertheless desire to record their sense of the courtesy and attention with which their views have been received by the Bridges Committee of the London County Council. They met to view all the Metropolitan Bridges, and, with the sanction of the Bridges Committee

of the County Council, a deputation introduced by Mr. Macvicar Anderson attended at Spring Gardens last May, a report of which duly appeared in the *JOURNAL*. Subsequently, by invitation of the Bridges Committee, a second deputation attended at Spring Gardens, which led to the Council of the Institute sanctioning co-operation, as suggested by the Bridges Committee (subject to the Council's approval), in the production of a design. To this end the Engineer of the London County Council has furnished the Art Committee with the structural details of the proposed bridge, and they now have the matter under their consideration.

Mr. Seth Smith's proposal for a Permanent Gallery of British Architecture was referred to the Committee by the Council for consideration, and the Committee requested Mr. Seth Smith to attend and give his views. The matter was then fully considered, and it was deemed advisable to postpone the subject until something further was known of the public interest taken in the Architectural Exhibition now being held at Liverpool under the guidance of the recently appointed Professor of Architecture, Mr. F. M. Simpson.

The Committee have arranged the subjects and Papers for two of the Ordinary General Meetings. Upon the 11th February three Papers were contributed upon "The Value of Simplicity in Architecture" by Mr. Penrose, Mr. Basil Champneys, and Mr. Halsey Ricardo. Some original drawings of Somerset House were lent by H.M. Office of Works, and other drawings and photographs of executed work contributed by Messrs. J. L. Pearson, James Brooks, J. J. Stevenson, and C. F. A. Voysey. On the 22nd April Papers upon "The Use and Abuse of Marble for Decorative Purposes" were read by Professor Aitchison, Mr. William Young, and Mr. W. Brindley. Several water-colour drawings and photographs were lent for the occasion by Mrs. W. W. Deane, Professor Aitchison, and Mr. Young, together with an interesting collection of specimens of marbles lent by Messrs. Farmer & Brindley and Messrs. Burke & Co.

LITERATURE STANDING COMMITTEE.

The Literature Standing Committee report that since their election on the 11th June 1894 they have held nine meetings, making ten meetings altogether since the issue of the last Report. They elected Professor Aitchison, A.R.A., Chairman, Mr. Alex. Graham Vice-Chairman, and Messrs. A. S. Flower, M.A., and R. E. Smith Hon. Secretaries.

The Committee arranged for the reading of the following Papers during the present Session:—"Notes upon the Architecture of China," prepared by Mr. F. M. Gratton, of Shanghai; "Observations on the London Building Act 1894," by Professor Banister Fletcher; and "The Legal Position of Architects in relation to Certificates and Awards," by Mr. James Strahan, Barrister-at-Law. They have also arranged for a Paper, by Professor Baldwin Brown, on Anglo-Saxon Architecture, for the General Meeting of the 20th May.

The Committee have to acknowledge their indebtedness to the authors of sundry Papers which appeared in the *JOURNAL* during the recess of 1894—namely, "Nile Reservoirs," by Mr. Cope Whitehouse, illustrated with maps and photographs kindly lent by the author; "The Threatened Destruction of Philæ," by the distinguished Egyptologist, Dr. Edouard Naville, since elected an Hon. Corresponding Member; "Damme, a City of the Netherlands," with original drawings, by Mr. Tavenor Perry; "The New Museum in the Orto Botanico, Rome," by Professor the Commendatore Lanciani; and "Notes on some African Structures," by Mr. J. T. Last, with illustrations and an Appendix by Mr. Wm. Simpson. Special articles have also appeared during the present Session, notably, a review by Mr. A. E. Street of the Notebooks and Diaries presented by Mr. Wolfe Barry, an Historical Note on the Institute Examinations, Professor Aitchison's Appeal to Members to supply the editions of Vitruvius

wanting in the Library, and reviews of Monsieur Van Ysendyck's great work by Mr. Tavenor Perry and Mr. Starkie Gardner.

The Council, recognising the importance of many of the Papers read before the Allied Societies, have devoted a section of the JOURNAL to their publication.

Arrangements have been made by the Committee for the better preservation of the collection of Measured Drawings for which the Institute Silver Medal has been awarded.

The Committee desire to call attention to the large number of interesting and valuable works presented to the Library during the official year, all of which have been duly noticed or reviewed in the JOURNAL. The Librarian's Report to the Committee is as follows:—

During the twelve months elapsed from 1st April 1894 to 31st March of the present year, the total additions to the Reference Library amounted to 134 volumes and 75 pamphlets, and to the Loan Library 12 volumes and 2 pamphlets, exclusive of periodicals, reports, and transactions of societies, and parts of works issued in a serial form now in progress.

The number of volumes presented to the Reference Library was 92, and to the Loan Library, 3. Of pamphlets, 73 were presented to the Reference Library, and 2 to the Loan Library. Of drawings, engravings, and photographs, 67 sheets and 4 books were presented, exclusive of the *Sketch-book of the Architectural Association*. There were also presented 2 medals struck by the Corporation of the City of London.

The works purchased comprised 42 volumes, 2 pamphlets, and 1 book of drawings, for the Reference Library, and 9 volumes for the Loan Library, together with several Parliamentary papers.

The attendances of readers in the Library numbered 2,838 (last year 2411), showing an increase of nearly 18 per cent.

The number of tickets (exclusive of renewals) issued for admission to the Reference and Loan Library was 83 (last year 93).

The number of volumes issued on loan was 986 (last year 976).

Where so many useful and valuable additions to the Library have been made by donation, it is hoped it will be not invidious to make special mention of: a second copy of the Architectural Publication Society's *Dictionary of Architecture*, presented by Mr. Arthur Cates; M. Van Ysendyck's great work entitled *Documents Classés de l'Art dans les Pays-Bas*, presented by the author; the fine volume illustrating English and Welsh Cathedrals, presented by the proprietors of *The Builder*; and Part VII. of the *Jeypore Portfolio of Architectural Details*, presented by his Highness the Maharaja of Jeypore, a worthy continuation (and probable completion) of the preceding parts of this fine work. The new Metropolitan Building Act has called forth several text-books on the subject, and those by Messrs. Craies, Dicksee, Fletcher, Statham, and Griffiths and Pember, have already been presented. Mention must also be made of a very interesting collection of views of Chinese buildings, presented by Mr. F. M. Gratton. The question of binding into a volume a similar collection of photographs of buildings in Sydney, N.S.W., was, by resolution of the Committee on 8th March last, remitted to the Sub-Committee on the Library; and being highly desirable as a means of preservation for, and ready reference to, the plates, it is much to be hoped it may be sanctioned and form a precedent for similar cases.

Among the purchases may be especially noticed Burdett's *Hospitals and Asylums of the World*, a valuable work much asked for by readers, and on several occasions recommended for the Committee's sanction as a purchase.

The additions to the Loan Library, though less numerous than could be desired, have for the most part been works really wanted to meet the needs of readers and the increasing demand for standard text-books.

The Library Rules have been under the Committee's consideration, and a fresh set were finally sanctioned by the Council. The new Rules were published in the KALENDAR, and have been since hung up in the Library. The Committee, in pursuance of a resolution of the Council, have considered the general development of the Library, and how far it met the convenience and requirements of members and others using it. Their recommendations were duly reported to the Council, by whom they were approved and ordered to be carried into effect.

PRACTICE STANDING COMMITTEE.

The Practice Standing Committee report that they have held six Meetings since the issue of the last Report. They appointed Mr. Henry Currey Chairman, Mr. Arthur Cates Vice-Chairman, and Mr. Henry Cowell Boyes Hon. Secretary.

Their attention has been chiefly directed to the further consideration of the form of Building Contract and Schedule of Conditions, which have at length been completed and reported to the Council.

During the long deliberations of the Select Committee of the House of Commons on the London Streets and Buildings Bill of the London County Council, the Institute was represented by three members of the Practice Committee, Messrs. Cates, Hall, and Rickman, and the Committee feel that the Institute may be congratulated on the fact that its labours with relation to this subject have had a material effect on the provisions of the Act as passed.

SCIENCE STANDING COMMITTEE.

The Science Standing Committee report that eight meetings have been held during the present session, and there has been an average attendance of eleven members. They appointed Mr. P. Gordon Smith Chairman, Mr. T. W. Cutler Vice-Chairman, and Messrs. H. D. Searles-Wood and William C. Street Hon. Secretaries.

Two of the Sessional Meetings have been under the management of the Committee. On the 25th February Mr. Aldwinckle read a Paper on "Fever Hospitals"; and on the 25th March Mr. Burrows read a Paper on "Sound in its Relation to Buildings." At each of the meetings an animated and interesting discussion followed the reading of the Papers. For the next Session the Committee have already arranged for a Paper by Mr. Tuit, M.Inst.C.E., on "The Effects of Fires on Large Buildings."

In connection with the Fund for Experimental Research, the Committee has advanced its scheme for making tests of brickwork, by which it is intended to establish what ratio exists between the strength of individual bricks and that of brickwork composed of similar bricks in different kinds of mortar. Professor Unwin has kindly joined the Sub-Committee, which is entrusted with the details of the proposed experiments, and, thanks to the liberality of Sir William Arrol in providing the expensive and necessary apparatus, it is expected that a commencement will be made immediately.

At the invitation of Professor Banister Fletcher, and with a view to the encouragement of good workmanship, the Science Committee have assisted at the Building Trades Exhibition held at the Royal Agricultural Hall. A loan collection of pictures and models from the Institute is included in the Exhibition, and several of the members of the Committee have acted as judges of the Handicraft Competitions, and awarded the prizes, which were presented to the successful competitors by the Duke of Fife.

FINANCES.

The Council submit an Estimate of Income and Expenditure of Ordinary Funds for the twelve months of 1895, exclusive of Entrance fees and Final Examination fees, as follows:—

EXPENDITURE.		INCOME.	
	£ s. d.		£ s. d.
Rent, Lighting, and Coals	900 0 0	Subscriptions and Arrears	4,700 0 0
Salaries and Special Assistance	1,325 0 0	Dividends on Stock and Shares	156 0 0
Printing, Stationery, Stamps, and Petty Cash	550 0 0	Sale of Publications, &c.	100 0 0
General Meetings and Exhibitions	250 0 0	Use of Rooms	30 0 0
Housekeeping	150 0 0	Examination Fees—	
Advertisements	45 0 0	Statutory	10 0 0
Examinations	250 0 0	Preliminary	250 0 0
Fittings, Furniture, and Repairs	150 0 0	Intermediate	150 0 0
Fire Insurance	25 0 0		410 0 0
Medals and other Prizes	180 0 0		
Grant to Library	50 0 0		
Grant to Architectural Association	100 0 0		
KALENDAR (net)	100 0 0		
JOURNAL (net)	950 0 0		
Allied Societies	200 0 0		
Solicitors, Parliamentary Agents, &c.	100 0 0		
	£5,325 0 0		
Balance (to reduction of deficit of 1894 : £286, 7s. 10d.)	71 0 0		
	<u>£5,396 0 0</u>		<u>£5,396 0 0</u>

The Accounts of Ordinary Funds for 1894, prepared by Messrs. Saffery, Son & Co., Chartered Accountants, and audited by Mr. Frederick Todd [F.] and Mr. Wm. Woodward [A.], the Auditors appointed by the Annual General Meeting of 1894, here follow :—

Income and Expenditure Account of Ordinary Funds for the Year ended 31st December 1894.

Dr.	EXPENDITURE.				INCOME.				Cr.					
To	£	s.	d.	£	s.	d.	£	s.	d.					
To ORDINARY EXPENDITURE:—							By ORDINARY INCOME:—							
Rent	760	0	0				Subscriptions—							
Gas and Electric Lighting	126	3	6				Fellows	2424	9	0				
Coals	23	10	0				Ditto, Arrears	61	19	0				
				914	13	6	Associates	1726	4	0				
Salaries and Extra Assistance				1302	7	2	Ditto, Arrears	68	5	0				
General Printing, Stationery, Binding, Postage Stamps, and Petty Expenses				585	3	1	Hon. Associates	130	4	0				
Expenses of General Meetings and Exhibitions							Ditto, Arrears	2	2	0				
Housekeeping Expenses				187	3	7	Dividends on Stocks and Shares			4413	3	0		
Advertisements in Newspapers				174	17	7	Advertisements in the JOURNAL (net)	250	0	0				
Examination Expenses				60	19	6	Sale of Papers, Journal, &c.	92	17	3				
General Repairs				286	12	9				342	17	3		
Fire Insurance				104	17	8	Use of Rooms—							
Medals and other Prizes				7	12	0	District Surveyors' Association	25	0	0				
Grant to Library				119	4	0	Architectural Association	7	0	0				
Grant to Architectural Association (Education Scheme)				50	0	0	Examination Fees—							
The JOURNAL—				100	0	0	Metropolitan Building Act and Local Acts	7	7	0				
Reporting	61	19	0				Preliminary Examination	195	6	0				
Printing, Binding, &c.	777	10	8				Intermediate Examination	132	6	0				
Illustrations	145	1	10							334	19	0		
Stamps and Addressing	197	11	6				By Balance (Deficit)			286	7	10		
Printing and Posting of KALENDAR for 1894-95	149	6	4	1182	3	0								
Less amount to be received for Advertisements	50	0	0											
Contributions to Allied Societies				99	6	4								
Miscellaneous Expenses—				196	11	6								
Legal Expenses	151	10	2											
Accountant's Charges	19	12	0											
Sundries	5	5	0											
Anniversary Dinner, Excess of payments over receipts				176	7	2								
				18	0	0								
				<u>£5565</u>	<u>18</u>	<u>10</u>								
												<u>£5565</u>	<u>18</u>	<u>10</u>

Balance Sheet of Ordinary Funds, 31st December 1894.

Dr.	LIABILITIES.				ASSETS.				Cr.				
To	£	s.	d.	£	s.	d.	£	s.	d.				
To Sundry Creditors outstanding				386	16	9	By Cash at Bankers'			218	7	7	
To Solicitors' Costs outstanding				21	8	6	By Investments:—						
To Examinations: Fees anticipatory of election				573	6	0	£1000 2½ per Cent. Consols	925	9	6			
To Subscriptions for 1895 received in advance				71	8	0	202 Shares Architectural Union Compy.	2828	0	0			
To Accumulated Fund (being surplus of Assets over Liabilities)—							By Property:—						
Balance as per last Balance Sheet	12735	17	5				Furniture, Fittings, and Fixtures, as per last Balance Sheet	2551	12	3			
Deduct Arrears included in this Account since received or cancelled	212	2	0				Additions during 1894	9	16	6			
Amount to rectify "Fees anticipatory of election" Account	72	9	0							2561	8	9	
Depreciation written off Furniture	64	0	8				Less Depreciation			64	0	8	
Excess of Expenditure over Income for 1894	286	7	10							2497	8	1	
				634	19	6	Printed Books and Manuscripts	3700	0	0			
							Oil Paintings	1800	0	0			
Add Arrears for 1894, as contra	206	17	0	12100	17	11	Lithographs, Prints, &c.	400	0	0			
Entrance Fees for 1894—							Water-colour, Sepia, &c.	600	0	0			
3 Fellows (£5. 5s. each)	15	15	0				Models, Plaster Busts, &c.	140	0	0			
7 ditto from Associate class (£2.2s. each)	14	14	0				Marble Busts	150	0	0			
64 Associates (£3. 3s. each)	201	12	0							9287	8	1	
				438	18	0	By Debtors:—						
							Messrs. Street Bros. for advertisements in Kalendar				50	0	0
Saffery, Son & Co., Chartered Accountants.				<u>£13592</u>	<u>15</u>	<u>2</u>	By Subscriptions in Arrear—						
							1893	76	13	0			
							1894, contra	206	17	0			
										283	10	0	
										<u>£13592</u>	<u>15</u>	<u>2</u>	

Examined with the several vouchers and found to be correct. (Signed) { FREDK. TODD, WM. WOODWARD.

20th April 1895.

The Revenue Account and Balance Sheet of Trust Funds for the year ended 31st December 1894, audited by Mr. Frederick Todd and Mr. William Woodward, here follow:—

Revenue Account of Trust Funds for the Year ended 31st December 1894.

Dr.	£ s. d.	Cr.	£ s. d.
ASHPITEL PRIZE FUND:—			
To Cost of Books, Ashpitel Prize [E. R. Barrow (£10. 10s.); E. E. Fetch (£5. 5s.); J. A. R. Inglis (£5. 5s.)]	21 0 0	By Balance from last Account	29 17 0
To Balance carried forward	20 17 0	By Dividend on 20 Shares, Architectural Union Co., at 12s. per share	12 0 0
	<u>41 17 0</u>		<u>41 17 0</u>
CHARITABLE FUND:—			
To Grant to Architects' Benevolent Society	6 6 0	By Balance from last Account	1 12 7
To Balance carried forward	0 13 7	By Dividends on £200. 10s. 2½ per Cent. Consols.....	5 7 0
	<u>6 19 7</u>		<u>6 19 7</u>
DONALDSON TESTIMONIAL FUND:—			
To Cost of Medals	2 15 0	By Balance from last Account	0 8 6
To Balance carried forward	0 8 6	By Dividends on £72 L. & N.W. Railway 4 per Cent. Preference Stock	2 15 0
	<u>3 3 6</u>		<u>3 3 6</u>
GODWIN BURSARY:—			
To Cash paid to Holder of Bursary, 1893, 2nd instalment [Banister F. Fletcher]	20 0 0	By Balance from last Account	22 6 7
To Cash paid to Holder of Bursary, 1894, 1st moiety [H. P. Adams]	20 0 0	By Dividends on £1030 Caledonian Railway 4 per Cent. Debenture Stock	39 17 10
To Cost of Medal	1 19 6		
To Balance carried forward	20 4 11		
	<u>62 4 5</u>		<u>62 4 5</u>
GRISSELL LEGACY FUND:—			
To Balance carried forward	51 15 5	By Balance from last Account	36 18 11
	<u>51 15 5</u>	By Dividends on Great Indian Peninsula Railway 5 per Cent. Stock	14 16 6
			<u>51 15 5</u>
LIBRARY FUND:—			
To Purchase of Books, Binding, &c.	90 1 4	By Balance from last Account	50 8 9
To Printing, Stationery, &c.	12 0 9	By Annual Donation from a Member	5 0 0
To Petty Expenses	0 19 9	By Entrance Donations of three Hon. Associates	6 6 0
To Balance carried forward	17 9 2	By Grant from Ordinary Funds	50 0 0
	<u>120 11 0</u>	By Amount received in Fines (Loan Collection).....	5 5 0
		By Amount realised by sale of Books eliminated from Reference Library (Puttick and Simpson)	3 11 3
			<u>120 11 0</u>
OWEN-JONES STUDENTSHIP:—			
To Balance of Grant paid Student 1893 [A. H. Powell] ..	25 0 0	By Balance from last Account	25 1 11
To Balance carried forward	88 1 2	By Dividends on £1773. 6s. 8d. Midland Railway 3 per Cent. Debenture Stock	51 11 11
	<u>113 1 2</u>	By Dividends on £750 Gt. Western Railway 5 per Cent. Stock	36 7 4
			<u>113 1 2</u>
PUGIN MEMORIAL FUND:—			
To Grant paid Student 1893 [J. J. Joass]	40 0 0	By Balance from last Account	54 9 1
To extra Prize [H. C. Corlette]	5 5 0	By Dividends on £1050 L. & N.W. Railway 4 per Cent. Preference Stock	40 15 5
To Balance carried forward	49 19 6		<u>95 4 6</u>
	<u>95 4 6</u>		
TITE LEGACY FUND:—			
To Cash paid Prizeman for 1893, 2nd instalment [O. A. Nicholson]	10 0 0	By Balance from last Account	19 0 6
To Balance carried forward	38 8 0	By Dividends on £1102. 15s. 2½ per Cent. Consols	29 7 6
	<u>48 8 0</u>		<u>48 8 0</u>
TRAVELLING FUND:—			
To Balance carried forward	47 4 11	By Balance from last Account	13 13 7
	<u>47 4 11</u>	By Dividends on £770 Madras Railway 4½ per Cent. Stock	33 11 4
			<u>47 4 11</u>
ALDWINCKLE STUDENTSHIPS:—			
To Balance carried forward	150 0 0	By Cash from T. W. Aldwinckle [F.] for purposes of Studentships	150 0 0
	<u>£150 0 0</u>		<u>£150 0 0</u>

The above account and the balance-sheet which follows have been examined with the several vouchers and found to be correct.

20th April 1895.

(Signed) { FREDK. TODD,
WM. WOODWARD.

Dr.	<i>Balance Sheet of Trust Funds, 31st December 1894.</i>		Ct.
	£	s. d.	£ s. d.
To ASHPITEL PRIZE FUND:—			
Capital—20 Shares in the Architectural Union Com- pany, Limited, at £14 per share	280	0 0	
Balance at credit of Revenue Account	20	17 0	
To CHARITABLE FUND:—			
Capital—£200. 10s. 2½ per Cent. Consols	195	14 9	
Balance at credit of Revenue Account		0 13 7	
To DONALDSON TESTIMONIAL FUND:—			
Capital—£72 L. & N.W. Railway 4 per Cent. Prefer- ence Stock	89	0 0	
Balance at credit of Revenue Account		0 8 6	
To GODWIN BURSARY:—			
Capital—£1030 Caledonian Railway 4 per Cent. De- benture Stock	1344	13 6	
Balance at credit of Revenue Account		20 4 11	
To GRISSELL LEGACY FUND:—			
Capital—£260 Gt. Indian Peninsula Railway 5 per Cent. Guaranteed Stock	444	0 0	
Balance at credit of Revenue Account		51 15 5	
To LIBRARY FUND:—			
Balance at credit of Revenue Account		17 9 2	
To OWEN-JONES STUDENTSHIP:—			
Capital—£1773. 6s. 8d. Midland Railway 3 per Cent. Debenture Stock	1773	0 0	
£750 Great Western Railway 5 per Cent. Consolidated Stock		1267 10 0	
Balance at credit of Revenue Account		88 1 2	
To PUGIN MEMORIAL FUND:—			
Capital—£1050 L. & N.W. Railway 4 per Cent. Pre- ference Stock	1313	0 0	
Balance at credit of Revenue Account		49 19 6	
To TITE LEGACY FUND:—			
Capital—£1102. 15s. 2½ per Cent. Consols	1058	13 10	
Balance at credit of Revenue Account		38 8 0	
To TRAVELLING FUND:—			
Capital—£770 Madras Railway 4 per Cent. Stock	1006	17 10	
Balance at credit of Revenue Account		47 4 11	
To ALDWINCKLE STUDENTSHIPS FUND:—			
Balance at credit of Revenue Account		150 0 0	
	£9257	12 1	
			£8772 9 11
			485 2 2



9, CONDUIT STREET, LONDON, W., 9th May 1895.

CHRONICLE.

The Twelfth General Meeting [p. 419].

As stated in the last issue of the JOURNAL, the introduction of a huge white cloth stretched across a corner of the Meeting Room for the lime-light exhibition on the 22nd ult., when Papers on "The Use and Abuse of Marble for Decorative Purposes" were read, had a perceptible effect upon the voices of the speakers; and even the reporters who were seated close to the two gentlemen who moved and seconded the vote of thanks had difficulty in taking down their words. Mr. Alma Tadema [p. 416] was reported as having said "Italy" instead of Pompeii, and "Etrurian" instead of Lucullian; and he objects to the well-known *Palais de Scaurus* of Mazois being described as "ideal," a qualification which he did not use.

Mr. Alma Tadema, in a letter to the Secretary of the Institute, states that it was during his studies at *Pompeii* he discovered the walls of some of the oldest houses to be decorated with painted slabs in imitation of marble. In many of the houses he found that the sockets for pivots of doors were let in blocks of beautiful onyx and other precious marbles, proving that the use of precious marbles was much earlier than had been generally accepted. It was a mistake, too, to represent him as speaking of the "ideal" Palace of Scaurus described by Mazois, for the actual details of the building have been given by old Roman writers, and Mazois refers to the atrium with its columns of *Lucullian* marble eleven metres in height. Again, his objection to breaking up a moulding was not clearly stated. He was always afraid, he said, of breaking up a moulding. It was quite permissible to break up a flat surface with the veins of the marble as much as desired, but it was a pity to break up a beautiful and refined moulding.

The Church of St. Clement Danes, Strand.

Mr. James Cubitt [F.] sends the following contribution to the defence of an historical monument of admitted value to London architecture in general and to British architects in particular:

Ever since the Royal Courts of Justice were built, there has been, at intervals, a demand for the removal of the Church of St. Clement Danes. Some people desire it that the roadway may be straightened; as if we had not enough straight

streets in London already. Others, whose motto is "Down with everything that is up," join in it on the broad principle that the destruction of anything old is sure to be an advance. But the reasons that are usually assigned are that it interferes with the view of the Law Courts, and that it is very ugly.

The Law Courts were, I believe, avowedly designed to be seen bit by bit; in other words, they were skilfully adapted to their position. They can be sufficiently viewed as a whole from the south-east, and there is nothing to be gained by making a desert in front of them and calling it an "improvement." From the south-west, as well as from the river and elsewhere, St. Clement's tower groups in with them very picturesquely; and it harmonises with them better now than formerly, because its stone and theirs are growing alike in tone.

If we are to pull down buildings in the Strand because they are ugly, there is obviously a considerable clearance in prospect. And it is not with St. Clement's that we ought in fairness to begin; though its nave and chancel do show something of that repellent side of eighteenth-century architecture which often comes out so forcibly in Hogarth's pictures. The tower, however, has merits of its own. The square part of it, indeed, which is said to be a mediæval work, cased over and Italianised, is far from beautiful. It is too high for its width, and its stages are badly proportioned. But in the Renaissance towers of Wren and his followers the square part hardly counts. It is a mere stalk run up to lift the flower of the design—that is, the super-tower with its lantern stages—well above the surrounding houses. This super-tower, in the present case, is by no means deficient in interest.

The critical point in most lantern towers is, of course, the transition from the square base to the polygonal or circular superstructure. The difficulty is to make this transition look well, not only in a direct view, but in an angular one. Even in such a masterpiece as the steeple of St. Mary-le-Bow, this difficulty is not fully conquered. There are few points, fortunately, from which it can be seen cornerwise; but when it is—as, for instance, from London Bridge—it is hardly for the moment to be recognised. In old Gothic examples, especially in France and Spain, the diagonal profile was filled out by great turrets or compound pinnacles, occupying the four spandrils between the lantern and the sub-tower. But in Renaissance versions of the type, these turrets or pinnacles are commonly replaced by mere scrolls or vases, too small and unimportant to round off the outline effectually. The peculiarity of St. Clement Danes is, that the junction is managed in a different way; in a way which might beforehand have seemed unpromising, but which really unites its sub-tower and super-tower in a more satisfactory manner

than usual. Its principle is, that the lowest of the three lantern stages, instead of being a regular octagon, is only a square with the corners cut off.

In itself, this form is hardly a beautiful one. There is a conspicuous instance of it, which does not invite imitation, in the upper part of the great belfry at Ghent. But there the splayed-off square plan is continued upwards through stage after stage, till it finishes at top in a spirelet of the same type. At St. Clement's, on the contrary, it passes, in the second lantern, into a normal octagon, which, again, is surmounted by a smaller one and by a cupola of regular shape. The transitions are managed with considerable cleverness. The lanterns seem to grow naturally out of each other, and out of the rectangular tower beneath; and the profile of the whole steeple, as seen diagonally, is nearly as good as it is in front.

Here is an experiment from which, perhaps, there may still be something to learn. The church which has preserved it for us is worth keeping for its own sake; and not the less worth keeping because it is one of the few relics of that "world before the Flood," of which Dr. Johnson and his contemporaries were the last inhabitants.

The late Gordon Macdonald Hills [4.].

Gordon M. Hills, the eldest surviving son of the late Captain John Hills, R.N., was born 5th July 1826. The greater part of his boyhood was passed at Lancing, in Sussex, where his father was stationed. He was preparing for a commission in the Marine Artillery, but the expected presentation failing, he was placed with a firm of architects at Southampton. Thence, after three years, he passed to the office of Mr. Butler, of Chichester, who held the post of Cathedral Architect; and, there, commenced a connection with the cathedral which lasted till his death. In 1850 Mr. Hills entered the office of the late R. C. Carpenter as managing assistant, and, about four years later, began practice on his own account. When the fall of Chichester Cathedral spire was imminent, Mr. Hills acted for Mr. Slater (Carpenter's partner), who was then Cathedral Architect, and superintended the efforts which were made up to the last moment to avert the catastrophe by the use of shoring; but they proved of no avail. He was the last person within the building before the fall, and was a witness of the actual collapse. The account of the fall of Chichester spire which appeared in *The Builder* was written by him; and, after Slater's death, the Cathedral authorities appointed him Surveyor to the Cathedral. He was elected an Associate of the Institute in 1858, but never became a Fellow.

In 1871 Mr. Hills was successful in his candidature for appointment as Diocesan Surveyor in the dioceses of London and Rochester. When, afterwards, a portion of Rochester diocese formed part of the new diocese of St. Albans, he continued

his appointments under the altered circumstances in the three dioceses; and conducted a considerable practice, chiefly churches, parsonages, and schools. Amongst these the principal works are the Cambridge Conduit; St. Saviour's Church, Everton; and All Saints', Princes Park, Liverpool; Holy Trinity, Sliema, Malta; Pinnore Church, Ayrshire; additions and restoration at the cloisters at Chichester; and some thirty Sussex churches, including Amberley, Clymping, Colgate, East Dean, Lymminster, Pulborough, Washington, and Wiston; and at various churches throughout England, those best known being Buckland, Herts; Croston, Lancashire; Folkton and Hunmanby, Yorkshire; Headcorn, Leeds; and Broomfield, in Kent; Packwood, Warwickshire; Rushden, Northamptonshire; making in all over seventy churches built and restored, besides vicarages, schools, &c.

Mr. Hills measured the remains of all the ancient Round Towers of Ireland; and in 1858 read a Paper on the subject before the Institute.* He was a member of the British Archaeological Society, and first attended a congress on the occasion of that held at Salisbury in 1858, afterwards acting as its Treasurer, and taking a leading part in the management of the Society for many years. Mr. Hills made many contributions to antiquarian literature in the form of Papers, amongst which are essays on Acoustic Vases; † the Measurements of Ptolemy; the Cathedrals of Chichester, Durham, and Hereford; Irish and Saxon Architecture; Ford, Buildwas, and Fountains Abbeys, and other monastic remains.

During the last few years his health had been failing, and he died on the 5th ult. He was succeeded by his eldest son, Mr. Gordon P. G. Hills [A.], who for several years had been his father's partner and assistant.

The late Alfred Hayles Clark [A.]

Mr. A. H. Clark, whose death was announced at the General Meeting of Monday, the 22nd ult., was articled in 1882 at Ryde. Coming to London on the completion of his articles, he became a member of the Architectural Association, and in 1892 won the Association Medal and Prize for his Design for a Town House. In 1891 he passed the Qualifying Examination, and was elected Associate in the following year. For a time he was engaged in the office of Messrs. Wimperis & Arber, whose service he left in 1893 to take the post of Assistant Engineer to the City of Norwich, an appointment he held till his death.

The Architectural Association Sketch-Book.

Mr. Leonard Stokes [F.] desires it to be known that, as Hon. Secretary of the *Sketch-Book* of the

Architectural Association, he has in stock some twenty copies of Vols. 7, 8, 10, and 12 of the "New Series"; and that having completed the Series it is necessary to close the accounts, and send a final cheque to its printers. The price of each volume, unbound, is one guinea. Mr. Stokes will be glad to send copies on approval if desired, but the whole work may be seen in the Institute Library by any one who applies for the purpose.

REVIEWS. XXV.

(73.)

CHRIST IN ARCHITECTURE.

The Life of Christ, as represented in Art. By Frederic W. Farrar, D.D., F.R.S., late Fellow of Trinity College, Cambridge; Archdeacon and Canon of Westminster; Chaplain in Ordinary to the Queen and to the House of Commons. 8s. Lond. 1894. Price 21s. [Messrs. Adam & Charles Black, 4, Soho Square, London.]

The architect, like the musician, exercises an intellectual art, capable of awakening the emotions and of operating definitely, though perhaps unconsciously, upon the mind. Physical environment supplies the material upon which such impressions and effects as gloom or brightness, grandeur or richness, are based, and through proportion, form, and colour influence the mind in combinations as infinite as the possibilities of geometric form, and upon a similarly geometric infinity of sound harmonies music appeals through the sense of hearing. Architecture, considered as an independent art, possesses means of expression which are wholly derived from an æsthetic use of the science of building; and though a work of architecture perforce reflects the habit of mind and purpose of its author, it is, apart from the aid of other arts, as wholly inarticulate as Nature herself—without further revelation upon the subject of the actual personality and life history of its creating architect. For, though the abstract emotions that a work of pure architecture originates in the mind may be numerous, the concrete facts that it can relate are necessarily of a very limited description; and though the testimony of the building to the character and circumstances of its architect is, so far as it goes, actual and perceptible, it is limited, and at the best indirect.

Architecture is an art that has not sufficient power of expression for epic purposes; it cannot, without the aid of an interpreter, open up the facts or laws of its being to the uninitiated, and can therefore much less become the means of narrating the most natural epic, or of conveying the simplest didactic teaching. The greatest epic of the world can obtain no testimony or articulate witness from an art which appeals to the mind by abstractions, and has for morals only taste, and for ethics naught but æsthetics.

"Christian architecture," as part of "Christian

* "A Review of the Architecture and History of the "Round Towers of Ireland," TRANSACTIONS, 1857-58, p. 66.

† "Earthenware Pots (built into Churches), called "Acoustic Vases," TRANSACTIONS, 1881-82, p. 65.

“art,” has now for so long been an accepted phrase, and we have, too, only so recently learnt to regard every building as an historical document, that to exclude architecture from consideration in a treatise upon *The Life of Christ, as represented in Art*, appears an heterodox originality. It is true that the whole genesis and development of mediæval architecture synchronized with, and originated in, Christian worship and ritual, and may be claimed as a witness to the current history of the Church; yet this is scarcely the evidence of æsthetic architecture, but rather of utilitarian purpose, and not essentially of an artistic element.

It is well that architects should recognise that they serve an autonomous art, possessing its own forms of expression and idiom, and having consequent limitations. They will thus value its severest and grandest triumphs as those of pure architectural expression alone. The Great Pyramid, the denuded Parthenon, and, in whole effect, the exterior of St. Paul's, London, and the interiors of the Pantheon and of St. Peter's at Rome, are severally effective as works of constructive æsthetics alone; and each can further be considered apart from the charm of colour which legitimately appertains to architectural effect.

The art of architecture, however, displays its fullest powers and wider gracefulness in embodying the higher arts, that is, those capable of epic and didactic purpose, as sculpture, painting, and poetry, and by employing them in subservience to architectural ends, for the decoration, enrichment, and inscription of the building; articulate expression being derived from them by which doctrine and fact can be conveyed, and the music and the poem united in melodious song. This service of the higher to the lower arts obtains sanction from the fact that the finest works of sculpture and painting have been produced in the service of architecture, as the Parthenon frieze and tympanum, and the tombs of the Medici at Florence, or the frescoes of Giotto at Santa Croce, and the Stanzi of Raphael, bear witness. In fact, it has been while affording the service of decoration to the mother art of architecture that sculptors and painters have produced their loftiest and most enduring conceptions. The present century, having been witness to a general but spasmodic artistic revival, might close with architectural opera of harmony and power if architects were capable of marshalling the orchestra and conducting a concert of those exponents of plastic and graphic art who are displaying now such an increasing regard for architectonic purpose and decorative quality.

As architecture provides the occasion for the display of the more graphic arts, and marshals and inspires their efforts, just as we may suppose a cathedral pulpit and audience would act upon a sympathetically eloquent preacher, the life of Christ, as represented in the art of architecture in

its wider and maternal relation to the other arts, becomes a subject of much interest and of definite ecclesiastical value. It will be readily granted that ecclesiastical architecture and symbolism are closely united, and this, of course, implies the admission of didactic purpose and significance. It will therefore be found that scenes from the life of Christ and ideal representations of doctrines are connected with architectural motives and treatment, for the purpose of conveying, from the inarticulate features of the building, a definite didactic teaching into a work of more graphic art. The statues known as “Le Bon Dieu de Reims” and “Le Bon Dieu d'Amiens,” which form integral parts of the doorways to which they are affixed, are striking illustrations of this connection, as they convey powerfully to the mind of every worshipper who enters either church that Christ taught that He was the door. Any criticism or description of these works of sculpture, as representations of Christ, would be incomplete that omitted to record the doctrine which is thus designedly and architecturally illustrated. The sister art of painting affords a striking example of this architectural-theological teaching in the Last Supper by Lionardo da Vinci, which, it will be remembered, is painted upon the wall of the refectory of Santa Maria della Grazie at Milan, artist and divine thus conveying obviously a meaning in the connection between a refectory and the Last Supper.

The life of Christ in art was nearly always represented under the influence of and in connection with architecture, which dictated a meaning or emphasis to the subject illustrated of poetic or symbolic import. The examples which have been cited are not isolated ones, but may be taken as proofs of a rule which existed until picture paintings became popular, and when art disintegrated and architecture died. Architecture certainly not only assisted the more expressive arts, but herself bore an important share in didactic teaching at a time when the absence of sufficient national education rendered literature unavailable for the masses. The pursuit of this subject offers a field of study wide and deep in interest to the Christian archæologist.

The whole subject is far too extensive for any but a very partial treatment within the compass of such a book as could be written, illustrated, or read in our days. The number of arts, as well as of examples, is so great as almost to baffle contemplation. Illustrations could range from Mr. Briton Riviere's “Herd of Swine” to the nervous symbolism of the catacomb monograms, and the cataloguing and classification of an adequate number of examples would be a heavy undertaking. It is even doubtful whether a satisfactory list could be compiled of known illustrations of the life of Christ in pre-Raphaelite times alone. On the other hand, it should not be impossible or difficult to classify the arts, or rather crafts,

employed in the same era, in spite of their great number. This would include gem engraving and charm cutting, early Christian and mediæval ivories, vestment embroidery and tapestry, missal illuminations and paintings on coffers and aumbries, chasing and embossing in precious metals and bronzes, the ceramics of tile, majolica, and glass painting, frescoes and mosaics from Byzantium to England, sacred paintings and furniture decorated with them, and the vast numbers and variety of sculptured and plastic representations, from the colossal subjects of the masonry of Reims to the exquisite modellings of Donatello, and the few masterpieces of Albert Dürer as a worker in relief. A review of even these few crafts is suggestive, and calls to mind the wealth of almost every province of mediæval Europe in some phase of Christian art. The vastness of the subject is such that should all representations of the life of Christ in art be obliterated, Europe would seem barren and desolate of artistic vitality, as almost all the tokens of the existence and survival of the higher arts would have vanished.

The field to be surveyed being so extensive, it is no reproach to say that, until some genius arises having an encyclopædic view of all the arts, and who unites the philosophic spirit which enabled Baron de Bunsen to attempt his survey of Christianity with the perception of artistic purpose which characterises Mr. Ruskin, the task is too great to be satisfactorily attempted. But Time's drastic hand may reduce existing works of art, and protracted experience may increase the industry and patience of generations to come, and in the future combine to render the labour more practicable.

The direct service of art to the representation of the life of Christ has been rendered a work of supererogation and not necessary since the advent of the printing press and the Bible in the vulgar tongue. The commenting, therefore, upon such works of art has become the work of dilettanti; and until the spirit of the age changes, it is unlikely that the requisite patient classification of such masses of items will be undertaken without any apparently adequate necessity or reward.

Dr. Farrar's courage must therefore be recognised as he attempts, in a volume of moderate size, a conspectus of Christian art—to illustrate, in his own words, the thoughts about religion “of which art has eternized the ever-varying phases,” and in his desire “to indicate the influences upon Christian art of the faithful or unfaithful, the pure or the superstitious, the deeply devout or the wholly undevout feelings of the epochs, and the artists by whom it was produced.” But he modifies his title at the outset, and explains that, although art properly includes sculpture, architecture, and music, it is chiefly, though not exclusively, of painting that he speaks. This

qualification indicates that the standpoint of a popular estimate of art is adopted; and in his book, therefore, the carved and sculptured symbols of the catacombs and a few examples from Michelangelo and Della Robbia represent sculpture, and there is less still of a more architectural description. The remainder of the work is devoted to paintings, considered mainly in the modern picture gallery character as “works of art,” Byzantine and pre-Renaissance examples being broadly treated, and a fuller consideration given to the works of the Italian masters of the fifteenth and sixteenth centuries. To this are added lengthened references to a few works of the English pre-Raphaelite brotherhood and of Sir E. Burne-Jones.

The combined and universal voice of art—the “one art” of Michelangelo—remains unconsidered by Dr. Farrar, and not only the broader view of art as a whole, but very important examples and spheres of illustration are unnoticed. It should not be possible for an observant traveller or pilgrim of art to overlook the wonderful artistic and epic value of painted glass during those centuries especially, when both sculpture and painting were undeveloped. The windows of Chartres and Canterbury, and, at a later period, those of King's College Chapel, Cambridge, might well be cited as examples rich alike in art and representation, and worthy to rank in these respects with the mosaics of the vaults and domes of Ravenna and of St. Mark's, Venice; but paintings on glass are not referred to in this book.

By some strange neglect, Dr. Farrar omits to consider or mention the pre-eminently graphic representations, by German artists of the fifteenth century, of the Crucifixion, in the many wonderful triptychs with which Bavaria may be said to abound, and which remain in a very perfect condition. In these works the finest relief of the contemporaries of Peter Vischer and Adam Krafft is decorated in full colour by those of Wohlgemuth and Martin Schongauer, and set in an architectural composition with designed effects of lighting from the front and sides and above, bringing this class of works of art to the verge, or rather summit, of decorative actuality. It seems, indeed, to be the nearest approach, without decadence, to a sincere artistic realism; a realism that lingers still, in the unsophisticated dramatic representations of *The Passion Play* by the peasants of the Ober-ammergau.

An author with as genuine a love of works of art as that which Dr. Farrar displays, and with his remarkable powers of passionate description, is sure to produce a book of more than passing interest or of mere criticism; but it may surely become a fair ground for an expression of disappointment if he betrays no further acquaintance with the history and origin of the representations in art that he singles out for eloquent

description than that which is common to the public, who study all art under the limitations of picture galleries and gilt frames.

Dr. Farrar's literary authority upon the life of Christ is indisputable; but the re-translation of that life, from the representations in art back into literature, requires as complete an acquaintanceship with the spirit and practice of all Christian art, Early, Mediæval, and Renaissance, as with divinity; and it is not, perhaps, to be wondered at, if enthusiasm for art has led Dr. Farrar into undertaking a work, which must appear to lack that power to generalise which is only afforded by the widest observation of art, and that inner knowledge of its inspiration which is the equipment of the art worker in every age.

The works of Holbein and Dürer, for instance, cannot be understood if considered merely as examples of a school of mediæval German painting. There was a school of art breathing its life and vigour through all the crafts, and wood and stone carving and decoration and painting shared the breath of this life in common, and it is as manifest upon the commissioned canvases of Holbein and the wood blocks of the greater or lesser Passion, as in the streets of Nuremberg—the art life being common to all phases of mediæval activity. This is equally true of Italian art, which spent its youth and early prime in architectural fresco, and inspired, through the sculpture and bronzes of Pisano and Ghiberti, the same life which animated the union of colour and form in the Della Robbia ware.

The absence of this necessary recognition of the true breadth of art life has, in Dr. Farrar's book, resulted in a presentation of the connection between art and religion, which unmistakably implies that imperfect art has been essentially related to perfect religious feeling in the past; that with the perfecting of artistic science is involved, almost as of necessity, the obliteration of devotional and sacred character, so that the advent of true perspective, chiaroscuro, and anatomical drawing, synchronizes with religious decay. Thus the crude archaism of Margaritone of Arezzo is religious, while the developed artistic and technical power of Michelangelo is profane, the possession of such gifts as his assuredly placing him beyond the pale of spiritual painters.

This absurdly false, though generally received, estimate of the connection between religion and art underlies the affectations of much of the work which the Gothic revival has produced in our day; and Dr. Farrar writes as if he believed, in common with his generation, that religious art was dormant for centuries, and awakened only in the works of the pre-Raphaelite brethren and their successors.

Indeed, it is as if Sir Edward Burne-Jones and Mr. Holman Hunt studied in the school of Mantegna, either ignorant or oblivious of the greater works of the Florentine and Venetian

masters. The mental abstraction in which the modern painters of this school have lived, and the works that they have produced, are indeed significant testimonies to fixity of purpose and intellectual power; but in deliberately creating an artificial atmosphere and style, they have succeeded only in making the mission of their art indistinct to the present age as a didactic agent, and they have as completely destroyed its value to the ages to come as a witness to the natural life and thought of our own times.

The motive that led to this affectation will be mysterious and difficult of perception to the philosophical critic of the next age; and it will be vain to hope that the conclusion he will deduce from our modern sacred art will not be that the religious life of the nineteenth century, as represented in art, was a mediæval affectation.

BERESFORD PITE.

(73.)

ARCHITECTURAL REMAINS, CEYLON.

Architectural Remains, Anurádhapura, Ceylon; comprising the Dágabas and certain other ancient ruined Structures. Measured, drawn, and described by James G. Smither, F.R.I.B.A., late Architect to the Government of Ceylon. Sixty-seven plates. Published by order of the Ceylon Government. Imperial folio.

This volume has been presented to the Institute by the author. It is a large and splendid work, and is almost wholly devoted to the series of important dágabas, the remains of which still exist at Anurádhapura, the ancient capital of Ceylon. Mr. Smither appears to have been influenced by the desire expressed by Fergusson that these monuments should be carefully explored, plans made with exact measurements, the details drawn, and the whole accompanied with written descriptions. This is what the author has realised—at least he has done his best, as far as the exploration of the remains has permitted him to carry out his purpose. The sixty-seven plates, all drawn to a large scale, which the size of the book permits, form more than the half of the volume. In each case there is a photographic reproduction, showing the present outward appearance of each dágaba; then follow a plan and elevation or section of as much of the ruin as still exists or has been brought to light by excavation. To this are added drawings of details, sculptures, &c. Further explorations into these mountains of masonry may yet reveal new features, but one may assume that Mr. Smither has here given all the essential data concerning them.

From this series of celebrated dágabas possessing an important relationship to the same class of monuments in India, Burmah, and other localities I have made a summary, which may be useful for reference, of some of the details of each, giving dates, by whom erected, with the principal dimensions, &c.

The Thupárama Dágaba. Date B.C. 307-267. Erected by King Devanipiatissa to enshrine Buddha's right collar-bone. The diameter of dome is 31 ft. Height of dome, including pasada and base, 35 ft. The whole height, including the tee and pinnacle, is about 64 ft. It appears to have only one pasada* and four concentric circles of tall pillars round it.

The Lankáráma Dágaba. Date uncertain. Said to have been erected by King Maha Sen, about A.D. 231. Another authority places it between A.D. 276 and 302. The relics are said to have been three small pieces of bone that belonged to Buddha. Diameter about 38 ft. Height, including circular base, 28 ft. The upper part of tee and pinnacle are gone. Three concentric circles of pillars surround the dágaba.

The Mirisweti Dágaba. Date B.C. 161; finished B.C. 158. Erected by King Duttugaimunu. Said to enshrine the king's sceptre, but it is understood that there was a corporeal relic of Buddha in the sceptre. It is also said to have been erected in fulfilment of a vow of expiation, owing to the king having on one occasion omitted to share with the priesthood a condiment flavoured with chillies called "Meris-wetiya," or chili-sambal. Diameter 135 ft. 6 in. Dome so ruinous that the height is unknown, but may be estimated as about 94 ft. This dágaba had three pasadas, or procession paths.

The Ruwanweli Dágaba, also called "Hémawáli." Date B.C. 137. Erected by King Duttugaimunu, who died, B.C. 137, before it was finished. His brother, King Saidatissa, completed the work, which took twenty years altogether. It contained a dona† of corporeal relics of Buddha. Diameter 252 ft. 8 in. Base of three pasadas 15 feet. From upper pasada to top of dome 167 ft. The original height of the whole dágaba, according to the *Mahawanso*, was 278 ft. 7 in. Three pasadas.

The Abhayágiri Dágaba, also called "Abhayuttaro." Date B.C. 83-75. Erected by King Walagambáhu I. It is not known what relics were enshrined in it. It is understood to have been erected by King Walagambáhu I. to commemorate the reconquest of his kingdom from a usurper. Diameter 325 ft. Three pasadas are 17 ft. in height. Top of dome 150 ft. Present total height 253 ft. Supposed originally to have been about same height as the Ruwanweli.

The Jétawanáráma Dágaba. Date A.D. 275-302. Erected by King Maha Sen, finished by his son and successor, Kitsiri Maiwan, whose reign extended from A.D. 302 to 330. Probably begun A.D. 295 and finished 310. Enshrined Buddha's girdle as a relic. Diameter 310 ft. Height of three pasadas 16 ft. Height of dome from platform to junction with tee 154 ft. 6 in. Present total height 187 ft. 6 in.

The Kujjatissáráma Dágaba, also called the Selachaittya or "Stone Temple." Date B.C. 137-119. Relics, two teeth, one belonging to each of two rahat priests named Kujjatissa and Kyaggatissa, two "very sacred personages, and said to "have been Buddha's personal attendants." Supposed to have been erected by King Saidatissa, brother and successor of King Duttugaimunu. Diameter 35 ft. at base. Too dilapidated for other dimensions to be made out.

The Thupáráma Dágaba, as the first, is older than any other monument that we as yet know of the same kind in India; but it has been repaired so often, and probably all rebuilt, that perhaps not an atom of it which is visible externally belongs to the original construction. It is at present the most perfect of all the dágabas at Anurádhapura,

owing to its having been completely restored as late as 1842. Most of the dágabas have long existed as mere mounds covered with trees and brushwood. Owing to this the exact height of them cannot be determined.

Three of the dágabas—the Ruwanweli, the Abhayágiri, and the Jétawanáráma—are of immense size, and they are credited with being the largest monuments of the kind that we are as yet acquainted with. The first of these had a drum of about 40 ft. below the spring of the dome, and it may, when complete, have perhaps been the highest; but the two others have a larger diameter, and the Abhayágiri is the largest. None of the stúpas in India, so far as we know, could compare with these for size. The great one at Peshawur that was seen by Hiuen Tsiang was 400 ft. high; but as a great part of that height must have been made up by the twenty-five gilt umbrellas, and which we now know formed a tall spire above the stúpa, on this account the size of the dome would be less than those of the Ceylon examples. The remains of similar monuments at Mengún in Burnah, and Boro Boddor in Java, cover more ground; but they are comparatively insignificant so far as height is concerned, the last of these being little more than 100 ft. in height.

A very marked feature of two of these dágabas, the Thupáráma and Lankáráma, is the existence of concentric circles of pillars round them. No other dágabas are known to have this peculiar arrangement. At the Thupáráma there are four circles, and the Lankáráma has three. These pillars are tall and slender, and very finely wrought: those forming the inner circle of the Thupáráma are 22 feet 10 inches in height, the second 21 feet 3 inches, the third 19 feet 9 inches, and the outer 14 feet. The shafts of the three inner circles are in width 12 inches by 12 inches throughout their whole length; the lower part of the shaft is square to the height of 7 feet 8 inches in the inner circle, 7 feet 2 inches in the second, and 6 feet 8 inches in the third; above that they are octagonal; in the outer circle the whole length is octagonal. The number of pillars has been variously stated, but we may assume that Mr. Smither has at last given the correct figures. According to him there are 52 in the first circle, 36 in the second, 40 in the third, and the outer has 48—in all 176. In the first and second circles there are tenons on the top of the capitals.

The purpose for which these pillars were intended still remains unexplained. Fergusson naturally supposed that they were developed from the posts of the well-known Buddhist railing that surrounded every stúpa, and formed the pradakshina, or procession path. To this he added the suggestion that in the Ceylon instances the posts had been elongated, and wooden beams placed on their capitals, from which frames or curtains had

* "Pasada" is the Singhalese term for procession path, by which the dágaba was circumambulated. *Pradakshina* is the Sanscrit equivalent of this.

† "Dona," a particular kind of measure of quantity.

been suspended with paintings upon them. Sculptures exist, but that form of art does not appear to have been plentiful in Ceylon architecture, and he thought that their place was supplied by pictures.

There is a doubtful passage in the *Mahawānso*, from which it was assumed that King Wasabha, who reigned in Anurādhapura from A.D. 66 to 110, had put a roof over the Thupārāma dāgabas. This would have explained the pillars; but Mr. Smither has found a later translation, from which he says that the roof was put over a building at the dāgaba, and not over the monument itself. A roof over the procession path or the space round the dāgaba to protect those performing the ceremonies from the sun would not be an improbable explanation, but Mr. Smither rejects any suggestion of the pillars supporting a roof. He considers that they had not strength enough, and never could have been intended for such a purpose. It must be remembered that this is a practical architect's opinion, so it goes a long way to dispose of this attempt at a solution. The suspension of lamps to illuminate the shrine during festivals at night is another theory. Flowers were largely used by the Buddhists at their worship, and the hanging up of garlands might be mentioned as one of the possibilities. The explanation that Mr. Smither leans most to is that the pillars were intended for supporting Buddhist emblems on their tops, such as the trisula, wheel, lions, &c. The stone Buddhist lāts of India, which were tall slender columns, very similar to those at Anurādhapura, were surmounted by such symbols, and they undoubtedly give a strong support to this notion.*

The Lankārāma pillars have no tenons on their summits, so it may be concluded that, whatever purpose was intended, these details were not essential. There were three circles of pillars similar to those at the Thupārāma round this dāgaba—20 in the inner circle, 28 in the next, and 40 in the outer, making altogether 88. As to why there was nothing of the kind at the other dāgabas, we have as yet no clue. It is certainly curious that such an exceptional feature should have been given to only two of these structures, and it would be a very desirable point to know what may have been the particular reason for it.

The Thupārāma and Lankārāma appear to have

* The following from Hiuen Tsiang is suggestive of something very similar to Mr. Smither's proposed use of the pillars. In describing Ceylon the pilgrim says:—"By the side of the king's palace is the *vihāra* of Buddha's tooth, several hundred feet high, brilliant with jewels and ornamented with rare gems. Above the *vihāra* is placed an upright pole, on which is fixed a great Padma rāja (*ruby*) jewel."—Beal's Translation, vol. ii. p. 248. This was at the Thupārāma dāgaba, where the remains of the old temple of the tooth may yet be seen: they are represented in Mr. Smither's plan, and described in the text. It need scarcely be pointed out that the slender pillars now standing are evidently derived from wooden poles.

had only one pasada, or procession path, but most of the others had three. In a late notice of Mr. Rea's explorations in the Krishna district I mooted the question as to what part the priests took in the services at stūpas, and what particular part of the shrine was allotted to them. As there are still Buddhist priests in Ceylon, I had hopes that Mr. Smither might have seen or learned something to throw light on this, but no hint about it appears in his book. It is difficult to suppose that the priests had no function to perform at such important shrines—or temples, which in reality they were—and if they took part in the celebrations, the place they occupied would be a very important detail connected with the construction of the monuments.

In the three larger dāgabas an "Elephant Path" is indicated. This is not circular, like the ordinary procession paths, but is a wide space surrounding the square platform on which the dāgaba stands. This is a feature unknown to the stūpas of India, and it may be supposed to have been used on grand festivals, when elephants would take part; and, covered with rich decorations, probably bearing sacred relics, would march round the enclosure,—similar to the Peralara processions, of which I witnessed one at Kandy that was celebrated in honour of H.R.H. the Prince of Wales in December 1875.*

At the four cardinal points of the larger dāgabas there stands an ornamental structure that Mr. Smither has styled a "Frontispiece"—it might, perhaps, be called a screen, as it appears to cover the place where steps lead up to the pasadas. This is new to us as a part of a stūpa, and has no counterpart in the Indian examples, unless its purpose, if it had one, was served at the Sanchi stūpa by a right-angled bend in the four entrances, so arranged that the worshipper had to enter and turn a few steps to the left before he stood with his face to the stūpa. This peculiar, and apparently unnecessary, bend has not as yet been accounted for, and Mr. Smither does not explain exactly what the frontispiece was intended for in the Ceylon examples. The frontispiece at the Mirisweti dāgaba, one of which was found complete, is 25 feet long by 27 feet in height. In the larger dāgabas the frontispiece is of greater size, but they are generally in a ruined condition. They are highly decorated with mouldings, ornaments, as well as figures.† The figures are described as being alternate groups in succession of an elephant, horse, bull, and lion, a human figure being introduced at times: these form a horizontal

* An illustration of this festival may be seen in the *Illustrated London News* of January 8, 1876. The front part of Tooth Temple appears on the right hand of the picture.

† In *Indian and Eastern Architecture*, p. 190, Fergusson gives a very good illustration of a part of one of the Ruwanweli frontispieces.

course or frieze along the wall. The animals recall what Fergusson points out about the temple at Hullabid, where there are belts of figures, and the lowest is formed of elephants, the next of lions, above that horses, and above that again some peculiar kind of birds can be distinguished. The interest attached to this arrangement results from Fergusson pointing out that it was in some way a recognised series of animal figures, and he calls attention to Fa Hian's description of a sanghârâma or monastery in the Dekhan, which was "constructed out of a great mountain of rock";* the lowest storey "is made with elephant figures"; the second "with lion shapes"; the third "with horse shapes"; the fourth "with ox shapes"; and the fifth "with dove shapes."† These were, no doubt, the decorative features of each stage; now on Plates XVIII. and XXI. of Mr. Smither's work we see the elephant, lion, horse, and bull; and on the sides and inner face of the structure is a moulding—it is on the upper part, and higher than the other animals—which is decorated with birds. The author calls it the "hanza," or goose, although the kind of bird is doubtful from the position in which it is represented; yet I think Mr. Smither is right in his conclusion, because in the moonstone represented in Plate LVII. there are the same four animals in one belt and a row of unmistakable "hanzas" in another. Fa Hian is not supposed to have seen the monastery he describes, so he may not be quite accurate about the kinds of birds that were intended; but even if he chanced to be correct, it would only be a small detail of difference between the creatures represented in the two localities. Their constant repetition upon the monuments of Anurâdhapura is in itself strong evidence that a recognised type of decoration had been followed.

The almost complete absence of historical books in India is now well known; and, owing to that deficiency, the dates of monuments and the names of their builders have generally to be guessed at from the style of art upon them, unless some inscription—often much obliterated through time—may chance to convey the much desired knowledge. In Ceylon, luckily, there are historical works, and the *Mahâwanso* contains a considerable amount of information about the monuments at Anurâdhapura and the kings that erected them. In the case of the Ruwanveli dâgaba the *Mahâwanso* supplies a large amount of detail, particularly about its commencement and the laying of its foundation or "festival" brick. Mr. Smither has made an extensive use of this book, and some parts of the ceremony at the Ruwanveli may be worth repeating here.

When the priests had all gathered and encircled

the site of the dâgaba, King Duttugaimunu entered the holy space, and,

bowing down to the priests with profound veneration, presented to them offerings of fragrant garlands; then, walking thrice round the site, he stationed himself in the centre. . . . Assigning to a "specially selected" minister a highly polished pair of compasses made of silver and pointed with gold, the monarch himself, "by moving round the leg of "the compass," described "the circle of the base of the "great chétiyo" (p. 24).

Mr. Smither naturally suggests that the compass was doubtless a trammel. Continuing (p. 24):

The circle described, the king next placed in the centre eight golden and eight silver vases, and encircled them with eight silver and eight golden bricks.* He also deposited one hundred and eight new earthen vases, and around each of the eight bricks one hundred and eight pieces of cloth. Then, by means of the specially selected minister, causing one of the bricks to be taken up, the king deposited it on the eastern side, with the prescribed formalities, in a fragrant cement formed of the jessamine-flowers which had been presented in offerings (it may here be observed that the present principal entrance to the dâgaba is towards the east). The other seven bricks, also, he caused to be laid severally by seven other Ministers of State. Then the monarch, bowing down, and again making offerings to the Mahâthéros, repaired to the north-east point, and, reverently approaching the great Mahâthéro Piyadissa, stationed himself by his side, who thereupon raised the "jaya mangala" chant, or "hymn of joy," which was uttered by Sâkya at the moment of his attaining Buddhahood.

Thereafter, by the beating of drums, he assembled the bricklayers, who were five hundred in number. Enquiring of an "intelligent and expert bricklayer," "In what form "dost thou propose to construct the chétiyo?" the bricklayer, taking some water in the palm of his hand, dashed it into a golden dish full of water, upon which "a great "globule in the form of a coral bead" rose to the surface. Pointing to it he said, "I will construct it in this form."†

This peculiar method of producing an architectural design will most probably be new to our architects of the present day.

The relic chamber of the Ruwanveli was placed low down in the foundation, and it was a large one, because there was a considerable quantity of relics to be enshrined. In the Thupârâma the relic chamber was on the summit of the dome, which would be in the square base of the tee. This forms another corroborative instance of one of Fergusson's early guesses that that part of a stûpa was originally the burial place, and later it became the relic chamber.

Mr. Smither is to be congratulated on this magnificent volume, which may also be termed a rich reservoir of material connected with the architecture of Ceylon.—WILLIAM SIMPSON.

* *Si-yu-ki. Buddhist Records of the Western World*, vol. i. p. lxviii.

† *Ibid.*, p. lxix.

* It may be assumed that the eight bricks and vases had a reference to the four cardinal points and the four intermediate points. These are often mentioned in the sacred books of Brahminism and Buddhism. One hundred and eight is a favourite number with the Buddhists.

† *Ibid.* "Chétiyo," it may be explained, is only another term meaning dâgaba.



BUILDING CONTRACTS.

DISCUSSION OF THE REVISED PAPER AT A SPECIAL GENERAL MEETING HELD 29TH APRIL 1895.

Mr. ASTON WEBB, *Vice-President*, in the Chair.

The Special General Meeting was convened by the Council for the purpose of submitting to the Institute a Form of Agreement and Revised Schedule of Conditions for Building Contracts, proposed to be substituted for the "Heads of Conditions of Builders' Contracts" now in use and printed in the *KALENDAR 1894-95* [pp. 283-290]. In the Notice convening the Meeting members were advised that the Council of the Royal Institute had been unable to come to an agreement with the Council of the Institute of Builders on the subject of the Revised Schedule of Conditions; and that consequently the Council had appended to the same a copy of an Arbitration Clause (29) recommended for adoption on behalf of the Institute of Builders, but not accepted on behalf of the Royal Institute of British Architects. The proposed Form and Schedule, a copy of which had been issued to every member of the Royal Institute, here follow:—

A Form of Agreement and Schedule of Conditions for Building Contracts.

Copyright.—Entered at Stationers' Hall, 19th April 1895.

NOTE:—*This form is applicable WHERE QUANTITIES DO NOT FORM PART OF THE CONTRACT, and requires to be varied and to have the blanks filled in and all words in square brackets to be dealt with to meet the special circumstances of each Contract.*

AGREEMENT.

ARTICLES OF AGREEMENT made the.....day of..... 18... BETWEEN..... of..... in the County of..... (hereinafter called "the Employer") of the one part and..... of..... and..... of..... in the County of..... Builders and Co-partners (hereinafter called "the Contractors") of the other part. WHEREAS the Employer is desirous of erecting a messuage and premises at..... and has caused Drawings and a Specification describing the work to be done to be prepared by..... of..... his Architect. AND WHEREAS the said drawings numbered 1 to inclusive, and the Specification marked "A" have been signed by and on behalf of the parties hereto.

AND WHEREAS the Contractors have agreed to execute upon and subject to the Conditions set forth in the Schedule hereto (hereinafter referred to as "the said Conditions") the works shown upon the said Drawings and described in the said Specification for the sum of £..... Now it is HEREBY AGREED as follows:—

- 1.—In consideration of the sum of £..... to be paid at the times and in the manner set forth in the said Conditions the Contractors will upon and subject to the said Conditions execute and complete the work shown upon the said Drawings and described in the said Specification.
- 2.—The Employer will pay the Contractors the said sum of £..... or such other sum as shall become payable hereunder at the times and in the manner specified in the said Conditions.
- 3.—The term "the Architect" in the said Conditions shall mean the said..... or in the event of his death or ceasing to be the Architect for the purpose of this Contract such other person as shall be nominated for that purpose by the Employer not being a person to whom the Contractors shall object for reasons considered to be sufficient by the Arbitrator mentioned in the Schedule hereto. Provided always that no person subsequently appointed to be Architect under his Contract shall be entitled to disregard or overrule any decision or approval or direction given or expressed by the Architect for the time being.
- 4.—The Conditions set forth in the Schedule hereto shall be read and construed as forming part of this Agreement, and the parties hereto will respectively abide by and submit themselves to the conditions and stipulations and perform the agreements on their parts respectively in such Conditions contained.

SCHEDULE.

- 1.—The works shall be carried out to the reasonable satisfaction of the Architect in accordance with the said Drawings and Specification, and in accordance with such further drawings, details and instructions in explanation of the same as may from time to time be given by the Architect. The Contract Drawings and Specification shall remain in the custody of the Architect, and shall be produced by him at his office as and when required by the Employer or by the Contractors.
- 2.—One complete copy of all Drawings and of the Specification shall be furnished by the Architect free of cost to the Contractors for their own use. The Architect shall furnish to the Contractors and Specifications within..... days after the receipt by him of a request for the same any details which in the opinion of the Architect are necessary for the execution of any part of the work, such request to be made only within a reasonable time before it is necessary to execute such work in order to fulfil the Contract. Such copies and details shall be kept on the works until the completion thereof, and the Architect or his representative shall at all reasonable times have access to the same, and they shall be returned to the Architect by the Contractors on the completion of the Contract. The Contractors shall on the signing hereof furnish the Architect with a verified [sealed] copy of their original estimate for his sole use or that of his Surveyor, and for the purposes only of this Agreement.
- 3.—The Contractors shall provide everything necessary for the proper execution of the works, according to the true intent and meaning of the Drawings and Specification taken together, whether the same may or may not be particularly shown on the Drawings or described in the Specification, provided that the same is reasonably to be inferred therefrom, and if the Contractors find any discrepancy in the

Drawings and Specification.

Copies of Drawings and Specifications.

Contractors to provide everything necessary.

Drawings or between the Drawings and Specification they shall immediately refer the same to the Architect, who shall decide which shall be followed. Figured dimensions are to be followed in preference to the scale.

4.—The Contractors shall conform to the provisions of any Acts of Parliament relating to the works, and to the regulations and bye-laws of any Local Authority, and of any Water and Lighting Companies with Authorities; whose system the structure is proposed to be connected, and shall, before making any variation from the Drawings or Specification that may be necessitated by so conforming, give to the Architect written notice, specifying the variation proposed to be made, and the reason for making it, and apply for instructions thereon. In case the Contractors shall not in due course receive such instructions they shall proceed with the work, conforming to the provision, regulation or bye-law in question, and any variation so necessitated shall be dealt with under Clause 11. The Contractors shall give all notices required by the said Acts, regulations or bye-laws to be given to any Local Authority, and pay all fees payable to any such Authority, or to any public officer in respect of the works.

5.—The Contractors shall set out the work, and during the progress of the building shall amend at their own cost any errors arising from inaccurate setting out, unless the Architect shall decide to the contrary.

6.—All materials and workmanship shall be of the respective kinds described in the Specification, and the Contractors shall upon the request of the Architect furnish him with vouchers to prove that the materials are such as are specified.

7.—The Contractors shall keep constantly on the works a competent general foreman, and any directions or explanations given by the Architect to such foreman shall be held to have been given to the Contractors.

8.—The Contractors shall, on the request of the Architect, immediately dismiss from the works any person employed thereon by them who may, in the opinion of the Architect, be incompetent or misconduct himself, and such person shall not be again employed on the works without the permission of the Architect.

9.—The Architect and any person authorised by him shall at all reasonable times have access to the works, and the Architect and his representatives shall at like times have access to the workshops of the Contractors, or other places where work is being prepared for the building.

10.—The Contractors shall not vary from the Drawings or Specification except as provided by Clause 4, or by the authority of the Architect, which is to be sufficiently proved by any writing or drawing given by him or by any subsequent written approval by him. If the work shown on any of the details or the further drawings or details referred to in Clause 1, or necessary to comply with any instructions, directions, or explanations which may be given from time to time by the Architect, is, in the opinion of the Contractors, in excess of that comprised in the Contract, they shall, before proceeding with such work, give notice in writing to this effect to the Architect. In the event of the Architect and Contractors failing to agree as to whether or not there is any excess, and of the Architect's deciding that the Contractors are to carry out the said work, the Contractors shall accordingly do so, and the question whether or not there is any excess, and if so the amount thereof, shall, failing agreement, be settled by the Arbitrator as provided in Clause 29, and the Contractors shall be paid accordingly. No claim for an extra shall be allowed unless it shall have been executed under the pro-

visions of Clause 4, or by the authority of the Architect as herein mentioned. Any such extra is hereinafter referred to as an authorised extra.

11.—No variation shall vitiate the Contract; but all authorised extras for which a price may not have been previously agreed, and any omission which may have been made with the knowledge of the Architect, or without his knowledge, provided he subsequently gives a written sanction to such omission, shall be measured and valued, as hereinafter provided, by [the Architect] [a Surveyor appointed by the Architect and approved by the Contractors before the Contract is signed]; and a copy of such measurement and valuation shall be given to the Contractors. The fees for so measuring and valuing the variations shall be added to the contract sum. If in the opinion of the Architect the work cannot be properly measured and valued, day work prices shall be allowed therefor, provided that vouchers specifying the time and materials employed shall have been delivered for verification to the Architect, or his nominee, at or before the expiration of the week following that in which such works shall have been done. The variations shall be valued at the rates contained in the Contractors' original estimate, or, where the same may not apply, at rates proportionate to the prices therein contained. The amount to be allowed on either side in respect of the variations so ascertained shall be added to or deducted from the contract sum as the case may be.

12.—The fees for the Bills of Quantities (if any) and the Surveyor's expenses (if any) stated therein shall be paid by the Contractors to the Surveyor named therein immediately after payment of the amount of the first certificate in which they shall be included. The fees chargeable under Clause 11 shall be paid by the Contractors before the issue by the Architect of the Certificate for the final payment. The amount of all such fees and expenses as aforesaid may be paid by the Employer, on the certificates of the Architect, and deducted from the amount otherwise due to the Contractors.

13.—When the Contractors shall have received payment of any certificate in which the Architect shall have stated that he has taken into account the value of any unfixd materials intended for the works, and placed by the Contractors thereon, or upon ground adjacent thereto, all such materials shall become the property of the Employer, and shall not be taken away, except for the purpose of being used on the building, without the written authority of the Architect; and the Contractors shall be liable for any loss of or damage to such materials.

14.—The Architect shall, during the progress of the works, have power to order in writing from time to time the removal from the works, within such reasonable time or times as may be specified in the order, of any materials which in the opinion of the Architect are not in accordance with the Specification or the instructions of the Architect, the substitution of proper materials, and the removal and proper re-execution of any work executed with materials or workmanship not in accordance with the Drawings and Specification; and the Contractors shall forthwith carry out such order at their own cost. In case of default on the part of the Contractors to carry out such order, the Employer shall have power to employ and pay other persons to carry out the same; and all expenses consequent thereon or incidental thereto shall be borne by the Contractors, and shall be recoverable from them by the Employer, or may be deducted by him from any moneys due or that may become due to them.

15.—Any defects, shrinkage, or other faults which may

Local and other Authorities; Notices, &c.

Price for extras; how ascertained.

Note: Strike out words in brackets to suit circumstances.

Setting out of work.

Materials, &c., to conform to Specification.

Foreman.

Dismissal of workmen by Architect.

Access for Architect to Works.

Variations and extras.

Bills of Quantities; expenses of

Unfixd materials when paid for to be property of Employer.

Power to Architect to order removal of improper work.

appear within months from the completion of the works, arising in the opinion of the Architect from materials or workmanship not in accordance with the Drawings and Specification, or any damage to pointing by frost appearing within the like period, shall upon the directions in writing of the Architect, and within such reasonable time as shall be specified therein, be amended and made good by the Contractors at their own cost, unless the Architect shall decide that they ought to be paid for the same, and in case of default the Employer may employ and pay other persons to amend and make good such defects, shrinkage, or other faults, or damage, and all expenses consequent thereon or incidental thereto shall be borne by the Contractors and shall be recoverable from them by the Employer, or may be deducted by him from any moneys due or that may become due to them. Should any defective work have been done or material supplied by any sub-contractor or other person employed on the works, who has been nominated or approved by the Architect, the Contractors shall be liable to make good in the same manner as if such work or material had been done or supplied by the Contractors, and been subject to the provisions in this and the preceding clause. No such sub-contractor or other person shall be so employed upon the works against whom the Contractors shall make reasonable objection, or who will not enter into a contract with the Contractors guaranteeing the due performance of his work, and indemnifying the Contractors against any claims arising out of misuse by the sub-contractor or his workmen of any scaffold erected by the Contractors, or that may be made against the Contractors in consequence of any act, omission, or default of the sub-contractor, his servants or agents.

16.—The Contractors shall, at the request of the Architect, open for inspection any work covered up, and should the Contractors refuse or neglect to comply with such request, the Architect may employ other workmen to open up the same. If the said work has been covered up in contravention of the Architect's instructions, or if on being opened up it be found not in accordance with the Specification or the instructions of the Architect, the expenses of opening and covering it up again, whether done by the Contractors or such other workmen, shall be borne by, and recoverable from, the Contractors, or may be deducted as aforesaid. If the work has not been covered up in contravention of such instructions and be found in accordance with the said Specification or instructions, then the expenses aforesaid shall be borne by the Employer and be added to the Contract sum, provided always that in the case of foundations, or of any other urgent work so opened up and requiring immediate attention, the Architect shall, within a reasonable time after receipt of notice from the Contractors that the work has been so opened, make or cause the inspection thereof to be made, and at the expiration of such time, if such inspection shall not have been made, the Contractors may cover up the same, and shall not be required to open it up again for inspection except at the expense of the Employer.

17.—The Contractors shall not, without the written consent of the Architect, assign this Agreement or sublet any portion of the work.

18.—The Contractors shall be responsible for all structural and decorative damage to property, and for injury to persons caused by the works, and shall hold the Employer harmless in respect thereof. They shall also be responsible for all injuries caused to the buildings, the subject of this Contract, by frost or other inclemency of weather, and shall reinstate all damage caused by the same, and thoroughly complete the whole of the works.

19.—(a) The Contractors shall insure the works, and

keep them insured until they are delivered up, against loss or damage by fire, in an office to be approved by the Architect, in the joint names of the Employer and Contractors for the full value of the works executed, and shall deposit with the

Architect the policies and receipts for the premiums paid for such insurance; and in default the Employer may insure the works and deduct the premium paid from any moneys due or which may become due. All moneys

received under any such policies are to be paid to the Contractors by instalments on the certificates of the Architect, and to be applied in or towards the re-building or reparation of the works destroyed or injured. The Contractors shall, as soon as the claim under the policy is settled, proceed with all due diligence with the re-building or reparation, and shall not be entitled to any payment in respect thereof other than the said moneys received, but such extension of the time hereinafter mentioned for completion shall be made as shall be just and reasonable.

(b) The whole building and the works executed under this Contract shall be at the sole risk of the Employer as regards any loss or damage by fire, and in the event of any such loss or damage being so occasioned which affects the

original building or structure in addition to the new work, the Contractors shall be entitled to receive from the Employer the full value of all work then executed and materials then delivered, calculated in the manner provided for by Clause 11 hereof, and this Contract, so far as it relates to any subsequent work, may at the option of either party be determined if in the opinion of the Architect such determination shall be just and equitable.

20.—Possession of the site (or premises) will be given to the Contractors on or before the day of .

They shall begin the works immediately after such possession, shall regularly proceed with them, and shall complete the same (except painting and papering or other decorative work which in the opinion of the Architect it may be desirable to delay, by the day of , subject nevertheless to the provisions for extension of time hereinafter contained.

21.—If the Contractors fail to complete the works by the date named in Clause 20, or within any extended time allowed by the Architect under these presents, and the Architect shall certify in writing that the works could reasonably have been completed by the said date, or within the said extended time, the Contractors shall pay or allow to the Employer the sum of £ sterling per [day] [week] as liquidated and ascertained damages for every [day] [week] beyond the said date or extended time, as the case may be, during which the works shall remain unfinished, except as provided by Clause 20, and such damages may be deducted by the Employer from any moneys due to the Contractors.

22.—If in the opinion of the Architect the works be delayed by *force majeure* or by reason of any exceptionally inclement weather, or by reason of instructions

from the Architect in consequence of proceedings taken or threatened by or disputes with adjoining or neighbouring owners, or by the works or delay of other Contractors or tradesmen engaged or nominated by the Employer or the Architect, and not referred to in the Specification, or by reason of authorised extras or additions, or in consequence of any notice reasonably given by the Contractors in pursuance of Clause 10, or by reason of any local combination of workmen or strikes or lock-out affecting any of the Building trades, or in consequence of the Contractors not having received in due time necessary instructions from the Architect for which they shall have specifically applied in writing, the Architect shall make a fair and reasonable extension of time for completion in respect thereof. In case of such strike or lock-out the

Defects after completion.

Work to be opened up at request of Architect.

Assign-ment or sub-letting.

Damage to person and property.

Insurance—

(a) of a new building;

(b) of a building in course of alteration.

Note: Clause (a) or (b) to be struck out to suit circumstances.

Contractors shall, as soon as may be, give to the Architect written notice thereof. But the Contractors shall nevertheless use their best endeavours to prevent delay, and shall do all that may reasonably be required to the satisfaction of the Architect to proceed with the work.

23.—If the Contractors, except on account of any legal restraint upon the Employer preventing the continuance of the works, or on account of any of the causes mentioned in Clause 22, or in case of a certificate being withheld or not paid when due, shall suspend the work or in the opinion of the Architect shall neglect or fail to proceed with due diligence in the performance of their part of the Contract, or if they shall more than once make default in the respects mentioned in Clause 14, the Employer by the Architect shall have power to give notice in writing to the Contractors requiring that the works be proceeded with in a reasonable manner and with reasonable dispatch. Such notice shall not be unreasonably or vexatiously given, and must signify that it purports to be a notice under the provisions of this clause, and must specify the act or default on the part of the Contractors upon which it is based. After such notice shall have been given, the Contractors shall not be at liberty to remove from the site or works, or any ground contiguous thereto, any plant or materials belonging to them which shall have been placed thereon for the purpose of the works, and the Employer shall have a lien upon all such plant and materials, to subsist from the date of such notice being given until the notice shall have been complied with. Provided always that such lien shall not under any circumstances subsist after the expiration of 31 days from the date of such notice being given unless the Employers shall have entered upon and taken possession of the works and site as hereinafter provided. If the Contractors shall fail for

days after such notice has been given to proceed with the works as therein prescribed, the Employer may enter upon and take possession of the works and site and of all such plant and materials thereon (or on any ground contiguous thereto), intended to be used for the works, and all such materials as above mentioned shall thereupon become the property of the Employer absolutely, and the Employer shall retain and hold a lien upon all such plant until the works shall have been completed under the powers hereinafter conferred upon him. If the Employer shall exercise the above power he may engage any other person to complete the works, and exclude the Contractors, their agents and servants, from entry upon or access to the same, except that the contractors or any one person nominated by them may have access at all reasonable times to inspect, survey, and measure the works. And the Employer shall take such steps as in the opinion of the Architect may be reasonably necessary for completing the works without undue delay or expense, using for that purpose the plant and materials above mentioned in so far as they are suitable and adapted to such use. Upon the completion of the works the Architect shall certify the amount of the expenses properly incurred consequent on and incidental to the default of the Contractors as aforesaid, and in completing the works by other persons. Should the amount so certified as the expenses properly incurred be less than the amount which would have been due to the Contractors upon the completion of the works by them, the difference shall be paid to them by the Employer; should the amount of the former exceed the latter the difference shall be paid by the Contractors to the Employer. The Employer shall not be liable to make any further payment or compensation to the Contractors for or on account of the proper use of the plant for the completion of the works under the provisions hereinbefore contained other than such payment as is included in the contract price. After the works shall have been so completed by persons other than the Contractors under the provisions hereinbefore contained, the Employer shall give notice to the Contractors of such

completion and may require them from time to time, before and after such completion, to remove their plant and all such materials as aforesaid as may not have been used in the completion of the works from the site. If such plant and materials are not removed within a reasonable time after notice shall have been given, the Employer may remove and sell the same, holding the proceeds, less the cost of the removal and sale, to the credit of the Contractors. Any notice to be given to the Contractors under this clause shall be given by leaving the same at the place of business of the Contractors, or by registered letter sent to them at that address.

24.—The words "Prime Cost" or the initials P.C. applied in the Specification to goods to be obtained and fixed by the Contractors shall mean, unless otherwise stated in the Specification, the sum paid to the merchant after deducting all trade discount for such goods in the ordinary course of delivery, but not deducting discount for cash, and such sum shall be exclusive of special carriage, the cost of fixing and Contractors' profit.

25.—The provisional sums mentioned in the Specification for materials to be supplied, or for work to be performed by special artists or tradesmen, or for other works or fittings to the building, shall be paid and expended at such times and in such amounts and to and in favour of such persons as the Architect shall direct, and sums so expended shall be payable by the Contractors without discount or deduction, or (without prejudice to any rights of the Contractors existing under the Contract referred to in the last sentence of Clause No. 15) by the Employer to the said artists or tradesmen. The value of works which are executed by the Contractors in respect of provisional sums, or in additional works, shall be ascertained as provided by Clause 11. At the settlement of the accounts the amount paid by the Contractors to the said artists or tradesmen, and the said value of such works executed by the Contractors, shall be set against all such provisional sums or any sum provided for additional works, and the balance shall be added to or deducted from the contract sum.

26.—The Contractors shall, unless otherwise stated in the Specification, provide and erect all necessary scaffolding and plant for the due execution by the artists and tradesmen referred to in the preceding clause of the work entrusted to them. They shall also permit of the execution of work by any other artists or tradesmen who may be engaged by the Employer.

27.—The Contractors shall be entitled under the certificates to be issued by the Architect to the Contractors, and within days of the date of each Payment. certificate, to payment by the Employer from time to time by instalments when in the opinion of the Architect work to the value of £ has been executed (or less at the reasonable discretion of the Architect) at the rate of per cent. of the value of work executed in the building, until the balance retained in hand amounts to £ (x), after which time the instalments shall be up to the full value of the work subsequently executed. The Contractors shall be entitled to receive £ (y), part of the said sum of £ (x), when the building is practically completed, and to payment of the balance within a further period of months, or as soon after the expiration of such period of months as the works shall have been finally completed, and all defects made good according to the true intent and meaning hereof, whichever shall last happen. The Architect shall issue his certificates in accordance with this clause. No certificate of the Architect shall be considered conclusive evidence as to the sufficiency of any work or materials to which it relates, nor shall it relieve the Contractors from their liability to make good all defects as

Suspension of works by Contractors.

Prime Cost, meaning of.

Provisional sums.

Contractors to erect scaffolding for sub-contractors.

provided by this Agreement. The Contractors when applying for a certificate shall, if required, as far as practicable, furnish to the Architect an approximate statement of the work executed, based on the original estimate.

28.—Should the Employer not pay the Contractors any sum certified by the Architect within the times respectively named in Clause 27, the Contractors shall give written notice to the Employer of the non-payment, and should the Employer not pay any such sum within the period of days from the date of delivery of such notice at the Employer's address or sent to him there in the ordinary course of post by registered letter, or if the Employer shall become bankrupt or file any petition for liquidation of his affairs, and if his Trustee in Bankruptcy shall repudiate this Contract, or if the Trustee shall be unable to show within days to the reasonable satisfaction of the Contractors his ability to carry out the Contract, and to make all payments due or to become due thereunder, or if the works be stopped for months under an order of the Architect or any Court of Law, the Contractors shall be at liberty to determine the Contract by notice in writing to the Architect, and to recover from the Employer payment for all work executed and for any loss they may sustain upon any plant or material supplied or purchased or prepared for the purpose of the Contract. In arriving at the amount of such payment the rates contained in the Contractors' original estimate shall be followed, or, where the same may not apply, rates proportionate to the prices therein contained.

29.—Provided always that in case any dispute or difference shall arise between the Employer or the Architect on Arbitration. his behalf and the Contractors, either during the progress of the works or after the determination, abandonment, or breach of the Contract, as to the construction of the Contract or as to any matter or thing arising thereunder (except as to the matters left to the sole discretion of the Architect under Clauses 3, 8, and 17, and the exercise by him under Clause 16 of the right to have any work opened up), or as to the withholding by the Architect of any certificate to which the Contractors may claim to be entitled, then either party shall forthwith give to the other notice of such dispute or difference, and such dispute or difference shall be and is hereby referred to the arbitration and final decision of , or, in the event of his death or unwillingness or inability to act, of , or in the event of his death or unwillingness or inability to act, of a person to be appointed on the request of either party by the President for the time being of the Royal Institute of British Architects, and the award of such Arbitrator shall be final and binding on the parties. Such reference shall not be opened until after the completion or alleged completion of the works, except with the written consent of both parties. The Arbitrator shall have power to open up and review any certificate, opinion, decision, requisition, or notice, save in regard to the said matters expressly excepted above, and to determine all matters in dispute which shall be submitted to him in the same manner as if no such certificate, opinion, decision, requisition, or notice had been given. Upon every or any such reference the costs of and incidental to the reference and award respectively shall be in the discretion of the Arbitrator, who may determine the amount thereof, or direct the same to be taxed as between solicitor and client or as between party and party, and shall direct by whom and to whom and in what manner the same shall be borne and paid. This submission shall be deemed to be a submission to arbitration within the meaning of the Arbitration Act 1889.*

* Clause 29, as recommended on behalf of the Institute of Builders, is as follows:—

29.—Provided always that in case any dispute or differ-

THE CHAIRMAN, in formally presenting the Form of Agreement, &c., said he should leave the duty of explaining the Conditions more fully in

ence shall arise between the Employer or the Architect on Arbitration. his behalf and the Contractors either during the progress of the work or after an entry under Clause 23, or after the determination, abandonment, or breach of the Contract, the construction of the Contract, or as to any matter or thing arising thereunder, including and in addition (a) the right exercise, and the exercise by the Architect or the Employer of any power conferred upon them or either of them (except as to the matters left during the progress of the works to the sole discretion of the Architect under Clauses 3, 8, and 17, and the exercise by him under Clause 16 of the right to have any work opened up; (b) the withholding by the Architect of any certificate or decision or the failure to express any opinion or approval to which the Contractors shall claim to be entitled under the Contract; (c) the nature, terms, and reasonableness or otherwise of any certificate, finding, decision, requisition, or opinion of the Architect under the Contract, and the time of the giving thereof, as to which the Contractors shall be dissatisfied (except those relating to the matters and the right excepted above); (d) as to what additions (if any) ought in fairness to be made to the amount of the Contract by reason of the works being interfered with, delayed, or stopped, either through no fault of the Contractors or by any fault or default of the Employer or any of his representatives, or by reason or on account of any decision, direction, or requisition of the Architect, or failure on the part of the Architect to give any decision or direction involving increased cost to the Contractors beyond the cost properly attending the carrying out of the Contract according to the true intent and meaning of the signed Drawings and Specification, but without prejudice to Clause 10 hereof; (e) any claim by the Contractors for work done or goods supplied in connection with the works, though outside the Contract, and all other claims of whatever kind by the Contractors on the Employer in connection with the subject matter or arising out of this Contract or any breach thereof, such dispute or difference shall be and is hereby referred to the arbitration and final decision of , or, in the event of his death or unwillingness or inability to act, of , or in the event of his death, unwillingness or inability to act, of a person to be appointed on the request of either party by the President for the time being of the Royal Institute of British Architects, and the award of such Arbitrator shall be final and binding on the parties. No matter or thing (except as aforesaid) shall be deemed to be concluded by the terms of any certificate, opinion, decision, requisition, or notice given by the Architect, and the Arbitrator shall have power to open up and review any such certificate, opinion, decision, requisition, and notice (save in regard to the said matters expressly excepted above), and to determine all matters in dispute which shall be submitted to him, whether such certificate, opinion, decision, requisition, or notice has been acted upon or complied with or not, and if acted upon or complied with by the Contractors to determine the amount payable to the Contractors in consequence thereof. Upon every or any such reference the costs of and incidental to the reference and award respectively shall be in the discretion of the Arbitrator, who may determine the amount thereof or direct the same to be taxed as between solicitor and client, or as between party and party, and shall direct by whom and to whom and in what manner the same shall be borne and paid. This submission shall be deemed to be a submission to arbitration within the meaning of the Arbitration Act 1889.

the hands of those who had given such an enormous amount of time to it that they were the proper persons to explain them. It would be in the recollection and knowledge of all that it was now some five years since the Practice Committee undertook the revision of the Conditions of Building Contracts, and no doubt when the proper opportunity came they would all be ready and anxious to recognise the time and labour spent over the matter on behalf of the Institute. The Committee had held a large number of meetings, and had at last been enabled to formulate the document before the Meeting. They had also been in communication with the Institute of Builders, and to a large extent had come to an agreement with them, although a difficulty had arisen on the arbitration clause. The Form of Agreement and Schedule of Conditions were then brought before the Council, who, after some consideration, adopted them as laid down after so much labour by the Practice Committee. They were not able, however, to accept the arbitration clause suggested by the Institute of Builders. The delay had been, necessarily, very considerable; but the Council felt that the time had now arrived when the General Body should be consulted. The Conditions presented were those thought by the Council to be the most suitable. There must always be some questions of detail on which everyone could not agree; but at any rate the proposed Conditions were such as might be adopted, and therefore they were brought before the Meeting that evening for consideration and discussion by the members. Letters had been received which would presently be read; and as probably there might be some discussion, he would ask members to keep as near as possible to the particular point, and to limit their remarks, so that, if possible, some decision could be come to on the matter before they separated. He would therefore formally move, in accordance with the Notice, "That the Royal Institute of British Architects do hereby approve the Form, and authorise its issue as 'A Form of Agreement and Schedule of Conditions for Building Contracts sanctioned by the Royal Institute of British Architects,' and do withdraw its assent to the further issue of the 'Heads of Conditions of Builders' Contracts,' at present issued with the sanction of the Royal Institute."

A draft of The Form of Agreement and Revised Schedule of Conditions of Building Contracts was then laid on the table, and the following letters were read:—

*Nottingham Architectural Society,
Nottingham, 27th April 1895.*

DEAR SIR,—This Society having had a deputation from the Nottingham Builders' Association for the purpose of inducing this Society to adopt the form of contract agreement sanctioned by the R.I.B.A., a special meeting has been held to consider the question, at which it was resolved:—"That the Royal Institute of British Architects be urgently requested to postpone their final approval of

"the proposed form of agreement to be submitted at the meeting of the Institute on Monday the 29th, until the matter can be fully discussed by the provincial allied Societies."

There are evidences that the Builders will try to enforce the acceptance of the Institute Form of Agreement; and as this Society has had no opportunity of considering the question, it is of the utmost importance that ample time should be allowed for a thorough examination of the proposed form of agreement and schedule of building contract.—Yours faithfully,
A. ERNEST HEAZELL, *Hon. Sec.*

7, Whitehall Yard, S.W., 27th April 1895.

DEAR SIRS,—I shall not be able to be present at the Special Business Meeting convened for Monday, 29th; but without entering on the question of the expediency or otherwise of discarding the "Heads of Conditions" which have for so many years been in use in favour of the elaborately detailed form of contract prepared by the Practice Standing Committee, or on the mysterious controversy which has grown up around the arbitration clause, I beg leave to submit observations on two points which appear to me to merit consideration.

The first is in Article 10, and relates to the obligation therein thrown on the contractor to give notice, before proceeding with such work, of any work shown on details or further drawings which in his opinion may be in excess of the contract. On the face of it, this from one point of view may appear to be a reasonable requirement; but it may now be an old-fashioned and obsolete idea, which I have always held, that it is for the architect to know, when he supplies a detail or further drawing, whether it is or is not in excess of the contract. That the form of contract proposed by the Institute should apparently proclaim that the architect does not possess this knowledge, but requires the contractor to give notice of and claim such excess before proceeding with the work, appears to me inexpedient and deplorable. I have vigorously combated this idea since it assumed prominence, I think more than thirty years ago; and am therefore compelled, in what I believe to be the best interests of the profession, to now record this protest.

The second point is the first sentence of Article 12. If it is desirable that any question of bills of quantities or payment of the Surveyor should be introduced into a building contract—the expediency of which is certainly open to grave doubt—the terms of the condition should be expressed in such a manner as not to be open to misapprehension. It is probably intended that the Surveyor's expenses should be included in the first certificate, and this should be clearly expressed; which the sentence as drawn certainly does not accomplish. The insertion of the words "first certificate" after "in which" on the fifth line would make this clear, and remove the existing ambiguity, which it would be most undesirable should be allowed to remain.—I am, yours faithfully, ARTHUR CATES.

Crown Chambers, Salisbury, 27th April 1895.

DEAR SIR,—Referring to the draft Form of Agreement and Schedule of Conditions for Building Contracts, to be submitted to a Special General Meeting of the Institute on Monday evening next, the 29th inst., I write to say that I hope the same will not be passed for approval and adoption, as I consider there are several clauses which many architects would be very loth to accept, and am of opinion that conditions of contract would be best left to be settled at the time when a contract is entered into; but in any case I should not care to use the new Conditions of Contract as proposed.—I am, &c.,
FRED BATH.

14, York Buildings, Adelphi, 28th April 1895.

DEAR SIR,—I am unfortunately unable to attend the meeting on the subject of building contracts, and I should

be glad and obliged if you would kindly say that I, as one of the members of the Institute, venture to suggest that nothing be done on the subject, or that the matter be deferred; for I feel *most* strongly that this is not within the duty of an architect. He can certainly make no charge for preparing a contract, and I cannot imagine anyone over anxious to accept a responsibility which is not his. Besides this, I also feel that it is greatly injuring the legal profession, whose sole duty it should be to arrange this matter. Again, even supposing a draft contract is arranged between the Institute and the Institute of Builders, it can never meet special cases; nor would it be recognised by solicitors, nor many architects and builders, and will do no good. It is a case of architects preparing a document over which solicitors may say—

Such labour'd nothings in so strange a style
Amaze th' unlearn'd and make the learned smile

and if we do another profession's work, we cannot grumble if the law takes to architecture (and even church restoration).

One science only will one genius fit—
So vast is art, so narrow human wit.

I am, &c., SIDNEY R. J. SMITH.

Leek, 28th April 1895.

Stand firm against the grasping advances of these "contractors," who, not content with grinding the faces of poor Labour, would now grind ours and our clients'.

LARNER SUGDEN.

At the request of Mr. William Woodward [A.] the following communication, which had been received from the Institute of Builders, was also read:—

*The Institute of Builders (Incorporated), 31 and 32
Bedford Street, Strand, London, W.C., 25th April 1895.*

DEAR SIR,— *Conditions of Contract.*

Your letter of the 23rd inst. was considered by the Committee of this Institute at their meeting to-day, and it was determined that I should by this communication enter their protest against the course which your Council in their discretion has thought fit to adopt, as set out in your letter before referred to, and the resolutions which are to be submitted to the General Meeting of the members of your Institute to be held on Monday, 29th inst.

You will have received my letter of even date with your own, to which it is hardly necessary that anything should be added, except to say that it was not possible to furnish you with a copy of the opinion of Sir Richard Webster and Mr. A. A. Hudson referred to therein at an earlier date.

My Committee desire to point out that every endeavour has been made by them to meet the views of your Practice Committee, with whom numerous conferences have been held during the last five years; and it is within the knowledge of your Practice Committee that many of the provisions contained in the clauses 1 to 28 in the proposed conditions would not have been even conditionally assented to except on the positive assurance given to them that the whole of the matters would be subject to an arbitration clause, which was to be left to the settlement of the respective solicitors.

They regret exceedingly that this arrangement has not been adhered to, since, if it had been, the Conditions as so settled would certainly have been loyally accepted, and recommended to the members of this Institute and the trade generally for general adoption.

The course adopted by your Council is so exceptional that my Committee feel constrained, in order to prevent any misunderstanding, to send a printed copy of this letter to each member of the Royal Institute of British Architects.—Yours truly,

R. S. HENSHAW, *Secretary.*

Wm. H. White, Esq., Secretary R.I.B.A.

The Chairman stated, in answer to a question, that no reply had been sent to that letter.

MR. WILLIAM WOODWARD [A.] asked for a brief description or explanation of the communication against which the Institute of Builders had issued their protest, and also an explanation of the objection which the Institute of Builders had made in a subsequent paragraph, where they said that "many of the provisions contained in the Clauses 1 to 28 in the proposed Conditions would not have been even conditionally assented to except on the positive assurance given to them that the whole of the matters would be subject to an arbitration clause, which was to be left to the settlement of the respective solicitors." He should like to know who gave that positive assurance, and what that positive assurance was.

THE CHAIRMAN replied that all the information Mr. Woodward required would be given in due course. Meanwhile he would call upon Mr. Boyes, the Hon. Secretary of the Standing Committee for Practice.

MR. H. C. BOYES [F.] seconded the motion, and read the following statement:—I do not propose to take up much of the time of this Meeting in recommending the adoption of the proposed Form of Contract and Schedule of Conditions which are in your hands. It is, of course, impossible to go fully into all the details of the documents before you, and I think that we of the Practice Committee, who are responsible for them, may probably be more usefully employed in dealing with any questions that may be raised in the course of discussion than in attempting a full exposition in the first instance. It is, however, advisable to state generally but shortly the reasons which led the Committee to decide on taking up the subject, to recapitulate some of the chief points in connection with our prolonged labours, which have resulted in the production of the Form of Contract in its present shape, and to point out some of the differences between it and the "Heads of Conditions of Contract" which have hitherto been issued. When it was first proposed to revise the last document, it was found, in the discussion which arose in the Committee, that it could not be said to be at all in general use. Some members used it, and had never had any difficulty under it. These gentlemen, I think, were generally those who would not be likely to have difficulties with builders. Others disapproved of it, and used forms of their own of a more stringent character. It was pointed out that the Conditions were so drawn as not to be readily available for use as a contract with such modifications and fillings in of blank spaces as might be required, but were rather suggestions enumerating the various points which ought to be dealt with in framing such a contract, requiring considerable re-arrangement, expansion, or condensation in order to be put into proper legal shape—that, in fact, they fulfilled only the

expectations raised by their title, and were merely "Heads of Conditions," rather than a regular form of contract. Some of the clauses were obsolete owing to alterations in the law, and others appeared to need adaptation to modern requirements. The very important Bankruptcy clause was, we were advised, illegal as framed, and its presence in a contract rendered the whole deed invalid. This in itself appeared to the Committee a sufficient reason for revision. Accordingly, after many meetings and much discussion, a new form of Contract and Schedule of Conditions was drafted. Although the Heads of Conditions issued by the Institute had not for some years borne its old endorsement, stating that it was a form agreed between the Royal Institute and the Institute of Builders, it was considered by the Committee fair and proper that the Institute of Builders should have the opportunity of considering the proposed new documents, and of offering for consideration by the Practice Committee any suggestion for alterations and improvements that might seem to them desirable. Accordingly a copy of the draft was sent to them, and a conference was arranged at which delegates from the Council of the Institute of Builders met delegates appointed by the Committee, and discussed the whole document fully in detail. The Committee were met by the Builders in the friendliest and most conciliatory spirit. Few alterations of any moment were suggested, and after several meetings the Form and Conditions were fully agreed to in principle, and it was decided that the solicitors of the two Bodies should be instructed to put into proper legal form the agreement which had been arrived at. It is very important, in view of what has since occurred, that there should be no misunderstanding as to what was the actual nature of the agreement arrived at on the 13th September 1892. I was myself the chairman of the conference on that day, and my memory is perfectly clear on the point. No question of principle whatever was left undecided; nothing but the proper legal wording to give effect to our agreement was to be left to the solicitors, who were to settle this, subject to the approval of the Royal Institute. In the month of October our draft was sent to the Council, with a report stating that it had been "settled between the delegates of the Practice Committee and of the Institute of Builders." Obviously this would not have been done had there been at that time any questions of principle outstanding or unsettled. But as soon as the solicitors took the matter in hand it became apparent that what we had fully believed to be settled and agreed was to be forthwith unsettled and a fertile source of disagreement. Instead of being content to put into legal form the agreement arrived at between the Committee and the Builders, the whole matter was re-opened from the beginning, questions of principle were re-discussed, and the most vigorous

efforts were made by the solicitor to the Institute of Builders to entirely reconstruct the whole document, not merely as to its wording, but in its essential principles. The history of the matter since then has simply been that of a prolonged struggle, in which, as soon as we thought a question had been disposed of for good in one clause, it has quickly reappeared in a new shape in another. With a sincere desire to arrive at a satisfactory agreement, we have made one concession after another, and have gone to the extremest lengths possible in order to meet the Builders' views, only to find ourselves at last face to face with an utterly impossible arbitration clause which our solicitor advised us that he would allow no client of his to sign, and as to which we were compelled to come to the unanimous decision that we could not recommend the Institute to adopt it. Judging by results, it now appears unfortunate that we did not, as soon as we found that the solicitors were re-opening questions of principle, at once break off negotiations, and take the steps we are now at length taking. But although the delay has been unfortunate, we hope it will be taken as evidence of the earnest desire we have had throughout to meet all the just and fair requirements of the Builders, and of the strenuous efforts we have been making to come to an agreement with them. These efforts have failed, and we have therefore now asked the Council to propose the issue of the documents before you, as an Institute Paper superseding the old "Heads of Conditions," and, like them, bearing no endorsement upon them of having been agreed to between the two Societies. A comparison of the new Form with the old will show that both are framed in the same spirit of fairness towards the Builders by which it is to be hoped we shall always be actuated, and that, as a matter of fact, the proposed form is in almost every respect more favourable to them than its predecessor. The differences are chiefly rather of detail than of principle. The whole document is so framed as to be capable of being used as a contract, the blanks being filled in and the portions in brackets dealt with according to circumstances. It will be noticed that there is no regular Bankruptcy clause. The reason for this is that we were advised that the power required in the interests of the employer of taking possession of and completing the works, if necessary, could best be obtained under the clause relating to the suspension of works by the contractor for any cause, including, but not specifically mentioning, bankruptcy. "Prime cost" is defined, and provision made for the use of plant and scaffolding by sub-contractors. Finally, the arbitration clause, without being drawn up in the form of a catalogue of all the possible misdeeds of an architect, is extended in its operation so as to cover everything under the contract that can, in the opinion of the Com-

mittee, properly be arbitrated upon; but it also provides that, except by special agreement between the parties, such arbitration shall not be opened until the completion of the works.

Mr. HENRY DAWSON [*F.*] said that he had gone through the Conditions, and he thought, in the main, that no builder, as a rule, would complain of them; but the arbitration clause recommended on behalf of the Institute of Builders was a most extraordinary proposal. It would open everything, and settle nothing. At the same time, whilst he disagreed with what he called the ambiguous and unworkable sections, beginning at (*b*), of the arbitration clause proposed by the Institute of Builders, there were, he thought, one or two points which it would be desirable to amend in the 29th clause as proposed by the Practice Committee. The first he would mention was in the seventh line. The clause began: "Provided always that in case any dispute or difference shall arise between the employer or the architect on his behalf and the contractors, either during the progress of the works or after the determination, abandonment, or breach of the contract, as to the construction of the contract or as to any matter or thing arising thereunder," then the exception came in—"except as to the matters left to the sole discretion of the architect under Clauses 3, 8, and 17, and the exercise by him under Clause 16 of the right to have any work opened up." He submitted that it had generally been held that that sole discretion of the architect could only apply during the progress of the works. That was a crucial point, and in his experience it had been the point insisted on by the Builders that the architect's sole discretion should only apply to the works during their progress, and that after their completion it became a matter for an arbitrator. He observed that in the Builders' 29th Clause—and he must give them credit for that—they had put that in. The eleventh line of their clause read, "except as to the matters left during the progress of the works." He should prefer the words in after "the architect," as he thought it more grammatical. That was his first proposal. [Mr. E. T. HALL [*F.*] said that the whole exception was one that could only arise during the progress of the works; therefore the words were not necessary. Those were things, like the opening up of works while in progress, which could only be during the progress of the works.] Another point was—and that was not against the conclusion of the Committee at all—the tenth line said: "or as to the withholding by the architect of any certificate to which the contractors may claim to be entitled." He should rather propose to word it, "may be entitled." [Mr. HALL: There could be no question on that. If the man claimed to be entitled, and the architect said he was not, that was the question in dispute.] Not at all. The withholding of the certificate would

not be a question as to the contractor claiming to be entitled to it, but the question of the architect's decision whether he was entitled or not. [Mr. HALL: Of course that was the question.] Yes; but the arbitration was not so much whether the contractor was entitled or not as the withholding by the architect of any certificate to which the contractor might be entitled. [Mr. HALL: Might claim to be entitled.] He thought the other was the better way to put it. It was as much as saying he might claim anything he liked. [Mr. HALL: Certainly.] Coming to the words lower down in the same clause: "Such reference shall not be opened until after the completion or alleged completion of the works, except with the written consent of both parties." He did not think that quite fair. He thought that the architect ought not to be subject to the consent of the builders as to the opening of the reference. There were certain circumstances in which it was desirable that the arbitrator should be called in before the completion of the works, and therefore there ought not to be that restriction. He thought either party ought to be able to insist upon an arbitration during the progress of the works; though he wanted very much to minimise that liberty, or else it might almost be that the arbitrator would have to sit upon the roof of the Clerk of the Works' office for the hearing of disputes. He should rather omit the words referred to, and proceed to state: "The arbitrator shall have power after the completion or alleged completion of the works"; then go on, in the words of the clause, "to open up and review any certificate, opinion, decision, requisition, or notice," and then insert the words "upon which no award has been previously made." He thought that they should not shut out the possibility of arbitration during the progress of the works, which would very often be a great help and prevent delay. That was the really crucial clause of difference. But there were some other amendments which, in his judgment, were needed in some of the other clauses. Clause 2 contained a most excellent provision, that "the contractors shall, on the signing of the contract, furnish the architect with a verified [sealed] copy of their original estimate for his sole use or that of his surveyor," and so on. He would, however, suggest the insertion of the words "and a summary thereof" after the words "original estimate." It seemed hardly necessary to impress upon them the necessity of that summary. It had been disputed that the summary was not the estimate. Very often on that summary there was something that affected the prices of the whole of the estimate. Then the clause went on: "for his sole use or that of his surveyor." What was the meaning of "his surveyor"? [Mr. LACY W. RIDGE: The architect's surveyor—the measurer.] He hoped that was not going to pass as a

heading to this form of agreement—especially after the note printed, “where the quantities do not form part of the contract.” He contended that the surveyor of quantities was not the architect’s surveyor. What he proposed was this—it was mentioned in Clause 11, and for the sake of perspicuity and conciseness he referred to that clause—that the words should be, “for his sole use or that of a surveyor to be appointed and approved as in Clause 11.” That would make it quite clear that there was to be a surveyor appointed and approved to measure up and render an account of the extras. It was very important that they should make that clear, and not give any indication that the surveyor was an employé of the architect. On Clause 3 he would propose to add at the end another provision—one which he had himself used in contracts he had to do with. After the words “Figured dimensions are to be followed in preference to the scale,” he would add “detailed or explanatory drawings in preference to the said signed contract drawings or any others supplied to a smaller scale.” A great many disputes had unfortunately arisen—in fact, he had one on now—and he was quite certain that, owing to the presence of that clause, the builder would admit that he had no case, because the one-eighth scale and the detailed drawings were occasionally inconsistent. With regard to Clause 4, in the eleventh line, it said: “In case the contractors shall not in due course receive such instructions.” In suggesting these amendments he should like to say that he had only in view the idea of strengthening the case of the Institute for their arbitration clause, subject to any desirable amendments, as against the Builders’ unworkable and ambiguous clause; and he wanted to deprive them of any occasion to say that the Institute’s clause was unreasonable. He thought the words “shall not in due course” meant a very uncertain time, and he would suggest: “shall not within three days of delivery of such notice to the architect.” [MR. RIDGE said that that had been considered at great length in committee.] Passing on, then, to the 12th clause, it said: “The fees chargeable under Clause 11 shall be paid by the contractors before the issue by the architect of the certificate for the final payment.” Then it went on: “The amount of all such fees and expenses as aforesaid may be paid.” Would it not be clearer if the word “or” were there? He suggested as the alternative: “or the amount of all such fees and expenses as aforesaid may be paid by the employer,” &c. [MR. HALL: No; the word “or” would limit it to the preceding sentence; whereas the last sentence related to the whole clause.] He still thought that it would be very much more intelligible, even if it did only apply to the previous clause, to put in the word “or.” They first of all said that the fees they refer to should be paid by the contractors before the issue of

the certificate; then they said the amount of such fees might be paid by the employer. Surely the word “or” was wanted. [THE CHAIRMAN said they would make a note of that.] Clause 14 said—and here again he had the arbitration clause in view—“The architect shall, during the progress of the works, have power to order in writing from time to time the removal from the works, within such reasonable time or times as may be specified in the order.” He proposed they should put in there “not being less than forty-eight hours”—or forty-eight hours not including Sunday or bank holiday—so that some minimum should be shown; it should not be left to the architect to say what was reasonable. In the 15th clause he was afraid they were on a debatable point in the first line. It said, “any defects, shrinkage, or other faults which may appear within months.” He himself had objected to any limitation whatever. It was stated that it was unreasonable to ask a man to be responsible for defects of different kinds without some limit of period; but in many a building it was utterly impossible to find out some defects, not only within a year, but within three or four years. It was very difficult to fix any time. But if a time was to be fixed, he advised that it should not be months but years. In his own practice he objected to any limitation; but he put it in, in justice to the builder, that it should be such a defect or default on his part as should be easily proved to be his and not anybody else’s. In the same clause the concluding sentence began: “No such sub-contractor or other person shall be so employed upon the works against whom the contractors shall make reasonable objection.” He submitted that the words should be, “shall have made reasonable objection to the architect,” and that the whole of the following words should be left out. What had they, as architects, to do with any bargain between the contractor and sub-contractor? It said that a person was not to be employed unless he will “enter into a contract with the contractors guaranteeing the due performance of his work and indemnifying the contractors against any claims,” and so on. He submitted that the architect and the employer had nothing whatever to do with that. [MR. HALL: Yes, they have; they bring the man into the building.] But he was not appointed; he might be nominated or approved. They were accustomed, of course, to nominate men to supply certain articles, and those articles to be charged to the contractor; but he always insisted that the contractor should make his own bargain with those sub-contractors—or, as he would call them, “additional contractors.” They were not sub-contractors to the work of the building; they were generally contractors for additional works, or for some works that had been specified by the architect, such as stone and things of that sort, and also, it might be, for some

decoration. He submitted that they could not enter into any question as to the proposed guarantee to the contractor for the due performance of such work. He thought that upon due consideration they would find that a very dangerous part of the clause. Then the 16th clause said: "The contractors shall, at the request of the architect, open for inspection any work covered up, and should the contractors refuse or neglect to comply with such request, the architect may employ other workmen." He proposed to put in after the words "with such request" the words "after forty-eight hours' written notice." Then on the seventh line of the same clause he thought there was an omission; the words he suggested should be, "if on being opened up it be found not in accordance with the drawings and specifications." The same omission occurred in the fifteenth line.

MR. G. T. HINE [F.] moved that the Form of Agreement and Schedule be referred back to the Committee or Council, for reconsideration. He moved that amendment not in any antagonistic spirit, but in order to place himself in order. The Council if they promulgated a Form of Agreement ought to issue one as nearly perfect as possible; and while the Form of Agreement before them was in many respects excellent, it was not in any way approaching perfection. Clauses of vital importance to the employers as well as to the contractors were omitted. It was not in the nature of a contract agreement that it should contain the whole of the specification; at the same time, there were clauses of legal importance which should be in the contract agreement, and which, as a rule, had no place in the specification. There was one clause, which was conspicuous by its absence, namely, the usual indemnity clause, a clause which indemnified the employer against claims and actions from adjoining owners and local authorities. [MR. HALL: Clause 18.] He would not enumerate the claims which might exist, beyond one emanating from a local authority, and particularly in a country work in respect of unusual traffic on the highways. He had known claims brought against the employer, in respect of unusual traffic; and it was a very easy matter for, say, only the transport of three or four million bricks on a highway to create a damage of £300 or £400. Another clause that an architect ought to require in a contract was one enabling him to deal with the provisional amounts that he had to direct and order. In the proposed Form of Contract an architect was empowered to select and order articles and works for which provisional amounts were provided in the contract, and the contractor had to meet those claims; but if he did not meet them, what then? There was no provision for enabling the proprietor to do so. [MR. HALL: Clause 25 gives all that.] In an ample agreement a proprietor was enabled, in default of the contractors meeting those claims, to

pay them, and deduct them from the amount of the next certificate. There were a great many points in the Agreement and Schedule which ought to be reconsidered. In Clause 27, for instance, as to the payment of the first moiety of retention money. What was the meaning of "practically completed"? He thought the door was left open there for a very wide argument.

PROFESSOR T. ROGER SMITH [F.], in seconding Mr. Hine's amendment, said that he would not attempt a criticism of any part of the Form of Agreement and Conditions. Knowing the men they had been at work upon it, and the amount of time and attention they had given to it, he was quite sure that every question which one could reasonably raise at such short notice was likely to have been thought out and considered. Had they had a longer time it was possible that something might have occurred to his mind which would be fruitful and useful to bring forward, and on that ground he heartily concurred in the proposal that the discussion should be postponed. He could not but feel that on the face of it a document which had an appendix containing an alternative scheme stood at a great disadvantage as compared with the document which many of them had used for many years with complete success. He had used the Conditions of Contract constantly, and he had never found either any private client or any public body object to them; and the fact that they were known to have been approved by the Institute of Builders had, he had found, caused the Builders to be equally willing to adopt them. It was said that the words about the acceptance by the Institute of Builders had now disappeared from the endorsement: but they had not heard that the Builders had repudiated them, and up to the present time he thought it had been quite fair to say that they were conditions which were agreed upon between both sides: and it had been a great advantage to be able to produce so important a document which had had the sanction of the Institute, and also the advantage of being officially accepted by the Builders. Further, he had had some little experience as an arbitrator in differences, and, in some cases, disagreements which had been fought out with great acerbity and skill and tenacity by counsel on both sides, and he never found that the Arbitration Clause attached to the old Form of Contract had been attacked in any shape or way, or had failed to furnish a sufficient basis for arbitration and for the award by an arbitrator. That had been his experience. Therefore it was to be regretted that if the document was accepted now, it would have to be accepted under circumstances which would raise a dispute every time it was proposed to put it into execution. How could one ask a contractor to accept a document with a clause in it which had been opposed by his own society? What he wanted to ask was this: There was a period in the negotiations when the Practice

Committee had fairly agreed with the Institute of Builders, as they heard from the very concise and clear statement put before them by Mr. Boyes. Was there no possibility of reverting to that, and engaging, not two solicitors, but one counsel of eminence and of sagacity who should take the work up afresh and be instructed by the Committee and not by solicitors, and that so he might settle a form of arbitration clause that might be adopted by all?

MR. R. PHENÉ SPIERS [F.] asked whether it was not on the records of the Institute that the present Heads of Conditions were published independently of the Builders, and that in course of time they were found to be so reasonable as to be unanimously and generally accepted.

THE HON. SECRETARY replied that such was the case.

MR. WILLIAM WOODWARD [A.] said that Professor Roger Smith had touched upon the important part of the matter in pointing out that the old Conditions of Contract were approved by the Builders; all they had to do was to attach those Conditions to their specification, with the necessary filling in of the blanks, and the contract was completed. Now that important factor was absent in the present case. The Builders had not agreed to those conditions, and they had stated their reasons for not agreeing to them. He was sorry that a representative of the Institute of Builders was not present to give them the benefit of his explanations. It appeared, however, that the reason of the interpolation of the Builders' Arbitration Clause was that they were led to assume that the previous clauses were really of very little moment, because so long as the Arbitration Clause was drawn satisfactorily to them the previous clauses could be allowed to pass. It seemed to him that the Institute should not trouble itself at all with the Form of Agreement. The Form of Agreement was distinct altogether from the Schedule of Conditions, and it was a matter appertaining, if the architect desired it, to the lawyers. He saw no reason, if the architect did not adopt those Conditions, why he should not, as many architects did, go to his solicitor and allow him to prepare the Conditions of Contract. Then the first line was, "Note:—This form is applicable where quantities do not form part of the contract." Why should those Conditions of Contract have anything whatever to do with quantities? The quantity question appeared in other clauses, and in his opinion it should be eliminated entirely from any Conditions of Contract made by an architect. Criticising the Form of Agreement, in Article 3 he thought the word "architect" should be used instead of "person." With regard to the proviso at the end of Article 3: "Provided always that no person subsequently appointed to be architect under his Contract" (*his contract*, whatever that might mean) "shall

"be entitled to disregard or overrule any decision or approval or direction given or expressed by the architect for the time being." That proviso bound the subsequent architect hand and foot to the work of his predecessor. Supposing the predecessor had unwittingly allowed defective work to pass, or supposing that unwittingly he had allowed a form of construction to pass which the subsequent architect thought was not desirable for the safety of the building or in the interests of his employer, surely the subsequent architect should be allowed to deal with the matter as in his discretion seemed to him proper. Therefore he suggested that that clause should be struck out, and that the subsequent architect should have the free hand which the previous architect had. Coming to the Schedule, he found in Clause 1 an interpolation which was likely to lead to the employment of lawyers in a very short time, and to the architect being placed in the background by a very sharp builder. Clause 1 said: "The works shall be carried out to the reasonable satisfaction of the architect." He was in the Royal Courts of Justice a short time ago when a claim was made by an architect for professional charges, and Mr. Lockwood, in cross-examining the client in the box, referred to the charges, and the client said, "But I am perfectly prepared to pay the reasonable charges of the architect, and always was perfectly prepared to do so." Mr. Lockwood said, "Oh yes, I dare say, what you consider reasonable, but what the gentleman here considers very unreasonable." Imagine, then, the importance of the first clause requiring that "the works shall be carried out to the reasonable satisfaction of the architect." Supposing an architect condemned some defective work, and the builder said, "I shall not amend it, because, in my opinion, it is unreasonable to condemn it." Who was to be the judge of what was reasonable? [MR. RIDGE: The arbitrator.] Why call in an arbitrator unnecessarily? Leave out the word "reasonable" and it would be all right. Then lower down it said: "The contract drawings and specification shall remain in the custody of the architect." He proposed to insert after the word "remain" the words "the property of and," so that it would read "shall remain the property of and in the custody of the architect." That would settle, once and for all, the whole question of the ownership of the contract drawings. In Clause 2 there was, to his mind, a fairly startling proposition. It said "the architect shall furnish to the contractors within days after the receipt by him of a request for the same any details which in the opinion of the architect are necessary." According to that, the architect must wait for the contractor to request him to furnish the details. Surely the architect should be the judge, and the sole judge, of what details were necessary for the carrying on

of the building. [MR. RIDGE explained that if the contractor did not know, he was to ask for instructions.] With regard to Clause 3, the old Conditions of Contract said, in reference to line 7, "provided that the same is reasonably and 'obviously to be inferred therefrom.'" The word "obviously" was of importance. Lower down in the same clause, it said "they shall immediately refer the same to the architect, who shall decide which shall be followed." But there was no reference whatever there to the payment for the extra. If the architect decided that certain drawings should be followed, and those drawings entailed an extra, surely they must allow the contractor to be paid for that. [MR. RIDGE explained that all that was provided for afterwards.] Coming to Clause 10, a very important clause, which had been observed upon by Mr. Cates in the letter read to the Meeting, it said: "If the work shown on any of the details 'or the further drawings or details referred to 'in Clause 1, or necessary to comply with any 'instructions, directions, or explanations which 'may be given from time to time by the architect, 'is, in the opinion of the contractors, in excess of 'that comprised in the contract, they shall, before 'proceeding with such work, give notice in 'writing to this effect to the architect.'" He asked to be allowed to explain what that meant. Take the stone-work of a front, the only information in the possession of the contractor, unless he went to considerable expense to find it out, was in the bill of quantities, where he found so many thousand feet cube of stone. The architect from his small scale drawings had made those details, and surely if there was any man who was able to know when he was preparing full-size details whether they were in excess of the quantities or of the small scale drawings, it was the architect. And why should he leave it to the contractor? It was a serious onus thrown upon the builder, and an onus which was explained by the following clause, which appeared to him to mean this: that if the contractor did not point out to the architect that the full-size details were in excess of the quantities in the small scale drawings, then the contractor was to be permitted to carry out work greatly in excess of that which was originally contemplated because he had not taken the trouble, which was an impossibility in a contractor's office, of finding out that the details were in excess. It was a monstrous proposition — an attempt to throw upon the contractor work which the Practice Committee of the Institute should know was quite impossible. [MR. HALL remarked that the Builders' Committee had agreed to those words.] But what did the Builders' Committee say in their letter? They said, "Of course we agree to all these 'conditions from 1 to 28, if you will give us our 'Arbitration Clause." There was a reference in

Clause 12 to the quantities. He would shorten his observations under this head by saying that he proposed that the Conditions should omit all references as to quantities or to the Quantity Surveyor; they had nothing whatever to do with the contract between the employer and the architect. If they did not agree to eliminate Clause 12 he should like to say that it might be a serious matter for the Quantity Surveyor if those words were allowed to pass. It said: "The fees for the bills 'of quantities (if any) and the Surveyor's expenses (if any)" (and of course there would be some) "stated therein shall be paid by the contractors to the surveyor named therein immediately after payment of the amount of the first 'certificate in which they shall be included." So that the architect need not include the fees at all. Why should he not include them? [MR. HALL: He would use his discretion, of course.] He had no right to a discretion to pay the Quantity Surveyor. That was done according to custom; which custom was, as Mr. Hall certainly knew, that the surveyor was entitled to his commission out of the first certificate, and not out of the first certificate in which the architect should choose to include them. Then, in Clause 14, there was the word "reasonable." He submitted that that word should be struck out. In Clause 15 there was another little injury which would accrue to the contractor. That the contractor should be made liable for every defect that might arise from the use of improper materials, or from improper workmanship, he should be the first to sustain, and to allow a reasonable time within which the architect should enforce the making good. But why should the contractor be liable for frost? The words "any damage to pointing" were inserted. They knew the reason of that; but if a contract was commenced in June, and, in order to carry out the contract in time, the pointing had to be done in the winter months, and it was done in accordance with the specification with excellent materials, why should the contractor be made liable for repointing? It was unfair to the contractor. Clause 16 he considered an excellent one; it was the only good clause—the only clause that was preferable to the old Conditions of Contract. In Clause 18 he would suggest that the words "or animals" should be inserted after the word "persons" in the third line. He himself generally put in "persons, animals, 'or things." An animal might be injured by the works of the contractor. In Clause 23 the word "unreasonably" should be struck out. The same clause said that "the contractors shall not be at 'liberty to remove from the site or works, or any 'ground contiguous thereto." It might be that the contractor was carrying on work on a site immediately adjoining, and they would not surely claim the materials placed upon that site. [MR. RIDGE explained that it meant materials intended

for the work; the clause said, "placed thereon for the purposes of the works." Upon the whole question, the reasons urged by Professor Roger Smith for sending the Conditions back were paramount, namely, that the Conditions had not been agreed to by the Institute of Builders. The whole usefulness of the old Conditions consisted in the fact that they were agreed to by the Builders. He would propose that the revised Conditions be referred back to the Practice Standing Committee for re-consideration, and for communication with the Institute of Builders, and for further report to the Institute.

MR. LACY W. RIDGE [*F.*] said that Mr. Woodward was under a delusion if he supposed that it would be of the slightest use to refer the matter back to the Builders. After the letter which had been sent round to the members of the Institute, behind the back of the Council, he did not think it would be possible to enter further into communication with the Builders. The suggestion made by Professor Roger Smith, that the matter should be referred to counsel to settle between two laymen, was no doubt admirable; but Professor Roger Smith must be aware that counsel did not take instructions from laymen, but they must go through a solicitor. They had tried all that the solicitors could do for them, and on the rock of the solicitor they had split. The document before them was, he believed, an extremely valuable one. He did not think there was a single point which had been mentioned in the discussion which had not been the subject of most careful study by the Committee. He allowed that it did not reach that perfection which Mr. Hine desired—did anything in the world reach such perfection? He could only say that if the document, which was enormously in advance of the Heads of Conditions, did not commend itself to any individual member of the Institute in any point, it was open to that member to perfect it. They did not wish to thrust that document down the throat of everyone—to say, "You must take these Conditions of Contract and must take no other." They were the best conditions they could offer. After very hard work expended on it by men skilled in the particular line—men endowed with the peculiar power of drawing legal documents (of whom he did not claim to be one)—the document ought to command the respect of the Institute. The Practice Committee would be very glad to have it referred back to them, not for alterations, not for re-consideration with the Institute of Builders—for the thing was impossible—but to consider any verbal alterations, any matters not affecting the principles involved in the clauses, which members might be kind enough to send. If any of the Allied Societies chose to make suggestions of the kind he had indicated, they would be considered by the Committee with the greatest respect. With regard to the builders, he thought it would be found that

any builder in London who knew his position would be only too delighted to take the Conditions as he found them—for there were a vast number of things here arranged which, under the old Heads of Conditions, were left indefinite. He did not think any builder would ask for an arbitration clause under which he might refer to arbitration the right of the architect to go on to the building. The Clause as drawn by the Builders' solicitor could not be entertained for one moment. He hoped, therefore, that the Resolution which had been moved from the Chair would be carried by a very large majority.

MR. FORSTER HAYWARD [*F.*], F.S.A., said it was practically impossible to accept a document which had come upon them with such short notice. He was not prepared to accept the document as it stood. Possibly, after a great deal of consideration, it would commend itself in detail very largely to his mind; and he must say they had had a most interesting and valuable evening, because the details had been brought before them, and in correcting little bits of detail they had seen another side of the question from what they would in simply reading it in their own study. With regard to the old Heads of Conditions he could bear out what Professor Roger Smith had said. He had had the utmost advantage out of the Heads of Conditions which were agreed to by the Institute of Builders with their own Institute. He had found it a most valuable document, and he used it continually. What the effect of the document superseding that would be he did not know; and he was very anxious to know. If it improved it he should be anxious to adopt the improved form. Mr. Woodward was quite right when he said that the matter had been hurried now, when it had been incubating for six years probably, and yet they were asked to adopt at once something which only reached them a few days ago. In his opinion the only right result of that Meeting would be to adjourn the matter until it had been further considered, not only by themselves, but by the Allied Societies. The more light they had thrown upon it, the better it would be. He hoped the next time they met they would have a little more light upon the subject as to what had been the cause of the irritation with the Builders, and what the letter was that was referred to in the circular letter they had all received that morning from the Institute of Builders. He hoped that the irritation with the Builders would pass away. He was quite sure it ought to pass away, and he was quite sure that if they all used their influence, and looked at the document fairly and reasonably, when they met again they should be very much better prepared to discuss the matter; and if it were proved that it was more desirable than the old Conditions, then, he hoped, they would adopt it, and with the consent and sanction of the Institute of Builders.

There had been an attempt at an agreement. They had agreed before, why not again? If they did not, he, for one, should fall back upon the old agreement, and have nothing to do with the new one. He should take the document that they had agreed to. He knew perfectly well the circumstances under which that was first founded. It had proved a very useful document.

THE HON. SECRETARY said they could certainly arrive at an agreement with the Builders, if they chose, by accepting their suggestion of arbitration; but they had no wish to do so. He thought that the meeting should be adjourned, so as to give the Allied Societies, and members generally, an opportunity of sending up, in the meantime, any remarks that they had to make before they finally decided the matter.

MR. T. H. WATSON [F.] seconded the motion for adjournment. He believed that the more the document was studied and understood, the more acceptable it would be to the Institute. It would, he thought, assist them very much at the adjourned meeting if some member of the Practice Committee would be good enough to point out to the Meeting, after careful comparison of the 29th clause, as drawn by the Builders' solicitor, wherein it differed in specific terms or in action from the 29th clause as drawn by the Practice Committee. For instance, he should like to know what part of those several letters, *a, b, c, &c.*, would not be included in the terms of the sixth line of the 29th clause as drawn by the Practice Committee, viz., "as to the construction of the Contract, or as to any matter or thing arising thereunder." If the Builders were asking them to include in the arbitration matters or things not arising under the contract, of course that would be quite inadmissible; but if they were things that might be deemed to be included in those terms, he thought there was not very much to dispute about. If the Chairman of the Practice Committee would just bring up a short statement of that sort, which would set their minds at rest upon that point, it would help them very much. He should like the new document, if adopted, to be unanimously adopted.

MR. J. DOUGLASS MATHEWS [F.] said it appeared to him that if they adjourned to another meeting they would be pretty much in the same position then, at ten o'clock, as they were at present. Might he make a suggestion which probably would meet the case?—That members who felt disposed should send to the Institute, say within a fortnight, any suggestions that they had to make upon the Conditions, which should be referred to the Practice Committee, who should then make a report upon them to present to the adjourned meeting. By that means he thought that any verbal suggestions or corrections could be put before the Practice Committee, who, he was sure, would do their best to consider them.

Speaking as a former member of the Practice Committee, and having taken part in this question, he might say that a great many of the points that had been discussed at that meeting had been already discussed in Committee, and, therefore, no doubt, if his suggestion was carried out, an immense amount of time might be saved, and they might get the matter through in the present Session. Might he also say that there should be a distinct understanding that the Institute must adhere to the clause 29 as suggested by the Practice Committee? It was a matter of impossibility to go further than was proposed. Honest builders would, he was sure, be prepared to adopt the clause in the revised Conditions as it stood, which was very much better than the clause in the existing Heads. If builders were suspicious of an architect, or architects of builders, then they must frame whatever clause they considered necessary under the special circumstances. It would be better for them to adhere to the clause as it stood, otherwise they would be just as far off agreement in six months' time as they were now.

MR. ALEXANDER PAYNE [F.] understood that there was not much to quarrel with on the part of anybody except that one arbitration clause. If that was the case, he wished to ask the Committee whether it had been suggested to the Builders that if they could not agree to the arbitration clause, they should keep all the rest of the new Conditions of Contract and simply keep the old arbitration clause. [Mr. RIDGE, replying, said it would not have the same meaning.]

MR. AUGUSTUS W. TANNER [A.] desired to say only one word, as a comparatively junior member of the Practice Committee. When he entered the Committee he had some notion that the matter of the contract would be finished rapidly, but he soon found that the great difficulty was coming to agreement with the Builders and the Builders' solicitor, and that had had ratification in the last few days in a remarkable way. He happened to be arranging a contract for a considerable work with a first-class firm of solicitors, when the Institute Heads of Conditions as to the bankruptcy and other clauses were discussed, and also the known impossibility of agreeing with the Builders' solicitor. But there was one point that they must not lose sight of, and that was that there had arisen a feeling of unrest about the present Heads of Conditions. Some of their members had stated they still continued to use them. He advised such members that the Conditions were wrong, and the bankruptcy clause rendered them positively illegal. Therefore something must be done, and done quickly. Many of them who had works to carry on were waiting, because they had no forms of contract. Solicitors said, "Let us have something to look at to see your view as architect." and they had nothing to show them. Whatever had to be done, let it be done quickly.

for the news of this meeting would spread abroad, and it would be known all over London that the Royal Institute of British Architects were not able to come to an agreement about the form of contract. It was disheartening after the Practice Committee had considered the matter for so many years. He had been nearly three years a member of that committee, and the matter had been considered fully, and almost every point that had been brought up at that meeting has been discussed by the Committee.

MR. EDWIN T. HALL [F.] said it seemed to him that it would be desirable to accede to the suggestion that the Meeting should be adjourned—not under any consideration that the matter should be referred back to the Practice Committee. He thought Mr. Douglass Mathews's suggestion as to verbal alterations was desirable as a practical one. There were two or three points that had been raised which were certainly little improvements, and they did not affect any question of principle. It had been reiterated again and again—Why should the present Heads of Conditions be objected to? The reason was because they were obsolete and illegal. Mr. Forster Hayward said that he would use them again. Let him do so, and he would wake up some morning and find himself in a lawsuit, which would prove to him that his contract was not worth the paper it was written upon. [MR. FORSTER HAYWARD, rising, said it was the first time they had been informed of that. They ought to have been told that before.] It was told them in the speech of the Honorary Secretary of the Practice Committee in opening the discussion that evening. The Committee had brought the matter before the Institute as soon as they possibly could. The reason they had not brought the matter up before was because for two and a half years the solicitor of the Committee and the Builders' solicitor had had the agreement in hand to settle its legal wording. It was surely enough that that time should have been so occupied, and it was simply outrageous and preposterous to suggest that the Committee should allow themselves to be put to the fatigue of going through it all again. He could only say, speaking for himself and for his colleagues on the Practice Committee, that they would decline absolutely to take the matter back and discuss it again. He had said that the existing Heads of Conditions were not such as the Institute should longer use or recommend, and he should like to read to the Meeting a quotation from a counsel's opinion on the document. This was not drawn up because of the present controversy, but was sent to him in March 1892. It was the opinion of an eminent counsel, and this was the beginning of it:—"This is the worst set of Conditions I ever read in the course of a very considerable experience of building and engineering contracts, and I find great difficulty in saying what is the

"true effect of it." [MR. WOODWARD remarked that it did not say it was illegal.] Was not that in itself enough for them, the Practice Committee and the Council, to come before the Institute and say that it was time they superseded that document with something which they hoped was a little better? If it was not, then their time had been wasted. He would not now take up their time by going through and showing how utterly unfit some of those Conditions were to be in any building contract recommended by the Institute. [MR. FORSTER HAYWARD: They had been recommended by the Institute up till now.] They were recommended by the Institute twenty-seven years ago, when the law was very different from what it was at present. On the bankruptcy question alone the law was only altered a few years ago. Were they to issue Conditions of Contract twenty-seven years old to deal with the law as it was at present? Were they to be asked to reaffirm the old Heads of Conditions when twenty gentlemen on the Practice Committee had devoted five years, with all the help that they could get from the solicitors, in trying to bring the form into a shape up to date? The new Bankruptcy Clause was settled by the Builders' solicitor with the Committee's solicitor practically as it was in the draft. He did not ask them to accept the new Form on that ground, because, unfortunately, they had wasted a great deal of time and money in trying to come to an agreement with the Builders, but that agreement was found to be absolutely impossible. He objected to its being said in that room that they could not issue a document unless the Builders or any other body agreed to it. He never heard of such a stultifying proposition. That meant in this case that the other side could, by simply holding out, impose any conditions, however unreasonable. They must remember that this was a contract between the employer and the contractor. They had heard the contractor's views, and they had heard the views of the contractor's solicitors; but they had never heard any of the views of the employers upon it. Architects professed to be judges between these parties, and they had to steer a middle course between the employer and the contractor. They had to steer their ship between Scylla and Charybdis. They had a gulf on one side, into which the architect's judicial position would soon drift if he chose to regard only the interests of the employer; and on the other side, if they were not very wary, they might allow the employer's interests to be destroyed on the side of the builders. The Committee had had to be very wary, and they had had the ablest builders' solicitor in London against them. It was the proud boast of members of the Institute that they tried to be something more than partisans in dealing with contracts. They had given the builder everything to which he was equitably entitled. They had given him all they dare give,

having regard to the interests of their clients. Not a word had been said that evening about the interests of their employers. The sending of the circular which the Builders had just forwarded to members was, in his judgment, most improper. In the first place it made an improper statement when it said that they had a positive assurance given to them—he presumed by the Committee—that the whole of the matters would be subject to an arbitration clause, which would be left to the settlement of the respective solicitors, if they meant by that that the Committee were to put themselves in the hands of any solicitor and to say, “We will agree to whatever you will agree to with the solicitor of the Builders.” But they must look for the interpretation of the circular in another letter sent to the Council on 23rd April—and here he should explain that only about a month ago the Builders said that the clause so settled was to be binding on the Council of the Royal Institute. The Secretary refuted that, and then the Secretary of the Builders wrote:—“I regret that I inadvertently referred to the Council instead of the Committee, but our Committee have certainly understood all along that the settlement of the clauses by the solicitors would be binding on the respective Committees, though not on the Council, of either body.” Understood all along! Why, it was their own stipulation that the contrary should be the case. In a letter dated 8th May 1893 the same Secretary of the Builders’ Institute wrote officially to the Hon. Secretaries of the Practice Committee as follows:—“It would, of course, be understood that neither Committee will be bound by the revisions adopted or proposed by the solicitors.” What did the members think of the circular in the face of that stipulation? Reference was made again in the circular to an opinion of Sir R. Webster. He thought it was a month or six weeks ago that the Builders offered to send the Committee the opinion. The Council asked for the case with the opinion. The Council had not got the case; the opinion the Builders sent them on Saturday. They said that with certain correspondence sent to counsel were a confidential report by their solicitor and a short case. That confidential report the Council were not allowed to see. That confidential report would govern the whole opinion. Then, again, as to dealing with the Builders’ solicitor: He wanted to distinguish between the Builders and their solicitor, and he was not reflecting on that gentleman at all; he was a very able lawyer, and trying to do the best for his clients. The Committee had had the greatest possible pleasure in meeting the Builders, and had agreed absolutely with them in September 1892. A copy of the agreed document was then sent to the Builders. They took exception to one or two trivial verbal matters, but did not take exception to the Committee’s Arbitration Clause. The matter was then placed in the hands of the

solicitors to put it into legal phraseology. Could it be supposed that if two solicitors sat down loyally to do this the whole Agreement could not have been done in a fortnight or so? Months rolled on, and in March 1893 the Practice Committee addressed an earnest protest to the Builders against the course taken by their solicitors. The matter went on, and they had now been two-and-a-half years doing it. How long was that to go on? Was it not ruinous? Did it evidence an intention on the part of one party to try and get an arrangement? Now they had got this Arbitration Clause recommended on behalf of the Builders. Well, if any gentleman would like to use that, let him do so. But the Council and the Committee would not advise him to use it. What was the first clause of it? What questions might be raised before the arbitrator! They might arbitrate upon “the right to exercise, and the exercise, by the architect or the employer of any power conferred upon them or either of them.” Fancy entering into a contract giving one power to do certain things, and then, when one attempts to put them into force, one is served with a notice and one’s right questioned to exercise the powers conferred by the contract! Did it look as if the Builders desired that the Agreement should be brought to fruition? It looked as though they said, “We do not care twopence what you put in your contract; it matters nothing to us so long as you give us our Arbitration Clause.” What was the meaning of that clause? It meant that the architect had no control whatever over his building. It meant, *inter alia*, that the time clause for completion was wiped out at once, because the Courts would say that delays arising through the raising of questions clearly allowed to be raised by the Arbitration Clause were legitimate grounds for claiming an extension of time. He could go into every question that had been raised on the other conditions, and demonstrate to the Meeting that they had all been discussed and in some way dealt with in the new form, except Mr. Hine’s suggestion as to the breaking up of roads, which was so exceptional a thing that they did not think it should be put in. That gentleman had in mind large public buildings for which there would be a special form of contract drawn up by the solicitor to the Body, and probably the architect would be the sole arbitrator under such a contract. He could, if the Meeting desired, go into the whole document in detail; but he would say no more than if it were thoroughly understood that there was to be merely an adjournment of the debate, and not a reference back to the Committee.

THE CHAIRMAN, in putting the motion for the adjournment of the Meeting till Monday, the 13th May, hoped that members would forward any suggestions they had to make as soon as they could to the Secretary of the Institute.



MINUTES.

SPECIAL GENERAL MEETING.

At a Special General Meeting, held on Monday, 29th April 1895, at 8 p.m., Mr. Aston Webb, F.S.A., *Vice-President*, in the Chair, with 35 Fellows (including 6 members of the Council) and 23 Associates, the notice convening the Meeting was read, and the Chairman formally presented the "Form of Agreement and Revised "Schedule of Conditions of Building Contracts" recommended by the Council for approval and adoption. The Chairman then moved:—That the Royal Institute of British Architects do hereby approve the Form and authorise its issue as "A Form of Agreement and Schedule "of Conditions for Building Contracts sanctioned by the "Royal Institute of British Architects," and do withdraw its assent to the further issue of the "Heads of Conditions of Builders' Contract" at present issued with the sanction of the Royal Institute.

A letter was read from the Hon. Secretary of the Nottingham Architectural Society [p. 465], quoting a resolution of that Society urging the Institute to postpone its final approval of the Form and Schedule until the matter could be fully discussed by the Allied Societies. Letters of objection to certain clauses of the document before the Meeting were also read from Mr. Arthur Cates [F.] and others [p. 465], together with a printed communication in the form of a circular letter issued by the Institute of Builders [p. 466].

Mr. H. C. Boyes [F.], Hon. Secretary of the Practice Standing Committee, seconded the motion, and read a statement setting forth the reasons which led the Committee to undertake the task of formulating the new Conditions of Contract, and giving a brief account of the negotiations between the Committee and the Institute of Builders. In the discussion which ensued various amendments in the provisions of the Form and Schedule were proposed, and suggestions made for the adjournment of the debate to allow the General Body further time for consideration of the document. A proposal to refer the matter back to the Practice Standing Committee for reconsideration and consultation with the Institute of Builders was objected to on behalf of the Committee by Mr. Lacy W. Ridge [F.] and Mr. E. T. Hall [F.]. Finally, on the motion of the Hon. Secretary, seconded by Mr. T. H. Watson [F.], it was

RESOLVED, that the Meeting be adjourned to Monday, the 13th May, to enable the Allied Societies and the General Body to further consider the proposed Form and Schedule, and forward their suggestions and observations to the Secretary of the Royal Institute prior to that date.

The proceedings then terminated, and the Meeting separated at 10.30 p.m.

MINUTES. XIII.

At the Sixtieth Annual General Meeting (the Thirteenth General Meeting of the Session), held on Monday, 6th May 1895, at 8 p.m., Mr. F. C. Penrose, F.R.S., *President*, in the Chair, with 18 Fellows (including 10 members of the Council) and 9 Associates, the Minutes of the Meeting held 22nd April 1895 [p. 428] were taken as read and signed as correct.

The notice convening the Meeting having been read, the President moved, and Professor Kerr seconded, the adoption of the Annual Report of the Council, a copy of which had been previously issued to every member within the United Kingdom. In connection therewith the Hon. Secretary read the Report, dated 22nd April 1895, of the Auditors for the official year 1894-95 as follows:—

GENTLEMEN,—As the Honorary Auditors appointed at the last Annual Meeting of the Royal Institute of British Architects we take the opportunity to make the following observations:—

The Trust Funds.

The Securities now held in connection with this Trust and deposited at Lloyds Bank (Limited), Herries Farquhar Branch, 16, St. James's Square, S.W., consist of investments made in the Architectural Union Company, the London and North-Western Railway 4-per-Cent. Preference Stock, the Indian Peninsula Railway 5-per-Cent. Stock, the Midland Railway 3-per-Cent. Debenture Stock, the Great Western Railway 5-per-Cent. Consolidated Stock, and the Madras Railway 4-per-Cent. Stock.

In addition to the foregoing Securities, "Stock" to the amount of £2,303 6s. 0d. is held in the 2½-per-Cent. Consols, a voucher of which (up to the close of business on the 9th day of April 1895) we have received from the authorities at the Bank of England.

The nominal amount of such Stocks and Shares is £7,288 11s. 8d., and we consider, generally, the investments to be of good character.

In addition there is, or was, cash in the hands of the bankers to the amount of £485 2s. 2d.

Ordinary Funds: Income and Expenditure.

The returns show the "Income" of the past year (ended the 31st of December 1894) to be £5,279 11s. 0d.

The "Expenditure" of the past year (ended the 31st of December 1894) amounted to £5,565 18s. 10d., showing a deficit of £286 7s. 10d., which deficit, it may be anticipated, will be further increased this year. We find that the estimated cash deficit for the year ended 31st December 1894 was £156 14s. 4d. The actual deficit, however, for that year was £286 7s. 10d.

The financial position of the Institute, as shown by the foregoing statements, we consider to be most unsatisfactory.

Balance Sheet of Ordinary Funds.

We wish to direct attention to the following items, which are, in our opinion, susceptible of considerable modification as "Assets."

We consider that the sum of £2,497 8s. 1d., the amount set down as the value of the furniture, fittings, and fixtures, is greatly in excess of their market value; that the percentage taken for depreciation of the foregoing, viz., 2½ per cent., should be materially increased; that the respective sums attached as the value of the oil paintings, drawings, prints, casts, &c., together amounting to £3,090, are very excessive; that the "Accumulated Fund (being surplus of assets over liabilities) balance as per last Balance Sheet, £12,735 17s. 5d.," may be described as a polite euphemism; that as regards the "Investments"—viz., £1,000 2½-per-Cent. Consols and 202 shares Architectural Union Company, £2,828—we desire to point out that the latter may or may not be readily convertible when required, and that therefore the only available investment which could be immediately realised in case of emergency is the £1,000 in Consols.

In conclusion, we have much pleasure in acknowledging the uniform attention and valuable assistance rendered to us by the officials of the Institute on the occasions of our visits for the purposes of the audit.

We have the honour to be, Gentlemen, your obedient servants, FREDK. TODD, WM. WOODWARD.

The Report of the Council having been taken as read, a discussion ensued [Appendix], in the course of which suggestions were made by the Auditors, Mr. Todd and Mr. Woodward, to rectify the deficit in the accounts of 1894, and it was

RESOLVED, *nem. con.*, that the Report of the Council for the official year 1894-95 be approved and adopted.

The lists of attendances of members at the several meetings of the Council and Standing Committees during the official year having been submitted and taken as read [see *Supplement No. 13*], scrutineers were appointed to direct the election of the Council and Standing Committees for the ensuing year of office and report the result thereof to the Business General Meeting of the 10th June—namely, *Fellows*: Messrs. F. T. Baggallay, J. W. S. Burmester, H. Jarvis, J. Finch Noyes, H. D. Searles-Wood, J. P. Seddon, W. F. Unsworth, and E. Woodthorpe; *Associates*: C. H. Brodie, F. H. Greenaway, G. W. Hamilton-Gordon, D. B. Niven, H. A. Satchell, and E. W. M. Wonnacott.

Messrs. F. Todd [F.] and Wm. Woodward [A.] were again nominated as Auditors for the ensuing year of office.

The list of attendances of members at the Statutory Board of Examiners, of which two meetings had been held during the official year, having been read, the Board were re-appointed as follows:—Messrs. George Aitchison, Lewis Angell, Francis Chambers, G. Elkington, Banister Fletcher, Charles Fowler, E. Gregg, F. W. H. Hunt, E. B. I'Anson, Robert Kerr, J. Douglass Mathews, Lacy W. Ridge, T. Roger Smith, B. Tabberer, and T. H. Watson.

The proceedings having been thus brought to a close, the Meeting separated at 9.45 p.m.

APPENDIX.

Annual Report of the Council.

PROFESSOR KERR [F.], in seconding the adoption of the Report, thought that there was cause for congratulation on the prosperous position of the Institute. The first point upon which they might express gratification might possibly be the reference, on page 442, to the proposed establishment of an additional class of members, who should be craftsmen in the arts allied to architecture. Anything more sensible and more prudent in every way than that proposal it was difficult to discover; and he hoped that the Institute would be able to gather around it a large number of those artistic craftsmen who were now becoming so numerous in the country, foreign nations almost envying our prosperity and progress in that respect. He was quite sure, from the pleasure that they had had in listening to the discourses of some of those gentlemen (whose names he need not mention) in that room, and the still greater pleasure as regarded the reading of their discourses in the journals, that there was no possibility of any difficulty arising in regard to their alliance; and he hoped that this would prove to be a step in advance of a very important character, and one that would give the public of the country, as a practical and commercial country, a greater access of confidence in their wisdom and good faith. He was much pleased to find that his Grace the Duke of Devonshire had been so exceedingly liberal and generous as to place in the custody of the Institute the drawings referred to in the Report. He had no doubt that proper thanks had been transmitted to that most estimable and able nobleman, and if it were necessary that anything should be done at that Meeting to make it more emphatic, he hoped they would be allowed the opportunity of doing it. There were no doubt many others in the kingdom who had collections—not perhaps so valuable as that he was referring to—which, with a little prompting, they might place in proper hands. There was an exceedingly satisfactory allusion in the Report, at page 445, with respect to bridges. The Council had, it appeared, intervened and approached the London County Council

with regard to the very important question why their bridges should be so exceedingly disagreeable in design. There was no reason for it whatever. He had been accustomed for a good many years to teach his pupils that a bridge ought to be made graceful just as well as a house—indeed, he could not see where to draw the line. Some bridges on the Continent were very gracefully designed; but some of the bridges over the Thames were most ungracefully designed. He contended that there was no necessity for drawing a line between architecture and bridge building as regarded elegance of design; and he hoped the Council would persevere, and, what was more, he hoped that in the next generation architects would have the bridges to build, as they had in times past. In Ireland this was considered the architect's work now, and also on the Continent—certainly in Austria—and with great advantage. On page 446 of the Report it was said: "The Council, recognising the importance of many of the Papers read before the Allied Societies, had devoted a section of the JOURNAL to their publication." He wished to say most strongly that he thought their JOURNAL most creditable to the Institute, and in his opinion a publication of great value. The one vexed question before them at the present moment was that of the disagreement with the Institute of Builders in regard to the Form of Contract. They were not of course going to discuss that subject now; but being in the Report, it would be a pity that it should not be alluded to. He thought that the Practice Committee and others who had taken so much pains with the subject ought to be encouraged. He had read carefully the two conflicting Arbitration Clauses, and he must say he thought the Institute was right and the other people were wrong. At the same time, in order to avoid a scandal, it would be necessary, he thought, before the question was put formally to the vote of the Institute to confirm the Revised Conditions, that someone else should be called in to give force and authority to their adoption. He would suggest that they had the means of obtaining very good assessors if they were to call in the President and the Past-Presidents of the Institute. There were only three Past-Presidents alive now—Mr. Waterhouse, Mr. Barry, and Mr. Macvicar Anderson. These, with the present President—all thoroughly practical men of great experience—if they would kindly consent to arrange the matter on behalf of the Institute and the Builders together, could easily settle the question, and there would be an end of it. It was a pity that the Institute of Builders were ever applied to at all; there was no necessity for it that he could see. With regard to their finances, it was of no use to investigate the Accountants' statements, because they were quite beyond his depth; but he would really like to know, if anyone could tell him, whether they were behindhand or beforehand as regarded funds. There appeared to be a balance, and there appeared to be a deficit of £286. Those were all the remarks he had to make, and he again begged leave to congratulate the Institute, and the President and the Council, on the most prosperous position of the Institute.

THE HON. SECRETARY, having read the Auditors' report, which was printed in the Minutes [p. 477], explained that there were several observations and suggestions made by the Auditors in connection with the subject of the Institute finances which the Council were unable to take as forming part of the Auditors' report in accordance with the by-law; but the Council were only too pleased to have the advantage of their remarks, and hoped to hear them expressed that night by the Auditors in their respective capacities as members of the Institute.

Mr. FREDERICK TODD [F.] said that the statement he was about to make, he admitted, might be somewhat of an unusual and unpleasant character, but it was one which the interests of the Institute required that he should make. His duty as an auditor was to see that the securities

were safe, and to scrutinise the accounts, and to report to the electors before the next annual meeting of the Institute. The Auditors had seen those securities, examined the accounts, and made a report to the Institute, which report they intended to be for the information of all the electorate, relative to the income, expenditure, and the deficit which unfortunately occurred in the present year's accounts; and, in addition, they offered in their report, for the consideration of the Institute, certain suggestions for the rectification of the deficit, all of which suggestions were incidental and consequent upon the deficit, and all of them more or less directly connected therewith. The report was forwarded to the Secretaries and addressed to "The Royal Institute of British Architects," they intending thereby to embrace the whole of the Fellows and Associates of the Institute throughout the United Kingdom, and which, they gathered from the words of the Charter (on page 23 of the *KALENDAR*), formed one body politic and corporate under the name of the Institute of British Architects. That report was accompanied by a letter, requesting the Secretary to have the report printed for the information of the members, the electorate previously referred to. That report had been withheld by the Council, on the grounds that the Auditors had exceeded their duties in having made suggestions for reductions and omissions therein; and the Council intimated to them to leave out of their report five MS. pages thereof, and referred them to By-law 40. To this the Auditors did not agree. Their contention was that the Council had no authority to dictate to the Auditors, appointed by the electorate, and from their own ranks, to make an independent report, what they, the said Auditors, were to say, or what they were not to say. By-law 40 said that the Auditors were to report, and it named two matters in connection therewith; but it did not say they were debarred from others. The Auditors now ventured to suggest for inquiry what number of reports conformable to By-law 40 had the Council received during the last ten years, or if they had received any at all. In the event of the latter proving the fact, how could the recently displayed zeal in the cause of By-law 40 be reconciled with this omission? In reporting upon the accounts, it must be evident to all that the Auditors could draw attention to any items therein mentioned, and they had singled out in the present case the unfortunate deficit to which they had directed their particular attention. The suggestions they had made were, as previously stated, connected with the rectification of the deficit, and other matters treated of were those made with the object of increasing the annual income to meet the deficit, which latter otherwise would very probably make its constant and increasing appearance in the future annual statement of accounts. Thus all their comments were, as stated, connected with or grounded upon the subject of deficit which appeared from the statement to have unfortunately arisen. As previously stated, the objection of the Council was that they had exceeded the subject matter to which, in the Council's opinion, they were confined. But they (the Auditors) could not help thinking that possibly other reasons might have somewhat influenced them in coming to that conclusion. Again, perhaps, the Auditors opened out too progressively in their report objects for thought and subjects for reflection. Should anyone be tempted to wade through the academic report as issued by the Council, he would look in vain if he sought there for any notice taken of, or any intimation of, matters in connection with the deficit, save and except it being adroitly and dimly shadowed forth (at page 450) under the head of "Balance," and which modestly recorded an anticipated debt at the conclusion of the year of £215. 7s. 10d. Were it not for that brief intimation, anyone reading the Report might possibly arrive at the erroneous opinion that the "authors" of that compilation were oblivious of the matter of the deficit altogether.

Mr. WILLIAM WOODWARD [4.] said he was sure they had listened with great attention to all that had fallen from his co-Auditor, Mr. Todd, and he should like to say that Mr. Todd had devoted to the subject a very considerable amount of time and attention, and all he had suggested had been for the real benefit of the Institute. For any institute or any corporate body to be strong, it must have its finances certainly not weak, and the Auditors had found at the outset of their investigation that the financial position of the Institute was generally very weak, and that that weakness was liable to increase rather than to diminish. The deficit had already been referred to by Mr. Todd, but he would make one observation which would show members of the Institute the gradual decrease in its strength which was going on. In 1887 they had £4,000 in Consols; in 1894 they had only £1,000, and that £1,000 must be diminished by works, repairs, &c., which were essential for the Institute. He ventured to say that the £71 which had been placed as the item which would decrease the deficit would be found the reverse, and that they would probably find at the end of 1895 the deficit, instead of being what had been said, would be something nearer £300 or £400, or perhaps £500. That was a very unfortunate position for the Institute to be in; and feeling that, and knowing what had fallen from the Bench with regard to the duties of auditors, especially with regard to some of the public companies, where it had been said, and with great force, that the duties of the auditors did not end in merely checking the figures that were placed before them, the duties of auditors, he maintained, consisted in thoroughly investigating the accounts; and, as the opportunity to the Auditors was one which did not apply to the general body, Mr. Todd and himself took advantage of the labour they had gone through in investigating those figures to place before the Institute, as they hoped, what should be a plain, straightforward account instead of a chartered accountant's account. He remembered the words that fell from Professor Kerr last year, when he said he was quite unable to understand a chartered accountant's account, and the Auditors, in their report, had made it perfectly plain. They showed that at the end of 1894 there was this deficit of £200 and odd, which, they said, must be increased unless some economising work was carried on by the officials, or, at all events, by the Council of the Institute! That led to the preparation of the Report, a part of which had been read by the Hon. Secretary. He would now, if they would permit him, read the part which the Council desired them to eliminate. In the letter transmitting that report they asked the Council to print the report, so that it might be sent to every member of the Institute with its own Report. The object of that was that the Institute, as mentioned in the by-law, should be informed of what the Auditors suggested, and that the observations or suggestions should not be confined to a Meeting. Here they had a sparse meeting—probably not fifty members present—showing, unfortunately, how little interest members took in the Royal Institute of British Architects; and the Report would be read to them, and probably might, or might not, be published. At all events, had the Auditors' report been printed and circulated with the Report of the Council, they would have had the views of the general body instead of the views of the Meeting.

THE HONORARY SECRETARY asked to be allowed to say that the idea of the Council was not to prevent Messrs. Woodward and Todd making the suggestions which Mr. Woodward was about to read, but their objection was to accept them as part of the Auditors' report. The Council were glad to have the suggestions from them as private members of the Institute. But they could not undertake to print the report, because they did not consider it was the office of Auditors to make suggestions as to the management of the Institute.

MR. WILLIAM WOODWARD [4.] quite appreciated the strength of the observation; but, bearing in mind the extended duties of auditors, it would have been far better had the Council at once sent forward the report, and at the present Meeting they could, if they had chosen, have called them over the coals for having exceeded their duties as Auditors. However, the Hon. Secretary's explanation he accepted with grace, as his friend Mr. Todd would; and he should now proceed to read the parts which the Council desired them to omit:—

Whilst we consider that our duties as Auditors may not entitle us to criticise the reasons which induced, or to enter upon the causes which have occasioned, this deficit, we nevertheless beg leave to tender some suggestions for its rectification.

We consider—

1. That strict economy should be exercised in the general expenditure, and that reductions and omissions be made wherever possible.

2. That the refreshments supplied at the evening meetings, which last year amounted to £42 5s. 11d., should be discontinued.

3. That the hire of the gallery at 9, Conduit Street for the exhibition of prize drawings, which, with other expenses connected therewith, amounted last year to £117 11s. 7d., be for the present discontinued, and such exhibition confined to the Institute meeting-room.

4. That the annual grant of £100 to the Architectural Association should cease.

5. That the grant to the Library Fund, which was last year £50, should be restricted for the present to £25.

6. That to avoid the cost of warehousing the existing tables, trestles, &c., now stored by Messrs. Dove at Islington, the said tables, &c., should be sold. These tables, &c., will probably not be required again by the Institute, as the "Examinations" (on which occasions they were used) will no doubt be held in the future in the "Examination Hall" on the Thames Embankment.

7. We think the attention of the Institute should be directed to the legal and other expenses incurred in relation to the "Ideal" Conditions of Contract. The charges from the 29th October 1892 to September 1894 amounted to £118 6s. 6d., and in addition there is a further account (up to date) of £21 8s. 6d. The cost of printing may be put at £50, thus bringing up the total cost to £190. We feel constrained, in the interests of the Institute, to suggest the expediency of at once terminating this unnecessary drain upon its resources.

We are of opinion that if the reductions and omissions which we have above suggested were made, a saving of some £250 would be effected in the annual disbursements, and should strict economy be persevered in during the succeeding year, the outstanding deficit of £286 7s. 10d. might be wiped off.

We also wish to submit for the consideration of the Institute the desirability of initiating at the earliest opportunity a "Reserve Fund," for the purpose of meeting any future extraordinary expenditure.

Bearing in mind the fact that the "income" of the Institute is small for such an important Corporation, and it being necessary that such income be enlarged, we suggest that it may be politic on the part of the Institute to increase the amount of the fees now charged in connection with the Examinations. We understand that last year there were 186 applicants for admission to the Preliminary Examinations, each of whom paid one guinea, and 63 Probationers, who paid two guineas each, and this number may possibly be increased in the future. The addition of one guinea to the fee of each future candidate might thus realise some £200 a year.

We are of opinion that the charge made to the Architectural Association for the use of the Institute rooms, including preparation, gas, electric lighting, &c.—viz. ten

shillings per night—might reasonably be increased to the cost actually incurred by the Institute.

We find that there are 921 Associates of the Institute, and of this number 426 were elected more than ten years ago, and we cannot help thinking that if a proper representation on the subject were made to them by the Council it might lead to many Associates joining the rank of "Fellows," whilst the extra funds which would thereby accrue would be the means of securing to the Institute that additional income which it urgently needs.

We have now to direct attention to a subject which we consider to be of vital importance to the welfare of the Institute. There has occurred during the last few years a distinct falling-off in applications for admission to the class of "Fellows"; the losses by death and by resignations have not been met by a corresponding accession of new members, and the proportion, therefore, of "Fellows" to the general number of the "Elect" is by no means what it should be. This fact necessitates, in our opinion, a strict investigation into the causes which have led to this unfortunate circumstance, and we should be glad to hear that steps will be taken to remedy the evil by removing the ground of it.

That part, coupled with the part read by the Honorary Secretary, was that which they desired should be circulated among the members of the Institute; and he regretted that that was not done. There was a remark, reported in *The Times* of May 1st, made in the Court of Appeal by Lord Justice Lindley as to the duties of an auditor, which quite strengthened, at all events, his opinion as to the propriety of that report. He would just make one or two observations on the Report itself of the Council. In the first place, there was an unfortunate admission on the first page that "The Fellows now number 604 and the Associates 921." Those figures confirmed the suggestion of the Auditors that some investigations should be made into the reasons which had led to a decrease in the applications to the Institute for the class of Fellows. The Art Standing Committee reported their meetings, and the only observation he had to make upon that report was on the reference on page 446 to the Papers read on "Simplicity in Architecture." They were all delighted with those Papers, and it was most gratifying to find that from an over-abundance of ornament in art the architects were determined that there should be simplicity. If they could get rid now of the cigar-shaped columns, he thought there would be some hope for simplicity and beauty in English architecture. Then, the Practice Standing Committee reported that they had held six meetings since the issue of the last Report, and, apparently, from their report, their attention had been confined solely to those unfortunate Conditions of Contract. With regard to those Conditions, he thought that, however much they might differ as to the new Conditions, they should all agree in this one thing—that the Practice Standing Committee were entitled to the sincere thanks of every member of the Institute for the extraordinary labours they had devoted to their preparation. His experience of the gentlemen who devoted their time to the benefit of the Institute was that they were the busiest men in the profession; men whose time was of the greatest possible value, but who did not hesitate to give it when the interests of the Institute demanded it; and in that category certainly came most of the members upon the Practice Committee. He had already referred to the cost of the work; it was an unfortunate cost, but there it was, and they could say no more about it. He would not trouble the Meeting with any further observations, except to say, with regard to the statement as a whole, that the figures in the Auditors' report in some cases differed from the figures in the published Report;* but those differences were

* These figures have since been made to correspond.

accounted for by the fact that the Council, or the Chartered Accountants, removed a sum of about £64 from under the head of expenditure which was really for depreciation of furniture, and that removal did not practically, or really, alter the financial statement, but it did alter the figures as audited and as now presented to the Institute. In conclusion, he would only say that he, for one, wished the Royal Institute every success, and was sure every member of the Institute echoed that wish. They wished, in the words of Professor Kerr, and hoped, and believed that it was prospering, and that it would prosper; but it would not prosper if its finances were not looked into more carefully, and if the deficit was not only wiped off but a balance created on the other side, so that, instead of the £1,000 Consols which they had in 1894, they should be able to revert to the £4,000 Consols that they had in 1887.

THE PRESIDENT said he should like to make a few observations upon what had been said by the Auditors, to whom they were extremely grateful for the great pains they had taken in this investigation. He wished them fully to understand that the Council did not intend to cast the slightest slur on their report, or on their work. If there was a question between them, it was merely one of form and not of fact. The Council wished the audit to be strictly an audit; and the advice which the Auditors were well qualified to give from their experience in what they had gone through the Council were most thankful to receive.

MR. C. H. BRODIE [A.] said that as a junior member of the Institute, and as a member of the Architectural Association, he would like to say at once that he was glad that the remarks which Mr. Woodward had read were not printed and issued with the Report of the Council, if only for the reason that he advised that the grant to the Architectural Association should be dropped. He called it an annual grant. He believed, as a matter of fact, it was a special grant made for a limited period of three years, and that that grant which had now been given would be the last for those three years. [THE SECRETARY explained that in the estimate for 1895 there was an item of £100 as a contribution to the Architectural Association. The Council had only said that it might possibly be the last.] He sincerely hoped that it would not be the last. He hoped to hear that the grant would go on for several years longer; because he could not conceive a better way in which the Institute could spend its money than in providing for the education of its students, and providing for that in such a way as the Architectural Association did. He did not think he was going beyond what he should say in mentioning the fact that probably the Council of the Institute would very shortly receive from the Architectural Association an application for a conference, in which they would be asked to bring the time of the Institute examinations a little more into accord with the very carefully laid down and very carefully thought out course of study which had been marked out by the Committee of the Architectural Association. Another point on which he disagreed with what fell from one of the Auditors, was that he seemed to throw a slur upon the money invested in the Architectural Union Company's Shares. The Architectural Union Company practically owned that building, and he thought that the Institute ought to own the building; therefore every penny invested in the shares of that company was, he thought, wisely invested. If the Institute owned the building, they would not have to pay rent for the galleries downstairs; in fact, they would be able to let the galleries, and receive the profits.

THE HON. SECRETARY thought that Mr. Brodie's remarks with regard to the subscription which he desired the Institute to give to the Architectural Association every year might probably be helped if Mr. Brodie would use his influence as an Associate to get the Associates of older

standing than himself to become Fellows, and so increase the funds of the Institute. At the present moment they were very much hampered indeed in giving that subscription by the fact that the Associates, the older ones, seemed to content themselves with remaining Associates instead of becoming Fellows.

MR. WILLIAM WOODWARD [A.], replying to Mr. Brodie on the subject of the Architectural Union Company's shares, said that what the Auditors wished to point out was that the shares might or might not be readily convertible when required, and, therefore, the only available asset that could be immediately realised was the £1,000 Consols.

MR. JOHN SLATER [F.] pointed out that the Auditors seemed to be entirely oblivious of the fact that the reduction of the sum standing to the credit of the Institute in Consols was really due to a very large number of shares having been purchased in the Architectural Union Company. The Auditors appeared to think that the Council had lost the money which stood in 1887 to the credit of the Institute in Consols; but, as a matter of fact, a large portion, if not the whole of it, had been expended in purchasing shares in the Architectural Union Company, and in repairs and alterations and additions to the premises of the Institute. So that they must not go upon the assumption that the available assets of the Institute had been reduced by that amount, because if they had compared the number of shares held by the Institute in the Architectural Union Company at the time that that amount stood to their credit in Consols, they would find that they had largely increased their holding now in the former, and that that accounted for the difference.

MR. ARTHUR CATES [F.] said that in 1887 they held 118 shares in the Architectural Union Company; they now held 202. They had bought 84 altogether. They were £10 shares, and were valued at £14.

MR. LACY W. RIDGE [F.] said he believed that it was understood last year that they were to have a Report not made up by Accountants, and had hoped that would be the case. Chartered Accountants would take the view of the subject that they were a Limited Company that had to go into liquidation. So far as the Institute was concerned, they did not want to go into liquidation. If they were told that they had so much cash at the bank and so much Consols that they could sell out to-morrow, they would know what was their available cash. As to shares in that building, they held them in the hope that they would some day absorb the whole building; and to that end he supposed every member of the Institute would like to contribute. Then there was one very great omission in the Report. They found the number of Probationers and Students of the Institute compared with the number last year; but they did not find the number of Fellows last year compared with the number in the present year. It was a most serious fact that there was a diminution in the number of Fellows—that the number of Fellows was becoming insignificant when compared with the number of Associates. And the reason was not far to seek. They had set up a system of examination *in camera* of proposing Fellows, to which he did not think any man who valued himself and his position would submit. Another thing: When the Council had passed a man and he was put up for election he was liable to be blackballed, and the Council sat still and took no steps whatever. Was it likely that any of the men so treated would ever come up again? The men who had been elected to the class of Fellows during this year had all come up from the class of Associates. The Institute wanted money—it wanted money rather badly, for what the Auditors said was true. Let them put the burden upon the Associates. Why should not the gentlemen who had all the privileges of the Institute, who had all the votes, who had very great influence, because they were much

more united than the Fellows were—why should they not pay the same subscription? Perhaps it might be well to suggest that they should pay three guineas as a sort of transition. He believed there were some people belonging to the Institute who thought that the Fellowship was a sort of honour. He could only say that that was no part of the constitution of the Institute. When he came up for Fellowship he in no way suggested, and it was in no way present to his mind, that he was asking anybody to confer an honour upon him. He became a Fellow after having been an Associate for a good many years, because he thought that it was his duty to do so, and that he ought to pay four guineas instead of two. He thought the Institute was in danger of becoming, to a very great extent, a Mutual Admiration Society, and, according to the view of the Auditors, was distantly—very distantly at present—approaching the state of a bankrupt society.

MR. ASTON WEBB [F.] said that, as Chairman of the Finance Committee, perhaps he might be able to throw a little light on one or two of the points raised by the Auditors. Mr. Woodward was always ready to come forward as the friendly critic, and he was sure they were much obliged to him. He had not a word to say against it. They were perfectly legitimate and proper criticisms that he had brought forward. They all admitted and knew that the expenditure of the Institute at present was very high, and they were quite as anxious as the Auditors to diminish it. The Council were looking out for ways of doing so; and if they did not altogether agree with the suggestions of the Auditors, it was merely because they had other modes in view, not that they did not appreciate that it was absolutely necessary that some increase of income or decrease of expenditure should take place. So far as the capital was concerned, he thought that had been already fully answered. They had £4,000 in Consols in 1887, and they had now only £1,000; but they had largely increased the premises, which had been admitted to be of the greatest possible use to the work of the Institute, enabling the whole of the first floor to be devoted to the Library and other purposes. And also there had been the purchase of the Union Company's shares. His recollection was that about £1,000, as nearly as possible, had been spent on that. They had thought that, being tenants, it was good policy to endeavour to acquire those shares as they came into the market, and that policy had been carried out up to the present time. No doubt they could not be immediately realised, but there would be no difficulty in raising money upon them, and they were a perfectly legitimate and valuable asset to be put to the credit of the Institute. To talk of the capital of the Institute as being only £1,000 when they had this large amount also in the Architectural Union Company's shares of £2,800 seemed to him to be a misleading way, and an unnecessarily alarmist way, of putting things. With regard to the Accumulated Fund, and also to what had been said that of course no one could understand a chartered accountant's account—he (Mr. Webb) had also heard it said that ladies and many others could never understand an architect's plans, and that until they saw the building up they had not the remotest idea what it would be like. He did not think it was the fault of the chartered accountants' accounts; it was quite possible to be the fault of the gentlemen who examined them. He had shown the accounts to several business men, and they had all assured him that that was the usual way in which business men—not only Institutes like their own, but ordinary mercantile men—made up their accounts, and that the accumulated fund for a going concern was the only proper way in which a statement of the condition of affairs could be put before the Institute. The Institute of Chartered Accountants' accounts were made up in the same way, and its accumulated fund was stated on the same principle. Whether they wrote off sufficient for depreciation was another matter, but they could not

afford to write off more at present. But to say that they were not to value these things at some value seemed to him absurd. How far their books would sell at a forced sale they did not know, but the greatest possible trouble was taken to arrive at some fair valuation of them. Mr. Quaritch, Mr. Wyatt Papworth, and others were consulted on points of difficulty in the case; and as to furniture, Mr. Rickman and others, whom they considered most capable of arriving at some conclusion, took a great deal of trouble. With regard to the proposed reductions in expenditure that had been mentioned, of course there, again, he only spoke as a member of the Institute; but weight must naturally be given to the opinion of the two gentlemen who had so thoroughly gone into the accounts. They recommended that the hire of the gallery for the exhibition of the drawings submitted for the Institute prizes should be given up. He believed he himself was originally the cause of that expense being incurred. When the drawings were hung in the Meeting-room it was found that very often they could not hang the whole of them at once. A portion only of the drawings could be put up for the judges in the first instance, and the judges had to do the best they could. Then they had to take them down and put up another set, and so the judges had to try to arrive at a fair decision on the whole of the drawings. He had no hesitation in saying that that was absolutely unfair to the competitors, and that the only way in which the works could be fairly judged was to have all the drawings before the judges at the same time. It was really most important that when they offered prizes they should be able to give every assurance that the best man would get the prize in the different competitions. So long as they had so many drawings they could not possibly be accommodated upstairs, and he thought they must not dream for a moment of giving up the gallery. With regard to the grant to the Library, they had in former times given £100 a year, and the Literature Committee, and those who had charge of the Library, complained that this year they were only given £50. £50 was really not enough to keep the Library up to date. What they wanted to do was to reduce their expenditure so that they might again give £100, which was none too much. With regard to the Architectural Association's grant, it had been explained that that was a grant of £100 a year for three years by the Institute. The three years had expired, and they had an application from the Association to renew the grant. The question was raised that, in the state of their finances, they were not justified in giving £100 to the Association; but it was felt by many—and he must say that he was one of those—that it would be rather hard upon the Association to suddenly stop the grant without at any rate due notice; and it was therefore decided to recommend to the General Body that they should grant them another £100 for the present year, intimating at the same time that they were afraid they might not be able to continue it in the future. He was in hopes, and he did not think he was too sanguine, that their funds might from various causes be on a better footing shortly, and that the Institute might be able to continue the grant; but at any rate it was thought to be only right and prudent to give notice to the Association that it might not be possible in future years. With regard to the expense connected with the Conditions of Contract, of course they all regretted that, and all agreed that the sooner that account was closed the better. He thought it was nearly closed now.

MR. EDWIN T. HALL [F.] said that, with regard to the criticisms upon the value of the property of the Institute, he felt sure that the Auditors would say that the Council had taken all the care that they could to get the figures correctly stated. Everything had been said that need be said about the Architectural Union Company's shares. It must be the dream of every member that the Institute should be the owner of the premises some day. If funds per-

mitted their transferring their other investments to those of the Architectural Union Company until they held all of the shares, that would be a most desirable consummation. With regard to the question of the Fellowship, it had been a matter of most anxious consideration to the Council how the number of Fellows could be increased. It was not long ago since they appointed a committee especially to consider the subject, and a report was drawn up by that committee. It was felt that it was not proper nor right to suggest any alteration in the system which at present prevailed, for the simple reason that it had not had a long enough trial to show its fruits. It was the gravest mistake in any constitution to chop and change the laws at every moment because they did not at once answer the expectations that were formed when they were enacted. If, however, after due trial of those laws for a few years, it was found that they did not work, it would then be right and proper that the Institute should be appealed to say what should be done. But the broad fact which stared them all in the face was that they had 921 Associates. Why did not the senior Associates come up for Fellowship? If only fifty Associates would come up and be Fellows, they would have from their additional subscriptions a large sum to deal with. He hoped that Mr. Woodward would address his oratory to Associates to persuade them to come up and be Fellows. He was sure the Institute would be delighted to admit them. If every member were elected—as he ventured to think every member ought to be elected who passed the scrutiny of the Council—they would have a great accession to their Fellows. Why it was that they were not elected, unless there was anything against their honour, he could not understand. If there was a smirch on their honour, by all means blackball them. But, if he might venture to offer an opinion, he would say to every member of the Institute, be he Associate or be he Fellow, that, unless he really knew something against a candidate, it was his duty to vote for him at the election.

Mr. WM. WOODWARD [4.] said that a suggestion was made some time ago—he was not sure whether it was made by Mr. Cates or not—that every new member joining the Institute should be asked to contribute the sum of two guineas, which might go to the Library fund. That course was adopted by the Surveyors' Institution, and had resulted in a very large accession of income, and he thought it worth the attention of the Council whether it might not be adopted here.

THE HONORARY SECRETARY said that, with regard to that, there used to be a rule that a gentleman, when elected a Fellow or member, had the option of either subscribing a couple of guineas to the Library or of reading a Paper; but that was all altered when the By-laws under the new Charter were made.

Appointment of the Statutory Board of Examiners.

The attendances of the several members of the Statutory Board of Examiners for Certificates of Competency to act as District Surveyor under the London Building Act 1894, and as Building Surveyor under Local Acts of Parliament, at the two meetings held by the Board in 1894-95, were read [see *Supplement No. 13*].

PROFESSOR KERR said that, for his own justification, he must say that he did not see any good in attending the meetings. It was a deadlock. The Examiners were quite ready to do anything they had to do, but it seemed to him to amount to no profit, for candidates did not come forward, and if they did they did not pass, as a rule. The London County Council, in the exercise of their discretion—and he could quite see with them the propriety, from a certain point of view, of what they were doing—had changed entirely the constitution of the body of district surveyors in the future. He thought the Council ought to

take it seriously into consideration, and come to some sort of definite arrangement with the County Council.

THE PRESIDENT replied that some representations had been made to the County Council of last year, but nothing had been done with the County Council recently elected.

Mr. ARTHUR CATES [F.] said it would not be right in a case like the present, where only two meetings were held, to exclude from a numerous Board of this kind gentlemen who were not able to attend on one, or even both, of those two occasions. He thought it would be an invidious and improper thing to do. He should regret to see men of great ability and prominence, and men whose names adorned the Board, excluded simply because they were unable to attend on the two occasions when, as Professor Kerr had said, there was only one candidate to examine—and they did not want the whole Board to examine one candidate. The principle by which the Board had been governed was, he understood, the principle of a rota when there were more numerous candidates, which might be convenient for those gentlemen whose engagements—and they were all busy men—might not enable them to attend on one occasion, but who could attend upon another. He hoped that no action would be taken on the mere fact that on the two occasions when the Board had met those gentlemen had been unable to attend. He should have much pleasure in moving that the Board be re-elected.

Mr. EDWIN T. HALL seconded the motion. It seemed to him that what Mr. Cates had said put the whole thing most admirably with care and consideration—namely, that it would be absurd to expect all the gentlemen to attend when there were so few candidates.

PROCEEDINGS OF ALLIED SOCIETIES.

The Northern Association.

On Saturday, 27th May, a meeting of the Northern Association was held at Stockton and neighbourhood. In the afternoon the ancient churches of Billingham and Norton were visited at the former: the members were met by the Rev. Philip Rudd, the Vicar, who conducted them over the edifice, and afterwards hospitably entertained them at the Vicarage, which contains an interesting oak staircase of seventeenth-century date. The church is largely of pre-Conquest date, the tower having the characteristic windows with baluster shafts, similar to Monkwearmouth, Bywell, and Ovingham. The nave arcades are transitional insertions, that on the south side being very beautiful, and bearing a strong resemblance in feeling to Hartlepool, although differing in detail. The chancel was unfortunately rebuilt at an early period of the Gothic revival. In the Vicarage garden are preserved the sedilia taken out of the former chancel. At Norton the members were met by the Rev. Mr. Scott, the Vicar. This church also retains some pre-Conquest features, namely, the lower portion of the tower and the transepts, while the nave arcades are transitional. The aisles were rebuilt about fifteen years ago in the Perpendicular style. The church is exquisitely kept up, and forms a fitting culminating point to the pleasant village of Norton, with its village green surrounded by old-fashioned residences. In the evening the Association held a meeting at the Masonic Hall, Stockton, the President (Mr. J. Oswald [F.]), in the chair, when a number of local gentlemen connected with the profession attended. The Hon. Secretary (Mr. A. B. Plummer [F.]) sketched briefly the work and objects of the Association, especially detailing the advantage which it offers to students on the one hand, and established practitioners on the other. Several local gentlemen expressed their sympathy with the objects of the Association, and their intention of connecting themselves with it. Among

those present during the afternoon and evening, besides those already mentioned, were Messrs. J. H. Morton, (South Shields), Clark & Moscrop (Darlington), T. A. & J. A. Lofthouse (Middlesbrough), W. H. Linton, T. W. J. Richardson, E. A. Whipham (Stockton), and others.

LEGAL.

The London Building Act 1894.

KIRK & RANDALL v. HEWITT.

On the 28th March and 5th April, at the Southwark Police Court, Mr. Slade heard an application, on behalf of Messrs. Kirk & Randall, under section 150 of the London Building Act 1894, to set aside an objection made by Mr. Hewitt, District Surveyor for Southwark, to their building notice given to him, stating their intention to erect certain stable buildings for Messrs. Spiers & Pond at the corner of Charlotte Street and Gambia Street, adjoining their existing stables. The amended building notice described the stables as a new domestic building "(?)" two storeys high, covering the whole of the site. The District Surveyor objected on the ground that the proposed domestic building had no open space at the rear as required by section 41 of the Act.

Mr. Grain appeared for Messrs. Kirk & Randall, and Mr. Daldy, instructed by the London County Council's solicitor, for the District Surveyor. Some discussion took place as to whether the magistrate was empowered to decide as to the reasonableness of the objection, or merely to say whether the objection, as based upon the building notice, was good under the Act. It was finally agreed that as the building notice was the result of some correspondence, and the class of building was queried, either side should be at liberty to amend the notices if desired, so that the real question at issue might be fought out on its merits.

Mr. Grain called Mr. Legg, engineer to Messrs. Spiers & Pond, who stated that cottages formerly occupied the site, plans of which had been certified by the District Surveyor. Two new buildings were to be erected, a bakery and a stable. The bakery had been passed by the District Surveyor as a building of the warehouse class. The stable building contained 108,000 cubic feet, and comprised a van shed on the ground floor and stables on the first floor; both storeys would be entered through the existing stable building in Charlotte Street. The old stables contained a dwelling for stable-keeper. The whole of the premises, both old and new, would be occupied by Messrs. Spiers & Pond for purely trade purposes. If the open space had to be provided it would defeat the object of the building.

On 5th April, the magistrate having meanwhile viewed the premises, the hearing was resumed, and Mr. Grain argued that Part V. dealt exclusively with buildings used for human habitation, and quoted sections 39 and 74. It was unfortunate that the enacting portions of the Act were discussed before the Committee had defined the interpretation clauses. "Domestic building" was a new term. In the old Act there were only "dwelling houses," "warehouses," and "public buildings." Terms of ordinary acceptance must be used in the ordinary purposes of life, and the domestic building of the Act must be something analogous to a building used for domestic purposes. The building in question, he contended, would be a storehouse, and it would not be necessary to have stores there to make it so; but vans and horses were required for business purposes. He further argued that the old building and the new were to be connected and occupied by the same firm as one premises. Taken in this way, they would exceed 150,000 cubic feet, and therefore would come under the warehouse class. The party-wall divisions of a warehouse exceeding 250,000 cubic feet did not constitute separate buildings under section 75. Section 52 made it clear that there was a distinction between a stable building and a domestic

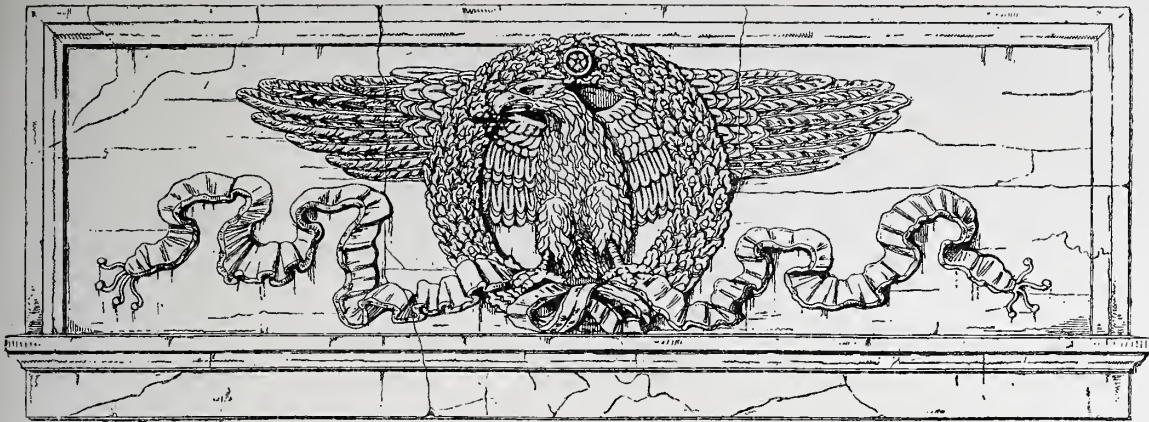
building. He also contended that section 39 warranted the magistrate in setting aside the objection, as this stable might really be deemed a part of Messrs. Spiers & Pond's offices and counting-houses. It was clear that this sort of building was not intended to be included in the "domestic building class." Supposing it were not a warehouse, then it came within section 43. The old building and the new together would in that case be one domestic building, and the existing open space at rear of the former was equal to the open area space of the buildings pulled down. Mr. Grain said that in the first instance plans and notices were sent in, showing bakery and stables combined. This was withdrawn, and a fresh notice was sent in of a domestic building to be used as a stable; and in view of the correspondence a query was put after the word "domestic."

Section 150 was passed in order that disputes between the District Surveyor and the owner of a building might be settled before much expense was incurred, and he thought the magistrate had the right to set aside the objection of the District Surveyor if he considered the building as it was intended to be erected would satisfy the requirements of the Act.

Mr. Daldy, in reply, said that Mr. Grain had referred to section 43, but it appeared to him that that section entirely met the case. If buildings were to be erected upon sites of old domestic buildings, the owner could get the plans of the old buildings certified by the District Surveyor, and could then erect the new buildings so that no more land was occupied; but if the plans were not so certified, he must, in rebuilding, be bound by the preceding provisions of the Act. In this case the plans had not been certified under section 43. Mr. Grain relied upon this building not being of the domestic class because it was not allied with domestic purposes; but that was not what the Act said. Section 5, sub-section 26, stated that every building which was not a public building nor a warehouse was a domestic building. Section 39 showed clearly that Part V. did include buildings other than those used for human habitation; otherwise why specially exclude offices and counting-houses? Section 52 was more difficult to deal with, but it was quite clear that it only applied to the case of dwellings and stables of small depth, with a mews at the rear. In that case one open space was sufficient for both, and the two buildings were treated as one domestic building. As a matter of fact, these stable buildings were almost always dwelling-houses on the first floor.

Mr. Hewitt, the District Surveyor, was called, and stated that he had taken the view that the stables were domestic buildings under the definitions in the Act, and as such required the open space provided by section 41, rule 2. The new building would be less than 150,000 cubic feet; the new and old together would exceed 250,000, and, if united, other questions would arise under the Act. The building had not before been discussed or thought of as an addition to an existing building. The plans of the old buildings which formerly occupied the site had been certified by him under section 13, not under section 43. He had not been applied to for a certificate under the latter section. The space at rear of the existing stables did not comply with section 41 even if the buildings were treated as one, as it did not extend throughout the entire width, and was only about 3 feet wide at the northern end between the balcony of the existing stable and the abutment of the London Chatham and Dover Railway.

The case was again adjourned, and judgment given on 11th April, when Mr. Slade, after referring to the facts and arguments, said: The real question is—Is this a domestic building? The definitions are difficult, as they frequently are in technical Acts, but we may arrive at a solution if we inquire what is not a domestic building. It is not an office, a counting-house, a public building, or a warehouse. The building in question is neither of these, and I must hold that it is a domestic building, and the objection of the District Surveyor must therefore be upheld.



SOME CHARACTERISTICS OF PRE-CONQUEST ARCHITECTURE.

By GERALD BALDWIN BROWN [*H.A.*], M.A., Professor of Fine Art
in the University of Edinburgh.

Read at the General Meeting, Monday, 20th May 1895, and registered at Stationers' Hall as the property of the Royal Institute.

THE term "Saxon," as applied to certain architectural monuments in England, has passed through some vicissitudes. A century ago the word was commonly applied in a loose sense to denote all round-arched mediæval structures, including those of Norman origin. Such misusage ceased on the publication of Thomas Rickman's *Studies of the Styles of English Architecture*, which first saw the light in 1813. In Rickman's epoch-making essay the Norman is made the first of the styles which are there described and discriminated; while, with respect to earlier work, the author notes that "though many writers speak of Saxon buildings, those which they describe as such are either known to be Norman, or are so like them that there is no real distinction." He admits, at the same time, the probability that "in some obscure country church some *real* Saxon work of a much earlier date may exist," though "we have no remains *really* known to be more than a very few years older" than the Conquest. At the same time, though these words appeared in the text, Rickman added in an appendix a very good description of some of the outstanding features of pre-Norman work, and a notice of twenty characteristic examples. The successive later editions of the *Attempt to Discriminate*, issued under the care of Mr. John Henry Parker, contain an ever-increasing list of examples, which, in the edition of 1862, the last but one that has appeared, number 123. It need hardly be said that this list is not authoritative. It is both redundant and defective, and is only useful as a starting-point for investigation. It is somewhat unfortunate that in the latest and current edition of Rickman, issued in 1881, the sections on Saxon architecture are withdrawn in view of a separate publication on the subject, which was to form a companion volume and to treat systematically the whole period in question. This volume has, however, never seen the light. Meanwhile, Bloxam's well-known *Principles of Gothic Ecclesiastical Architecture* had contained a chapter "Of the Anglo-Saxon Style," with a list of 130 examples, and good descriptions and illustrations, which, however, apply rather to details than to the general form and character of the monuments. This chapter in Bloxam and the notes in the various editions of Rickman up to 1862 form the only general dissertations on this subject available for the student of our architectural history. There is no subject, however, which has in recent years

attracted to itself more attention among local antiquaries and investigators. The pages of the published reports of our numerous county and district architectural and antiquarian societies bear evidence of the work which is in progress in this special department of inquiry. The number of examples in which the eyes of local experts discern some remnants of pre-Conquest masonry steadily increases, while from time to time there are published Papers, like those by Mr. Clement Hodges on the "Pre-Conquest Churches of the Ancient Northumbria,"* which, dealing in a scientific manner with a considerable group of monuments, add much to the general stock of knowledge. It may be noted, in illustration of this, that in the two counties of Northumberland and Durham alone Mr. Hodges numbers eighteen sites on which there are still to be seen some examples of pre-Conquest architecture. Of these nine, or just one half, are not mentioned in either of the general lists quoted above. Again, at the other extremity of the country, in that most archæologically interesting county of Sussex, while Rickman and Bloxam only name eight examples, the writers of Papers in the Sussex archæological collections mention more than twenty; though one must say that some of these, like Ovingdean and Hangleton, near Brighton, are in appearance rather early Norman than Saxon.

The investigations of local experts are the primary conditions of advance in the study of this interesting epoch in our national architecture. No one explorer can make the needful minute examinations of sites and fabries all over the country, though the number is not so great as to preclude the possibility of one person visiting them all. The more general student finds his place and function when the time comes for the task of bringing together and co-ordinating the results of local research, with a view to the establishment of canons of criticism. Such a task might well occupy the attention of the Royal Institute of British Architects. As the centre of architectural study and practice, the Institute would be fulfilling one of its functions if it could render generally accessible such information as can be verified as to the earliest group of English monuments. What is required first is what the French would call the *statistique monumentale* of pre-Conquest architecture, such as would be furnished by a verified list of sites, with a brief indication in each case of the character of existing remains, or a map giving the names and geographical distribution of places where pre-Conquest work is to be found. If this idea commended itself to the Council, some consideration might be given to it by those specially interested in the more antiquarian side of architecture.

The monuments which are ascribed, with some good show of reason, to pre-Conquest times are distributed fairly evenly over the eastern and midland districts of England, and are perhaps more specially abundant than elsewhere in the districts about the Tyne and the Wear in the north, in Lincolnshire and Northants, in Hampshire and Sussex. Their comparative infrequency in the west generally (except in Shropshire), and their absence from the Lothians, from Strathclyde with Lancashire and Cheshire, and from Dorsetshire and Devon, may be partly due to the fact that these counties have not been so thoroughly searched as the others; but it must have in large measure an explanation in history, and depend upon the manner in which the country was seized and settled by its Teutonic conquerors.

A list of examples of Saxon masonry presupposes the existence of certain criteria by which work of the kind can be, with some assurance, identified. Appearing as it does in the architectural history of the country between the Roman and the Norman periods, Saxon work might seem at first sight very easy of identification. The styles of building of both the Romans and the Normans are particularly well marked. Their materials, forms, processes, all obey certain well-understood, unvarying formulæ. No builders were more consistent in their procedure and more faithful to tradition. Roman work, one would say, and Norman work are

* See *The Reliquary* for 1893-94. Bemrose & Sons.

alike unmistakable. Whatever was produced after the Romans left, and before the arrival of the Normans, will be at any rate readily recognised as neither Roman nor Norman. This mode of argument may apply in the case of Roman work, though even here it is not always quite convincing. In the case of Norman work, on the other hand, the idea that this unmistakable character belongs to it throughout, and at all its periods, may be a very misleading one. Before about 1100 the Norman style exhibits these special features in important buildings, but in small and unpretending structures it shows itself still uncertain and tentative. Thus, at Bernay, in Normandy, in the first half of the eleventh century, and in Edward the Confessor's buildings at Westminster, the masonry and details have the pronounced Norman character; while country churches in Normandy contemporary with Bernay, and those erected in Britain in the first generation after the Conquest, are often built irregularly of small materials, and are destitute of those special constructive and ornamental features by which the style is generally recognised. Between such unpretending, characterless Norman masonry of the close of the eleventh century, and Saxon work of its middle decades, it is not always easy to decide. A good illustration of what is meant may be found in the small church of St. Oswald, at Paddlesworth, on the downs above Hythe, in Kent. From its historical associations, it is one of the most interesting little churches in the southern counties, especially to a denizen of the north; while architecturally it is so plain, and in construction so rude, that it is generally pronounced a work of pre-Conquest times. There is only one marked feature, a curiously low south doorway, and this has Norman characteristics; but putting this apart, the general style of construction would suit an early Norman just as well as a Saxon date, and this is just a type of many churches, especially numerous in the south, that are certainly of the eleventh century, but may equally likely be of Norman as of Saxon origin.

The same may be said about a class of structures, usually claimed as Saxon, which exhibit in many cases such strong Norman affinities that their origin is sometimes doubtful. I refer to some of the numerous belfry towers which form, perhaps, the most outstanding feature of the pre-Conquest work in general. Saxon towers are one of the many problems which meet the student of this subject. They vary doubtless in date; but at what period and under what circumstances they first came into use it seems impossible at present to decide. However old the most ancient of them may be, the style of a considerable number, indeed the majority, of them is such as to point to a date in the eleventh century. They have their own special non-Norman features, but, in the case of a certain number of them, these are blended with elements of Norman character, and leave us in doubt as to what period of the century saw their erection. The tower at Appleton-le-Street, Yorkshire, claimed by Mr. Clement Hodges as pre-Conquest, possesses these Norman elements; so does Jevington, in Sussex, as well as some of the Lincolnshire towers. For examples of this kind I would suggest the term "transition Saxon." As was pointed out by the late Professor Freeman, the Conquest need not be supposed to have made an absolute break in the building traditions of the country side. If Norman master-builders and workmen came over to superintend and carry out important commissions in the rebuilding of cathedrals and abbeys, in other parts of the land Saxon masons may have been carrying out in their native style the more modest orders of Norman lairds and priests.

Although it may not be possible in every case to separate Saxon work from Norman, or even from Roman, yet it possesses its own distinctive features, which entitle it to a position apart in architectural history. We may demand, in the first place, What are the more general characteristics in which may be held to consist the individuality of the style? Is it possible, it may be asked, to describe in a few words the general appearance of a Saxon building? One would note here, first of all, a certain air of simple and severe massiveness which is a common, though not universal, characteristic of these monuments. The tower of Clapham Church,

near Bedford, is a capital illustration of this characteristic. There is generally a considerable rudeness in the masonry, but this is so often the noble rudeness of primitive stonework that it becomes a mark of distinction; while not seldom the use of blocks of abnormal size lends to the structure a certain megalithic aspect. This last trait is to some extent Roman, but it is opposed to Norman practice. The use of large material is rare in Norman work. Though in certain examples, such as Bernay, the stones are of substantial bulk—some two feet by eighteen inches—yet, as a rule, Norman stones are of moderate dimensions, and we do not find specially large blocks singled out, as is the case in Saxon work, for particular positions, such as quoins.

Simplicity, however, is not the unfailing character of Saxon buildings. In sundry examples this quality is obscured by considerable effort after enrichment. The enrichment is, however, of such a kind that it strengthens rather than reduces the impression of rudeness, for, though at times elaborate, it is tentative, illogical, bizarre, and seems to bring before us craftsmen working, not according to a living tradition of style, but from imperfect remembrance or hearsay. Accordingly, we may describe pre-Conquest architecture in general terms as presenting a decidedly primitive aspect; but it is primitive, partly because it is simple and rude and massive, and partly because it is somewhat childish and uncivilised in its enrichment and its details.

There is no space within the limits of a single Paper to notice all the various characteristic marks of pre-Conquest buildings. They are, moreover, tolerably well known, and many of them are described in Rickman and in other text-books. The following notes refer to points that are of some special significance, or have been made matters of controversy.

Saxon masonry has, in regard to its facing, no special consistent character, and the various forms may be paralleled in early Norman work in France and in England. It varies from the well-cut and dressed ashlar of Bradford-on-Avon, whose builders had the advantage of the fine Bath oolite, to rubble-work of various degrees of rudeness. Masonry of stones, squared, indeed, but not accurately squared, and laid in level courses that are not consistently levelled, is very characteristic of Saxon work of the better kind, and is well represented at Bosham, near Chichester, and Billingham, county Durham. It may be worth noting that herring-bone work, which used at one time to be regarded as something specially Saxon, does, in fact, hardly occur at all in the style. One would venture almost to exclude it from the list of Saxon forms. It is used, of course, by the Romans, and is very common in Norman work of the eleventh century. Country churches in Calvados exhibit it in profusion. In our own country where is it that we find it? Chiefly in early Norman walling, such as the enceintes—not the keeps—of Lincoln and Rochester; in Gundulph's tower at West Malling; in the early Norman—not Saxon—church-tower of Saint Peter's at Bedford. Where it occurs in pre-Conquest work it can often be explained as a restoration. Thus it appears in the much-patched tower of St. Mary Bishophill junior, York; and there are courses of it at the summit—but only there—of the tower of Bolam, Northumberland, which is one of the examples best termed "transitional Saxon."

Commending this point to future observers, we may go on to note that the external use of plaster is proved in many cases by the setting back of the wall-face half an inch behind the quoins; but it would be rash to say that where this does not occur plaster was still originally used. In many instances, as at Sompting, the plaster still remains; in others, such as St. Benet's, Cambridge, it has been removed in quite recent times. There is, indeed, a rage just now for stripping these old walls of their clothing of stucco. The process leaves them often shiveringly naked and rather ashamed. The effect, for instance, in the interior of the church at Lyminge, Kent, is hardly decent. It is of course a great advantage to the archæologist to

be able thus to study his buildings in the nude ; but plaster is often an obvious artistic necessity. On the other hand, one cannot imagine that masonry like that at Bradford-on-Avon, which Mr. Parker, when he thought it twelfth-century work, pronounced "remarkably good, clean, and fine-jointed," was ever plastered.

The absence of buttresses is a noteworthy feature of Saxon as distinct from Norman walling ; but the chief peculiarity is to be found in the quoining. The corners, whether of tower, or nave, or chancel, are often constructed of the familiar so-called long-and-short work, but in many examples they are formed of very large and massive blocks, contrasting with the smaller material of the rest of the fabric ; and it is from this feature that Saxon buildings derive that semi-megalithic character already spoken of. It need not be pointed out that the quoins both of Roman and of Norman buildings are not specially remarkable in construction or material. Norman corner-stones are, as a rule, all of the same size and shape, and are bonded alternately north and south, and east and west, into the walls whose juncture they effect. Though carefully chosen and dressed, they do not differ much from the material in the rest of the wall. This difference is specially accentuated, on the other hand, by the pre-Conquest builders ; and a Saxon quoin, appearing as it often does in a late mediæval fabric as the sole relic of an earlier age, is always unmistakable, and always impressive in its look of rugged strength. The south-west corner of the nave of St. Mildred's, Canterbury, is an excellent example.

Although not buttressed, the walls of many Saxon buildings are treated with a composition of pilaster strips, joined above by round or straight-sided arches. In the case of some of the towers, notably Earl's Barton and Barton-on-Humber, this strip-work is a most prominent feature, and the constructors have taken immense pains with it. No characteristic of Saxon architecture is better known than this one, and it is generally explained as a reminiscence of timber construction. This, however, with other similar questions of origin, must be discussed at a later stage.

Of the fabric, as distinct from the facing, of the wall, there falls to be noted a very important and far-reaching difference between the work in question and that of the Romans and the Normans. The Saxon wall is a single thing ; the Roman and the Norman wall—at any rate in the twelfth century—is a threefold affair, consisting of two carefully constructed outer faces and an interior filling of rougher material. Partly in consequence of this mode of construction, the Norman wall is generally thicker than the Saxon, and it is to the credit of Saxon builders that their comparatively thin walls, often less than three feet in thickness, have stood as well as has been the case. In the one ruined pre-Conquest wall I have examined—that at Sockburn, on the Tees, where Mr. Hodges identified some early Saxon work—there is a thickness of about two feet four inches, and the stones forming the two faces nearly meet in the middle. The difference between the two systems comes out in the case of the belfry openings and other double or multiform apertures, where the drop of the wall between two arches has to be supported from below. The Saxons, dealing with the wall as a simple thing, cut their apertures straight through its thickness, and adjusted under the drop a long slab or beam of stone, under which, again, in the middle of its length, they set an upright stone shaft. This shaft often takes the form of a turned baluster, and, as such, is one of the most familiar features of Saxon architecture. As it stands half-way through the thickness of the masonry, it is often termed a mid-wall shaft.

It is interesting to see how this same point of construction is dealt with in other styles. The solution of the problem by the Normans is very logical and highly characteristic of their procedure. As their wall is threefold, consisting of two faces and an internal core of rubble-work, they construct undergirding arches beneath the central third of the thickness of the

masonry, and carry these in the middle on a shaft with a properly designed base and capital. This "recessing" is a specially Norman trait; and, as the Saxons never resorted to it, it forms an excellent mark of division between the styles. Elsewhere we find the same problem somewhat differently solved. In the early Italian campaniles, and in the arcaded openings of cloister walks, such as the very ancient examples at the Tre Fontane, near Rome, the double or triple openings are cut straight through the wall, and the support is provided by a mid-wall shaft, the capital of which spreads out in the required direction so as to overlap the suspended masonry. This arrangement is in accordance with the established grammar of architecture. The column is equipped with base and capital in the recognised classical manner, only the latter receives a special shape to suit its position and function. In the Saxon work there is nothing organic. The shaft may in itself be elaborately enriched with turnery forms, but in this case it has neither capital nor base. It may be plain, but supplied with a rude apology for base and cap, or it may be a simple upright post under the middle of the transverse stone. It just serves as a prop and nothing more, whereas the Italian column has a part of itself—the capital—growing outward into a form specially designed to enable it to do its work in an intelligible as well as effective manner. This is a good illustration of the crudities and makeshifts which occur throughout pre-Conquest work, and make us feel that it was carried on a little apart from the main thoroughfare, so to speak, along which the art was progressing in Western Europe generally from its classical to its mediæval phase.

Door and window openings present some of the most characteristic features of the work we are dealing with. The appearance of sloping jambs, which reduce the width of the aperture at the top of the opening, is a very special trait, and does not occur in Norman masonry. On the other hand, there is no true test to be derived from the splaying of the window-openings or from the particular construction of their heads. The so-called straight-sided arch, composed of two flat slabs leaning against each other at an angle, and the window or door-head cut in round form out of a single stone, have been accounted specially Saxon; but, as a fact, they occur also both in Roman and in Norman work.

The curious mouldings and incidental carved details of pre-Conquest buildings in their number and strangeness almost defy classification. At first sight we might take them to be the merely fanciful creations of an artificer who desires to enrich his work, but has no stock of traditional patterns, nor any knowledge of recognised principles or methods of ornament. Looking a little more closely, however, we discern in a great number of cases a pronounced, though clumsy, copying of Roman features; while in other cases there is an approximation to the regular Romanesque forms which were becoming established in the different European centres during the eleventh century. It is an obvious criterion of date to place those buildings earliest which make the most conspicuous use of Roman motives, while affinities with Norman or other recognised Romanesque styles suggest a comparatively late epoch. The application of this criterion is not, however, so easy as it seems, for there are cases in which we note a curious mixture of forms, apparently Roman, with others that have a marked mediæval character. Nor is it the actual forms themselves that are so noteworthy, as the curiously ungrammatical way in which they are employed. They are used with very little sense of their connection with each other and with the general scheme of construction. In the tower-arch at Stow, in Lincolnshire, one of the finest pieces of pre-Conquest work in the country, the half-round and the square pilasters that flank the opening start from formless blocks, serving as bases, which rest on the edge of a lofty plinth. The plinth is, however, of so shallow a projection that the blocks hang helplessly suspended, for the greater portion of their bulk, in the air two or three feet above the ground. In the extraordinary chancel-arch at Bosham we find an elaborate base of many members, exceedingly massive in construction, and some

three feet high. This forms a very suitable point of departure for the arch-pier. But what is our surprise when we follow this upwards and find ourselves confronted by the same forms repeated exactly, only in reversed order, and made to serve as a capital! The obvious differences to be observed in treating a base and a capital seem to have troubled the architect at Bosham as little as did the natural connection between an architectural base and the ground give concern to his brother builder at Stow. This chancel-arch at Bosham is a good illustration of what has just been remarked about the apparent mixture of forms. Taking it as a single feature independent of the rest of the church, we should say the base and capital were Roman, but the pier itself Romanesque. It is recessed, and has angle-shafts, and though angle-shafts occur as early as about 500 A.D., they are characteristically mediæval, just as are the large roll mouldings on the archivolt.

It would be tedious to dwell more at length on the details of pre-Conquest churches. To judge from those features of Saxon work at which we have been glancing, we might pronounce it too crude and tentative for the notice of the practical architect, who has to study the old monuments of his country with an eye to hints for his own professional procedure. It may seem stuff rather for the antiquary than the artist—a sort of accidental product of a semi-barbarous period of our national existence, with no real interest for the modern worker—and it is true, no doubt, that we fail to find in pre-Conquest architecture any consistent working-out of a style, in which constructive and decorative features are moulded into harmony; or any principle of development, of unfolding, by which we are led on from period to period, and observe how the forms of each epoch grow out of those that went before. We may talk for convenience' sake, as in this Paper, of the Saxon style; but there is, strictly speaking, no Saxon style, in the sense in which we speak of a Norman or a Perpendicular style; nor is there any connected history of Saxon architecture, as there is of Gothic or of Renaissance. But, after all, architecture is not an affair only of "mouldings, features, and "ornaments," or even of ground-plans and elevations. An architectural monument is the creation of an age, and is the outward expression of its ideas, the practical response to its aspirations and its needs. The interest of a social and historical kind that becomes in this way attached to it is something different from the more technical questions that concern its outward aspect as piled and carved stonework. The work we are considering possesses a genuine and lasting interest, independent of any criticism of its detail; but this interest only emerges when we come to take a somewhat more extended view.

It has been a defect in most of the general text-books on English architecture that they begin and end with a discussion of the details of buildings rather than of the buildings themselves. The services of Thomas Rickman to the study of the architectural history of England were so enormous that one does not like to say even a word in adverse criticism of his method. Yet, for the sub-headings of a chapter on Norman architecture we surely need something broader and more philosophical than Norman doorways, Norman windows, Norman arches, piers, buttresses, tablets, niches, ornaments, capitals, bases, and finally, in conclusion, Norman steeples, battlements, roofs, fonts, and porches. With a few words—excellent, no doubt, but very few—on the spirit of the style, we are taken on to early English doors, windows, arches, piers, buttresses, tablets, niches, ornaments, steeples, battlements, roofs, fonts, and porches. It is true that later editions of Rickman's work contain large additions, with much historical information by his editor; but these are accretions round a structure defective in its original plan. We cannot see the wood for the trees. We cannot gain a clear idea of the general laws underlying the growth of buildings from a treatment that only takes account of the details in the finished result.

From the point of view thus represented in our text-books, there is not much to be made of pre-Conquest architecture. A synopsis of Saxon doors and windows and ornaments could easily be made a mere museum of curiosities. When looked at, however, in the general mass, and not in details, there are many Saxon monuments that claim the admiration even of the technical critic, who has no interest in archæology for its own sake. No one can regard without a sense of wondering awe the monumental tower at Earl's Barton, or that chancel-arch at Bosham, or the tower-arches, and transept-quoins at Stow. No one enters, unmoved, the much-restored, but classically precise, little oratory at Bradford-on-Avon, or the unique and perfect stone church at Escomb, county Durham, where service has been performed day by day or Sunday by Sunday for well-nigh eleven hundred years. No one fails to be struck by the severely simple, but architecturally treated, masses of the numerous bell-towers, of which St. Benet's, Cambridge, is a well-known example. These, and other structures of the same order, would be recognised as fine monuments wherever they appeared. They are architecture, and noble architecture, too, though curiously ungrammatical in their employment of detail.

The more extended view referred to above takes cognisance of historical considerations, as well as those which more strictly concern the architect. From this standpoint there is a value in every fragment of Saxon masonry upon an ecclesiastical site. However insignificant it may be in itself, it testifies to the existence, where it stands, of a stone church before the Norman Conquest. It may be the case that, as was stated by a good authority not long ago, "except in large towns, there were few parish churches at the beginning of the present century whose sites were not already occupied in Saxon times" *; but only where there is some surviving work do we have absolute assurance of the fact. It need hardly be said that many Saxon churches were of timber, and these would necessarily yield to time, and would be replaced by stone buildings in one of the mediæval styles. It does not follow, therefore, that because an ancient country church contains no work older than the Norman epoch, the site was not previously occupied by a Saxon building, for this may have been of wood. One such pre-Conquest wooden church survives substantially to this day at Greenstead, in Essex. The question of the proportion of stone churches to wood in Saxon times is one that has often been asked but cannot be accurately settled. We need only turn over the pages of Bede to see that, from the first, churches were built of the more permanent as well as of the slighter material, and this was evidently the case throughout the Saxon period. Wood was sometimes found unexpectedly convenient from its lightness, as the following story shows:—St. Dunstan was once about to consecrate a wooden church, and noticed, as he walked round it, that it was not correctly oriented. The saint accordingly gives it a shove with his shoulder, and turns it round into the right direction!

We are only concerned, however, in this Paper with existing monuments. And what value there is, for the student of history in architecture, in even a single Saxon quoin or window! It gives the historical imagination a central point round which it can rove, while it seeks to restore in thought the old social organisation of the country-side. The rural village is the oldest and most permanent institution in the land; and the village green and sometimes the village church are the heart and centre of the quiet life that has gone on there almost unchanged since the first Teutonic settlement. It is dangerous to attempt to reconstruct local history from local topography alone; but to ignore all the evidence of topography and to write history from written records only is wilfully to ignore a most valuable source of our knowledge of the past. The importance given to the study of sites and roads, and the form and aspect of settlements, is one of the features in the work of the present school of British historians.

* J. T. Micklethwaite, *Archæological Journal*, vol. xxxvii. p. 366.

Now the Saxon manorial estate, the unit of the social organisation of the country in early mediæval times, survived in the main features of its working almost to our own day; and even now, looking down from some neighbouring hill, we can often see, almost as clearly marked as of old, the hall and "inland" domain of the lord of the manor, the groups of houses of the villagers, the arable and pasture land which they cultivated and enjoyed in common, and the more distant woodland and waste in which they had certain rights of grazing and felling. The lord on the one side and the "villains" on the other formed the two main elements of the society, and their mutual relations at different periods are matters about which historians are by no means agreed. The village green, in the midst of or in closest proximity to the cottages, and only enclosed by the roads or trackways along which these are built, has belonged, one would surmise, from the very first days of the settlement to the freemen of the community at large, who exercised there in games and mimic strife the sinews and the spirits so long accustomed to wandering and war. And what of the church? If we examine Saxon records, the impression we derive is that the church was in most cases the work of the lord of the manor—a sort of chapel attached to his residence, and kept up and served at his expense. We must remember, however, that these written records are mostly concerned with the doings and desires of the great ones of the land. A good many things might go on in the isolated self-centred village communities without a notice in contemporary documents. Was one of these things the building and maintenance of a shrine for common worship and for all the kindly ministrations of the Church? It would take too long to review the literary evidence on the question; but from our present point of view it is worth while to note that the position of the village church in its surroundings is often in itself a piece of evidence. There are cases in which it stands in immediate proximity to the manor-house or its ancient site. At Kilpeck, in Herefordshire, and Earl's Barton, in Northants, the earthworks of a Saxon "burgh" rise actually from the churchyard; but at other times the church stands in the midst of the cottages, or abuts on the village green, and seems to belong to the community at large. Possibly in such cases its foundation was an act of that corporate life, independent of the proceedings of the lord, of the existence of which there are clear traces in the records of rural societies.

Whatever was its first origin, the village church has remained, through all the mediæval and modern periods, a standing witness to the stability of our social institutions, and is like a monumental tablet on which successive generations have each left a characteristic record. There is a certain church, one of many hundreds up and down the country, in a little-visited rural hamlet in Sussex. There are one or two farms, a few cottages, a village inn, islanded in a rolling sea of meadows. Within the ample churchyard stands the church, and close beside its gate the trim and newly erected village school. The pretty schoolmistress comes in out of her flower garden to hand to us the key of the porch. We ask her, Does she teach the children anything about the parish church, its history, its architecture, its monuments? Is it ever made an object lesson for a class? "No," she replies, "nothing of this sort has been done as yet, but this will perhaps come in time." We both agree in hoping so, for the church as it stands there, recently restored, well overlooked and tended, is one of our national treasures—a possession of a class in which no other people can rival us. It is ridiculously too big and imposing for the tiny hamlet that nestles round it to-day; but if we knew its history we should see that in its general form, as well as in its parts, it was just a necessary growth out of the social circumstances of the various epochs at which it was wrought. Big Saxon stones at the north-west and south-west and south-east corners of the nave show that this was already in pre-Conquest times of ample proportions, while the good-sounding Saxon name of the place, compounded with a patronymic, brings before us a society originally,

no doubt, of clanfolk, using in common, if they did not build in common, the village shrine. A small window in the south wall, headed with Roman bricks, suggests that still older memories hover round the spot, for the walls of a deserted Roman city are crumbling into ruin not many miles away. The present structure has a western tower and spire, a chancel, and a north aisle, all in the Pointed style; but there is also a north aisle to the chancel, and this is of Norman work. The existence of the last proves that the Saxon chancel lasted on till the thirteenth century, or otherwise the Normans would have built the chancel instead of only adding an aisle or chantry to the north. For the rest, the building, like so many hundred others, has its own quaintness of mediæval fittings, its divisions, its monuments, and is a picture-book, an illustrated history, reflecting much of the social life of lords, of Churchmen, of the people, during long ages of the national existence.

In these days of revised codes for primary education, when visits to town museums count as part of the regular work of our Board schools, the same system might be extended to the country. The parish church might take the place of the museum, and the village children be taught to read with intelligence the records of the past enshrined in stones and woodwork, too often associated only in their minds with the constraint of Sunday services.

It has just been stated that the monuments of pre-Conquest architecture reflect the political and ecclesiastical, as well as the social, history of the country during the whole of the early mediæval period. The special epochs when we should expect church building to have proceeded most energetically are, first, the flourishing era of the British Church, before the inroad of Teutonic heathendom; and next, the time of the conversion of the Saxons to Christianity, partly by Roman, but, in far larger measure, by Celtic, missionaries. Then follows, at a later period, the ecclesiastical revival under Dunstan, in the early part of the tenth century; and, lastly, the rebuilding by Canute of the churches destroyed during the last Danish invasions, in that great epoch of church architecture, the early part of the eleventh century.

During the centuries from the ninth to the eleventh (except in the Dunstan period) the country was so harassed by Danish raids that church building must necessarily have been somewhat restricted; but, on the other hand, the same period saw the development of military works for national and for private security. These works hardly come under the head of architecture, as they consisted entirely of mounds or earthen ramparts, strengthened with ditches, and surmounted by palisades and block-houses of timber. Those pages of the *Saxon Chronicle* which deal with the Danish wars from the end of the ninth century are full of notices of the construction, or rather digging, of "burghs," as part of a system of national defence against the invader. It was under these circumstances that there became established the well-known obligation, binding upon all holders of land, called the *trinoda necessitas*, according to which the latter were expected to join in the national levy for military service, and to do their share in making fortifications and repairing bridges. It is evident that this ordinance was not, as it has sometimes been considered, a primeval custom of the Teutonic tribes. It is not mentioned in those land charters prior to the Danish period which we possess actually in originals, but after the Danish wars had reached a head all charters contain the provision. The *trinoda necessitas* figures, however, in those early land charters which we possess only in later copies, and the explanation of this fact is that the copyist was so accustomed to see the clause in the documents he was most familiar with, that he inserted it when he was copying out those older ones in which it was really wanting. The "burghs" thrown up under these circumstances were evidently very numerous, and private castles were added to the national defences, so that we may say generally that the Saxon fortified manorial seats, of which there is such an excellent example at Rayleigh, in Essex, came into existence

in the Danish period. The stress laid in the *trinoda necessitas* upon bridge-building is interesting. Bede tells us that in his time Roman bridges were conspicuous in the country, and the Saxons may have learned to copy them. The Danes, ascending the rivers, would naturally destroy the bridges wherever they came, and hence the provision in the land charters for their upkeep.

This Danish period has, however, a more direct connection with our immediate subject. In relation to the defensive works just mentioned, an hypothesis will readily present itself, that the characteristic Saxon church towers owed their origin, in part at any rate, to the circumstances of these times of peril. It is a well-known fact that towers belonging to ecclesiastical buildings have served both as watch-towers and strongholds. It is one theory about the Irish round towers, that they were constructed for purposes of refuge and defence at the time that northern sea-rovers were infesting the shores of Erin. One of the earliest datable church towers in Europe, that of Sant' Apollinare in Classe, at Ravenna, erected, if contemporary with the church, as seems to be the case, about the year 540, was reared on a coast exposed to the descents of the Saracens, who did actually plunder the church in the middle of the ninth century. "Saracen" towers are abundant in many parts of Italy. The good folk of Corneto, on the coast between Pisa and Rome, say that their city once possessed one hundred of such towers, all built for the protection of the people against the dreaded sea-rovers. The twin towers marked on the plan of St. Gall, of about 800 A.D., are inscribed as watch-towers, and from their position, flanking the single entrance to the monastery, they may well have served also as *propugnacula*.

Now, when the sea-rovers we know as Danes were ravaging not only the coasts of England, but also the whole country so far as it could be reached by means of rivers, what would be more natural, it may be argued, than to equip the village church as a temporary stronghold, by adding to it a solid stone tower as a fire-proof refuge for the inhabitants of a threatened hamlet!

There is something to be said for the hypothesis. The towers occur in great numbers all along the exposed north-eastern coast, from Whittinghame in Northumberland southwards, and are especially numerous in Lincolnshire and Northants, where we know the Danes were busiest. Though many of these towers are certainly of the eleventh century, others show so little approach to normal Romanesque forms that we must date them considerably earlier. Such towers as Earl's Barton, Barton-on-Humber, Barnack, would be phenomenal in the eleventh century.

In construction the towers would suit this supposed purpose fairly well. That they are solidly built is proved by their survival, though the walls are, as a rule, not so thick as in Norman work. How they were terminated above is uncertain. Only in one instance, that of Sompting, is the original finish perpetuated, and this is in the form of a pointed helm. Many of the towers, however, are sufficiently well preserved to show that their walls did not run off into pointed gables, as at Sompting. The square towers of the eleventh century in Normandy were sometimes terminated with a pyramidal cap in masonry, of which an original example remains in the now ruined church at Thaon, in Calvados; but sometimes they are terraced above for the station of a look-out and for a beacon. As there is no trace, so far as I know, in Saxon towers, of a pyramidal cap of stonework, we may assume them to have been in most cases flat-topped, and this would have rendered them suitable for purposes of defence. In shape they are commonly tall and slender, with unbuttressed walls and without sets-off, often, indeed, without even a stringcourse. The window openings, on all sides but to the church, are in the lower storeys very narrow, and in the majority of cases, but by no means universally, the only doorway opens into the church. It is in respect to the

doorways that we find what seems a fatal objection to the hypothesis under consideration. The doors are invariably on the ground level, and are marked nearly always by considerable width and ornate treatment. When the entrance is from the church it has the form commonly of a spacious archway, which bears no sign of even having been closed by a door, and which has been used by the builder as a place to display his inventiveness in impost and archivolt mouldings. Now, as the lower storeys of the towers are never vaulted, the floors must have been of wood, and had they been places of refuge such easy access would never have been permitted to foemen armed with firebrands. One special characteristic of the Irish round towers is that they have their only doorways at some height from the ground, and inaccessible save by movable ladders of wood. This same arrangement occurs in the fine eleventh-century tower at Vire, in Normandy, but never in the pre-Conquest towers of our own country.

On the whole, the hypothesis of a parallelism between the Irish round towers and the square towers of the Saxons, though worthy of attention, can hardly, in our present state of knowledge, be maintained. Both countries were suffering at the same period from the ravages of the sea-rovers, and the same need for places of temporary security must have been felt in both. As in the case of the Saracen descents on Italy, this need could suitably be met by the erection of stone towers; but we cannot say with any certainty that the Saxon towers, though, perhaps, in many cases dating from the Danish period, were reared originally for this purpose. These towers might be studied with advantage in connection with the early specimens in Normandy. There are instances there, for example, of the curious round openings, or *oculi*, that occur in the upper stages of some Saxon towers, such as St. Benet's, Cambridge, and some Tyne-side churches. In Normandy they seem to have been connected with some system of signalling out to sea.

Leaving now this question of the towers, and the Danish period generally, we may go back to examine the forms of some of the earliest churches, in connection with which we shall find, again, some points of great historical interest.

It does not fall within the scope of this Paper to deal with the monuments of the Romano-British Church, but it may be said in passing that, putting the example at Silchester apart, the only existing building in the country known to have been a church, which looks as if it had been built by Roman or Romanised workmen, is the little chapel of St. Pancras, close by St. Augustine's, at Canterbury. The brickwork there is certainly good enough to be called Roman technique; but it is quite impossible to believe that Romans or Romanised Britons put together such irregular masonry as we see to-day at St. Mary's, Dover Castle, or Brixworth in Northants. A portion of the now ruined church at Reculver, Kent, was certainly part of a Roman building, though whether this was a Romano-Christian church is more than doubtful. In the case of all these three buildings, we have some literary indication of a date which would place them within the seventh century, and with this period their technical characteristics seem well enough to agree. We must regard them as essentially Saxon buildings of the earliest epoch, though constructed in part of Roman materials. With these we may contrast certain other well-authenticated structures of the same era, which belong mostly to the ancient Northumbria. The two crypts at Hexham and at Ripon, constructed by Wilfred about 675 A.D., need not detain us; nor yet the great church erected by him at the former place, which was said not to have its equal this side of the Alps. This church, which lasted on as the nave of the great Abbey Church at Hexham till the thirteenth century, has now disappeared, and it is only possible in this Paper to take note of existing remains. For these we must turn to the work of the contemporary and friend of Wilfred, Benedict Biscop, who built the two famous northern monasteries at Monkwearmouth and Jarrow between the years 674 and 680. At Monkwearmouth there is only preserved the western porch, over

which was subsequently erected a pre-Conquest tower, and the western wall of the nave; but the descriptions we possess of the sister church, now demolished, which he built at Jarrow enable us to form a clear idea of its whole general aspect. Not far away, at Escomb, near Bishop Auckland, there stands a stone church, absolutely complete save for some inserted windows and a later porch, which can be confidently pronounced to date within the succeeding century. To match these northern examples we have in the west the chapel of St. Lawrence at Bradford-on-Avon, Wilts, erected by St. Aldhelm in the first years of the eighth century.

Only dealing now with these two small groups of seventh- and eighth-century Saxon churches, we have at once before us some interesting and significant facts. St. Mary's, Dover Castle, is a spacious, well-developed cruciform church with a central tower, of a form familiar, and indeed normal, in later mediæval days, but in the seventh century not a little remarkable. Canon Puckle calls it a basilica, and attributes it to the age of peace and prosperity in the British Church following on the cessation of persecution in the fourth century. It is, however, not a basilica, and in the early part of the fourth century it would have been practically impossible. We are so accustomed to cruciform churches that we often forget that they are really an abnormal, secondary form of building, without authority in early Christian traditions. The first cruciform church known was the Apostles' Church, erected by Constantine the Great at Byzantium, and afterwards rebuilt by Justinian. The second known structure of the kind is the well-known tomb of Galla Placidia at Ravenna, dating about 440 A.D. At this epoch the only recognised forms for churches were the basilican, and the circular or polygonal. Whence, we may ask, was the idea of the cross form derived? When we consider that the building of Galla Placidia was a tomb, and know that Constantine built his Apostles' Church as the burial-place of the imperial family, we may hold it possible that the first idea was given by the cubicula of the underground cemeteries. A square chamber in the catacombs, with *arcosolia* hollowed out in the face of each wall for purposes of burial, would closely resemble Galla Placidia's mortuary chapel, with its central space covered with a cupola, and the four short arms of the cross roofed like *arcosolia* with barrel-vaults, and containing the imperial sarcophagi. Whether or not this is the explanation of the first origin of this plan, its symbolic significance as cruciform was soon noticed, and it gradually grew into favour. The famous St. Ambrose of Milan was especially enamoured of the scheme, and his numerous buildings helped largely to spread the fashion.* The appearance of a fully developed cruciform church, with the central tower accentuated as a commanding feature, in the Britain of the seventh century—if this is really the date of St. Mary's—is well worthy of note, and illustrates the intercourse of Saxon England with the Continent. Other cruciform pre-Conquest churches in our country, such as Stow in Lincolnshire, Norton, co. Durham, and Stanton Lacy, Shropshire, seem of later date.

Turning now from the exceptional case of St. Mary's, Dover Castle, we note that Reculver and Brixworth are pillar-basilicas of a Roman type, such as we should expect to meet with at the time in Italy, or any thoroughly Romanised land. On the other hand, Monkwearmouth and Jarrow, Escomb, Bradford-on-Avon, are buildings of an entirely different plan, neither Roman nor Romanesque, but the outcome of traditions, the origin of which is not to be sought in any part of the Roman world. These traditions are Celtic, and the group of Saxon stone churches, represented centrally by Escomb, are directly descended from the stone oratories of the Celtic Church, which are most abundant in Ireland. In his *Ecclesiastical Architecture of Ireland*,† the late George Petrie gave an enumeration of the normal features of the Irish stone oratory, and there is scarcely a single one of these that is not exemplified at Escomb or Bradford-on-Avon, while they are almost all of them features that do not occur

* Mothes, *Die Baukunst des Mittelalters in Italien*, i. 139 &c.

† Dublin, 1845, p. 162 f.

in early Christian work of the Roman type. Brixworth and Reculver are perfectly normal and intelligible. Knowing Roman churches, we can readily understand them; but we could not explain or understand the other group save by reference to Irish and Scottish examples. The Roman churches are spacious, broad, and comparatively low, while the most striking general characteristic of the other groups is their height and narrowness. The church at Monkwearmouth measured 63 feet 6 inches by 18 feet 6 inches, and was 30 feet high to the wall-head. Old Jarrow Church was about the same. Escomb is of similar proportions, while at Bradford a nave measuring 25 by 13 feet has an elevation of 25 feet of wall. With this height of the side walls went a pitch of roof very much sharper than that of the basilican church. The original western gable at Monkwearmouth is still to be made out, and there are numerous other examples. The next point is the ground plan. This gives us in each case a long narrow aisleless nave and a small square-ended chancel. It is true that we know nothing directly of the chancels of Monkwearmouth and Jarrow; but Escomb and Bradford are perfectly preserved, and they agree exactly with the normal Celtic plan, while differing entirely from the apsidal arrangement of the basilica, as represented at Brixworth and Reculver, as well as at St. Pancras, Canterbury, and other southern examples.

Examining more into details, we note the sloping sides of door and window openings, as well as their termination above by a huge flat lintel. One of these over a window at Escomb is seven feet in length. All these features, as they are presented in this northern group, may be exactly paralleled in the Irish oratories figured in Lord Dunraven's well-known work.* The one difference between the Saxon and the Celtic structures resides in the stonework: and this admits of an easy explanation. Whereas rough or polygonal stones are used in the latter, in the Saxon reproductions we find squared and coursed masonry, though both cutting and laying are often irregular. This is due to the presence of Roman buildings in England, especially in the north, which furnished an almost inexhaustible supply of cut stones of every size and shape. The arches in some of these early structures, such as the porch at Monkwearmouth and the tower-arch of the early church at Corbridge by Hexham, are evidently Roman arches that have been taken down and rebuilt stone by stone. Roman impost mouldings are also in like manner appropriated. The great quoin stones, which make their appearance in the northern group of early Saxon churches, are in the first instance Roman stones selected for their exceptional size, though the Saxon masons learned later on to hew and saw them for themselves. This use of Roman material in buildings so obviously Celtic in plan and general appearance gives a curiously mixed look to a structure like Escomb which is not the least interesting point about it.

It would require considerable study and comparison of examples to decide exactly how far this Celtic influence was dominant in the plan of the earliest churches in the country as a whole. Kent was always the most Romanised part of England, and Kent was the special preserve of Augustine and his successors, who leaned habitually for support on Rome, and fled over to Gaul when a national rising made their position uncomfortable. That the churches of Kent should be apsidal in plan is quite natural. The country at large, however, owed its Christianity far more to the Celtic missionaries from Iona and Lindisfarne than to the members of the Roman mission; and Bishop Lightfoot was quite right when he stated emphatically that "not Augustine but Aidan is the true Apostle of Britain." The Celtic missionaries brought with them their own traditions of church building, just as they came charged with their own specially Celtic love of the monastic life. In each case the result was a far-reaching one. We do not know exactly to what extent the type of Escomb prevailed in Mercia and Wessex and East Anglia, for in most instances remains are fragmentary, and

* *Notes on Irish Architecture*, Lond. 1875.

it is seldom that we can make out from what exists on a pre-Conquest site the whole ground-plan of the church. There are, however, important indications which cannot escape the attention of those who investigate our older churches. How often are we struck by the curious height and narrowness of an ancient nave or chancel, like the nave of St. Nicholas, Leicester, or the chancel of Repton Church, Derbyshire! In not a few of these cases, such as Brigstock in Northants or Corbridge by Hexham, the traces of old windows are to be seen in the side walls above the present nave arcades. The explanation is that the nave walls belong to the original Saxon church, while Norman or pointed arcades have been opened in their lower part for communication with a side aisle, and this is probably the case in far more instances than we are at present aware of. In cases where the nave has been substantially rebuilt, as often occurs in Lincolnshire and the north, the same character of height and narrowness is indicated by its still preserved western quoins on each side of the tower. This height and narrowness are distinctly neither Roman nor Romanesque; where they make their appearance we may be safe in predicting the influence of Celtic tradition. A certain number of door and window openings, such as those at Brigstock, have the same sloping jambs which we have already noticed at Escomb. Furthermore, where indications of the eastern termination of the chancel are preserved, this is in almost every case seen to have the square-end characteristic of the Celtic oratory. Two notable exceptions among village churches are Wing in Buckinghamshire and Worth in Sussex, which are both apsidal. They are, however, in all probability late examples. Wing has just been undergoing restoration, and one would like to see an expert report upon the masonry; but so far as the plan and the forms are concerned, there is little that exhibits Saxon character, and the church might to all appearance have been erected at any time during the eleventh century. The case of Worth is different. Here we have distinct Saxon character in the details and masonry; but, seeing that Worth lies just in the heart of what was in early Saxon times the vast forest of Anderida, it must almost necessarily be a late example; and in Worth, with its breadth and roominess, its transepts and its apse, we see a result of the approximation to the regular Romanesque forms of the Continent which we should expect, say, in the early days of Edward the Confessor. With the exception, then, of these late examples, the apse in Saxon churches is confined to the few early buildings in which Romano-British or Augustinian influence is predominant. The Celtic chancel was, probably, throughout the prevalent form, and this fact has significance for the whole after history of our ecclesiastical architecture. The Norman prelates evidently favoured the apse, at any rate for large churches, as it was the form they were most accustomed to in their own land. The square end ultimately prevailed, and though there may have been other causes at work in its favour, the old Celtic tradition counted, no doubt, for much. When Bishop Herman of Ramsbury founded a new cathedral for the united Wiltshire sees at Old Sarum in 1076, and designed it with a square eastern end, the future of English architecture was, in this particular feature, decided in accordance with Celtic tradition.

If the general form of the normal Saxon church was rather Celtic than classical, we must look to Roman tradition for nearly all the peculiarities of masonry and details which mark the pre-Conquest style. With the exception of the sloping jambs, all seem ultimately Roman, though, as we have already seen, they were dislocated out of all shape and connection by the untrained builders who employed them. This is true, first, of the particular arrangement of stones called "long-and-short work." This feature merits a moment's special attention. We can discern here a useful criterion of date. The work in question is used first of all in door and window jambs, and does not appear in quoins until a later period. Big-stone quoins, not long-and-short quoins, seem to be the rule in the early work before the Danish wars. It may not be safe to lay this down as an absolute canon, but the truth of it is

worth testing by further observation. At St. Mary's, Dover Castle, the long-and-short work appears in the jambs of the doors south of the nave and in the north transept, while the quoin of the transept close by is built of the massive squared blocks. At Escomb and Monkwearmouth there are blocks at the corners, but the long-and-short in the jambs of the openings. If the canon is really sound, it enables us to understand how it is that the work is used with perfect logic and consistency in the jambs, while in the quoins it is often employed in an imperfect manner, as if it were a traditional form not quite understood by the builder. Strictly speaking, it is not "long-and-short work" at all, but "upright-and-flat work." Look at it in the jambs of the early buildings just mentioned. We see, for example, at Escomb, large flat slabs placed upright as facings to the opening, the full depth of which they cover. Above each comes a similar slab laid horizontally, and bonding firmly into the wall. The result is a construction both effective and permanent, and one that the Saxon builders made especially their own, though it is not probable that they invented it. The most conspicuous example of the use of this construction elsewhere, that is known to the writer, is in the jambs of the western door of the Parthenon, a Byzantine production of about the fifth century. The arrangement of marble slabs alternately upright and flat is exactly the same as at Escomb and Monkwearmouth, and in both cases an excellent flat lining to the door opening is secured.

When this method was transferred to the external quoins of buildings, we still find at times the flat stone, bonding fully into the masonry and showing its edge on both wall-faces, though in place of the upright slab there is a square upright pillar. Such a pillar, one would say, would hardly have grip enough of the wall to make it a good quoin, unless it were mortised into a sinking in the flat slab below, which is not, however, a stonemason's way of doing things. The pillars seem to have kept their places well enough in practice. Most often, however, instead of the flat slab we find employed stones the same shape as the upright pillars, but laid horizontally. Such stones only lie along one wall, and sometimes, to equalise matters, we find them in pairs, one above the other, one lying north and south, the other east and west. The name "long-and-short" is in any case hardly accurate, for the stones are the same length, only laid different ways.

If we must assume an ultimate classical origin for this characteristic of Saxon masonry, the same may be said of two other peculiarities—the baluster shafts and the strip-work. The former need not detain us; their origin is obviously Roman; but they none the less present problems of no little difficulty, into which there is not time to enter. It is noteworthy that the most elaborate examples known are also the most ancient. With the doubtful exception of some baluster shafts discovered in St. Mary's, Dover Castle, the specimens in the porch of Benedict Biscop's church at Monkwearmouth are the earliest known. They are still in position where his workmen placed them in the jambs of the western opening, standing two by two just beneath the impost. Their general outline is straight, without entasis or taper, but they are girded about with delicate mouldings of most elaborate composition, that were evidently worked on the lathe. All the abundant barrel-shaped later baluster shafts about the country look coarse and common beside these achievements of the seventh-century craftsman. Whence he derived his skill and what were his technical appliances we cannot tell. That the Romans used the lathe for such small moulded shafts is proved by the marks on some existing examples at Chester and elsewhere, but the technique attracted so little attention in the ancient world that Dr. Blümner, in his elaborate *Technologie*, though he refers to the idea of turning architectural members, can give no passage that bears on it.* The skill of the Saxons in turning these baluster shafts is sometimes explained by their previous prac-

* *Technologie, etc., bei Griechen und Römern.* Leipzig. 1884, iii. 215.

tice in wood. This may have had something to do with it, but there seems to be no authority for ascribing to the Saxons any special *penchant* for working with the lathe.

This hypothesis of the influence in various branches of Saxon work of wood technique has been held to explain the third of the peculiarities we are here examining—the pilaster strip-work of Earl's Barton and other sites. This has been claimed as an imitation of the appearance of the squared beams in what are known as half-timber-built houses, so common in many parts of the country. In the first place, however, it has to be proved that the Saxons knew and practised framed timber-work of the kind; and in the next, there would need to be disproved the far more probable origin of the strip-work in a clumsy imitation of the surface arcading which early Christian architects borrowed from later classical art. With regard to the first point, of the three kinds of wooden building, that with wattle and clay, block-work, and frame-and-filling, we know that the Saxons practised the first two, but find no trace among them of the third. The only remaining Saxon timber church, at Greenstead, is constructed of block-work, with solid upright boles, formed of split oak trunks, placed upright side by side in the most primitive fashion conceivable. Exactly the same method of wood construction is to be seen in the palisades and timber strongholds on the earthen mounds or "burghs" depicted in the Bayeux tapestry. The scientific framed work of later mediæval days does not seem to have been used in the eleventh century. On the other hand, wall-arcading appears in an obviously Roman form all round the little church of Bradford-on-Avon. The shallow pilasters there possess what may pass for bases and capitals, and are joined above by round arches. The only difference between this work and what we see at Earl's Barton is that the latter is carried out in an ignorant and somewhat helpless manner. The use of the straight-sided arch for connecting the pilaster-strips, instead of the round arch, is simply a parallel to the use of this triangular heading for door and window openings. Timber tradition has nothing to do with it.

To sum up generally, therefore, we may say that in plan and general appearance Saxon churches took either the basilican and cruciform shape due to Italian tradition, or else the long, narrow form of the Celtic stone-built oratory. The smaller village churches would, probably, in all cases exhibit the latter plan, with an aisleless nave and small square-ended chancel; while it is reasonable to suppose that the aisles, transepts, and apse of the Continental styles would appear in more important structures, such as the great abbeys, that were in such close connection with Rome. That the Celtic feeling was, on the whole, predominant may be argued from the perpetuation of the square east-end in the later styles of English architecture. In the matter of features and details, with the exception of sloping jambs and an occasional megalithic feeling in huge flat lintels, all that we find here is in its origin Roman, though the Saxon builders had their own incoherent methods of expression, which, at first sight, makes us credit them with a special language of their own. Though they were accustomed by tradition to build with timber, they do not seem to have transferred timber forms to stone to the extent which might have been anticipated.

In the foregoing Paper no attempt has been made to cover more than a small part of the field of study opened up by the question of pre-Conquest Architecture. Only existing monuments have been taken into account, and among these only one or two examples of special interest have been singled out for notice, as presenting characteristic types of work of different kinds. The examples that have perished were in all probability more important than those which have survived.

In connection with what has been said in this Paper, it will have been remarked that, with the doubtful exception of Stow, which seems once to have held cathedral rank, none of the

buildings referred to have been important abbey or cathedral churches. Yet these were both numerous and imposing. All have, however, yielded place to later structures, and with the exception of foundations at Peterborough, and some small portions of above-ground masonry at Oxford, there is nothing now left of any Saxon church of the first rank. Literary records here come to our aid and enable us materially to supplement the evidence of existing remains. A complete study of pre-Conquest as of any other phase of architecture will take account of all that we can learn from documentary sources, as well as from the monuments. It is with the latter that we have exclusively been concerned; and in connection with these it may again be urged, in conclusion, that the Institute would be doing a most valuable service to the cause of architectural study if it could focus in some way the labours of isolated workers in different parts of the country, and bring together the results of so many scattered investigations. A small committee of those interested in the subject might put themselves in communication with the Secretaries and most active workers in the local Associations, and would be able soon to obtain some oversight of the whole mass of material available for reconstructing the first and not the least interesting chapter in the history of our national architecture. The subject is one not without a strong claim upon patriotic sentiment, as well as upon that interest in past phases of their art which has always been shown by the leading members of the architectural profession. We possess in this country no such "Central Commission for the Investigation of Monuments" as that which has worked under Government for so many years in the Austrian Empire. What we do in these matters has to be accomplished without official aid. Happily, hitherto the zeal of individuals and the public spirit of Societies have never been wanting for the accomplishment of any work of real and recognised importance.

DISCUSSION OF PROFESSOR BALDWIN BROWN'S PAPER.

The President, Mr. F. C. PENROSE, F.R.S., in the Chair.

THE PRESIDENT.—Gentlemen, I am glad to think that many who have not had the pleasure of listening to the Professor's most lucid and beautifully enunciated account will read it. It has been extremely interesting to listen to. The way in which he has pointed out the connection between the history and architecture of that early period which we have generally neglected is especially interesting. I remember, in my first days of study, that it was thought that there was possibly some Saxon architecture in the country, but it was very doubtful indeed. Lately much more light has been thrown upon it. Whether the Institute will be able to carry out the ideas which Professor Baldwin Brown has foreshadowed I do not venture to say; but I would offer to our Allied Societies the opportunity of sending us reports of any Saxon or supposed Saxon works in their respective neighbourhoods.

MR. T. M. RICKMAN [A.], F.S.A.—Mr. President and Gentlemen, all of us who have sketched and wandered about this country have within the last few years seen more of and taken more interest in the so-called Saxon churches than was formerly the case; and, so far as I know, the lecture which we have this evening heard calls attention to these special influences which have come to the

front within these last few years in the consideration of these Saxon buildings: I mean the Celtic influence, the influence of the Irish style; the influence of the Roman style, and especially the use of the old materials which the Romans left. An hour spent in the crypt at Hexham watching every single stone carved or inscribed with Roman work has made me think that there was in that district a vast mass of ancient material which had been used by the Romans. The Ripon crypt is built in the same way, and I suppose there is very little doubt that a number of churches in Yorkshire and in the North generally have certain portions of their masonry which can be traced to Roman work. The remark that the lecturer made on the subject of squared stones being available from the Roman work, and as to the habit of the Romans of using stones of a certain regular size, I think, points to what we may expect to see and what we ought to look out for most carefully in all the very ancient buildings which we have to do with. I was somewhat surprised that Professor Baldwin Brown did not refer to one important Scottish building—the tower of St. Regulus at St. Andrews—one of the most interesting of its kind. The little chapel attached to that building seems to be the most like the Roman masonry

work of anything that I have seen in this country. I would have confined myself almost to the moving of a vote of thanks to Professor Baldwin Brown had not my father's name been mentioned in the way in which it has, and I have to thank the lecturer personally for the way he has reminded us of what my father did. I have been pressed to put together what I can of my father's professional work, and a remark has been made by Professor Baldwin Brown as to the curiously detailed order of his treatment of the Styles which recalls to my mind a conclusion I arrived at after reading through forty years of my father's diary; that is, that he was naturally a born accountant, a bookkeeper, and to a certain extent he treated the subject of Gothic work as a branch of bookkeeping. Every church that he examined he noted in the most careful manner. I have folio volumes in which he has numbered every church he had seen, and there are also certain marks and indications in the columns attached to these volumes describing what would be the scale of the building, or rather its component parts, and its date and all the different points of interest. They are kept like a series of office books. But of late, within the last few months, there has occurred to me what is a far better illustration of my father's work in Gothic architecture. We know that the agriculturists of Australia have been trying to grow red clover. The red clover would not grow because there were no bumble bees. Bumble bees have been imported over there, and now the red clover grows. My father was a bumble bee who sipped the sweets of Gothic architecture, and produced the honey of his book, and I think there is to be seen in the gradually increasing and greatly increased practice of Gothic architecture, after the centuries during which it was unintelligible to mankind, a proof that my father's work has impregnated the red clover of Gothic architecture.

MR. WILLIAM WHITE [F.], F.S.A.—Sir, I shall be most happy if allowed to second the vote. Mr. Rickman has spoken most modestly and justly of his father's work in connection with the first revival of that architecture which has undergone so great a development. Professor Baldwin Brown has said that the revival of that ancient architecture is more an historical than a practical subject. But the historical record of all that which he has brought before us is a great help, not only to the subject itself, but also in connection with the Roman and Norman periods. There are, as he has seemed to imply would be the case, numberless instances throughout the country of little scraps of building which could hardly be associated either with the Roman or with the Norman period—the post-Conquest portion of history. But there is one special subject now in which his learning might be brought to bear with some further results—I mean in con-

nection with the history of the discoveries which have recently been made in the chancel of Durham. Canon Greenwell seems to insist upon the remains of the apse not being of the early church, but of the later one—not the church of Aldhune, but of Carileph. I cannot help thinking that they belong to the earlier church. The argument which he brings forward, as a simple and most convincing one, is that it is not at all likely he would have pulled down Aldhune's church until his own were finished for use. I should like to base its history more upon architectural evidence. We know perfectly well that in Norman times they paid very little attention to foundations. We know that Bishop Pudsey built upon an insecure foundation for the Lady Chapel at the east end of the Cathedral; and we know that on this account he actually took the building down, and transferred it to the west end, where he had a good foundation. And I think that most probably Carileph's also was built upon an insecure foundation, for it is said that it fell to pieces. There is very good reason, therefore, for supposing the foundation was bad. And we may conclude safely that the earlier church was built upon a good and sufficient foundation, it having stood for so many centuries before it was rebuilt. Carileph rebuilt it for the sake of magnifying the building as a larger and handsomer shrine. I cannot help thinking that Aldhune was really the builder of the apse—and more especially from its form, which was rounded within, but square outside. Moreover, as Carileph's building was falling to pieces from want of a deep foundation, it is the more likely that the whole of Carileph's work was removed when the present end was built. I hope somebody here may be able to throw a little more light upon the subject.

MR. R. PHENÉ SPIERS [F.], F.S.A.—The very interesting Paper which Professor Baldwin Brown has just read forms part of a wider subject which has of late been occupying the attention of many archæologists not only in England but throughout Europe—viz. the respective influence of the debased Roman and the Byzantine styles on the architecture of the Dark Ages from the sixth to the eleventh century. I was in hopes this evening that we should have had here some of the members of that German Society who have come over this week to see our more important buildings, for they might, perhaps, have been interested in the subject. There are many very ancient buildings of their own country practically unillustrated, works of an early period, and of a similar nature in some respects to those which Professor Baldwin Brown has been describing. I might note among others the works which Charlemagne erected, some of them described as having been attempts to build "after the Roman manner" in the same way that the Saxon masons endeavoured to carry out the work in this country. I think from

the description which Professor Baldwin Brown has given that we should all be inclined to agree with him that the Saxon style, as a matter of fact, is not a style at all, but is simply an attempt, and a clumsy attempt, to carry out, from the description of monks and others who came over here, features of buildings which existed in Italy. As to the baluster and other decorative forms, I am glad to see that Professor Baldwin Brown takes what I think is the proper view, and at once discredits a'l attempts to attribute it to an imitation of timber construction. He points out that they are really an attempt to copy as far as possible the arcaded wall decorations of the Italians. He has pointed out that there are two classes of plan—that which owes its origin to Celtic sources, of the early British Church, and that which was probably introduced by the Roman missionaries. The features which belong to the former are the square east end found at Bradford-on-Avon and at Dover, which is peculiarly a national form, found but rarely abroad. It is a singular fact that although apses were introduced continually at various periods by the Roman missionaries, and after the Norman Conquest are to be found at the east end of almost all our great cathedral churches built by the Normans, notwithstanding, the English returned again to their own favourite square east end, and developed it, and formed features in it of special beauty. There is also the single west tower, which is again another English characteristic which we find in so many of those Saxon churches. Another feature is the central tower, which is invariably found in our earlier churches. From the Roman missionaries we have the Basilica plan and the apse. We have also the confessional crypt at Brixworth and at Ripon. Professor Baldwin Brown has explained that his Paper is only a part of the subject he hoped to bring forward. In the hopes that he will again return to it, I would venture to call his attention to an influence not mentioned by him, but which, I think, may possibly have extended to some of these buildings, viz. the Byzantine influence. It is a significant fact that two of these churches—the church at Brixworth and the church at Wing—have both got polygonal apses, a form of apse which is, as a rule, only to be found in Byzantine work. All the churches in Byzantium, with two or three exceptions, have polygonal apses, and wherever the influence of Byzantine architecture has been felt in Europe there you will find the polygonal apse. It reigns supreme in Ravenna, which was a centre of Byzantine tradition, and is found there in Sant' Apollinare in Classe, Sant' Apollinare Nuovo, San Spirito, Sant' Agata, and San Vitale. The polygonal apse is found at Grado and Parenzo in Dalmatia, at St. Mark's in Venice, Santa Fosca at Torcello, and in Murano. In the south of France we find it in two churches, where there has been strong

Byzantine influence. I do not know any examples of it in Germany. In both these English examples—at Wing and at Brixworth—there are polygonal apses, and the plan of the apse and crypt at Wing is not dissimilar from that of the church at Sant' Apollinare in Classe with its confessional crypt. There is also other Byzantine work to be noticed, but, curiously enough, it never seems to appear in churches, viz. the elaborate carving of that peculiar type of interlaced work which we find throughout all Byzantium and in all those countries where Byzantine influence has penetrated. It is chiefly to be found on tombs in Scotland and the north of England, and consists of such fine and beautiful work that it would seem to have been impossible to have been done by Saxon carvers. An obelisk tomb at Bewcastle, in Cumberland, shows an example of it. The date of the tomb, erected in memory of Alfred, King of Northumbria, is towards the end of the seventh century—about the year 690. Anyone who looks at the drawing will see that the detail of it is particularly fine in character, and quite unlike the very uncouth and hideous forms of ornamentation which we find in Saxon architecture. There is one part of the Professor's Paper I did not quite follow. He says: "We discern in a great number of cases a pronounced though clumsy copying of Roman features; while in other cases there is an approximation to the regular Romanesque forms which were becoming established in the different European centres during the eleventh century." I suppose the most beautiful example we can find is at Bradford-on-Avon, and I think the Professor puts that down to the eighth century. I should like to ask him whether he can suggest the type of building from which that was copied. There are plenty of churches in the eleventh century from which such features could have been taken, but it is of earlier date. We know there are earlier buildings at Lucca which may have served as models, but I am not quite certain whether they have been altered or rebuilt; the earlier work in Rome in one or two churches where wall-arcading is found is of too simple a character to have been copied. Those at Ravenna are also of the simplest kind, and have not the base and the capital and the regular arcading of Bradford-on-Avon. As regards the long-and-short work, I have sought for it abroad, and have never been able to find anything of the same description. Professor Baldwin Brown has suggested that the name "long-and-short" is hardly accurate, for the stones are the same length laid different ways. This, however, is not quite the case, because the courses consist alternately of vertical blocks of stone about ten inches square and two feet six inches high, and horizontal blocks two feet six inches square, and about twelve inches high, the further peculiarity being that they are both of them in relief, that is to say, they project in

front of the wall face of the tower about an inch and a half. It has been suggested by Mr. Scott that they are an attempted imitation of the Italian pilaster and its bonding into the wall, and that in fact the quoin of Earl's Barton is really a projecting pilaster strip. In that case one does not see why the horizontal bonding course should project throughout, and so upset the idea of its being a pilaster. Professor Baldwin Brown has said that St. Benet's Church in Cambridge had the surface of the wall plastered over. Of course if the tower at Earl's Barton were plastered over the result would be to lose all the value of the other pilaster strips decorating the wall surface. There is one other feature which has not been mentioned, and which, I think, we may also trace to Saxon sources, and that is the magnificent circular piers which we find at Christ Church, Oxford, and at Waltham Abbey. Both of these are said to be of pre-Conquest times, the latter built by Harold. Later on the same form is found at Gloucester, Durham, Tewkesbury, and other places. These circular piers are a distinctly British feature which are found but rarely abroad, and one which you may attribute to the influence of Celtic times.

MR. JOHN SLATER [*F.*], B.A.—Sir, I do not know that I have ever listened to a more suggestive Paper than the one we have just heard, or one opening up a more interesting field of study to us in England. I was particularly struck with what was pointed out as to the immense antiquity of the village life of this country. One cannot help noticing in some of these small village churches how the cruciform shape does not really exist at all. A month ago I was taking a walk in the country and came upon one church from which it was perfectly evident that the nave and chancel were really the remains of an old Saxon church which had had the nave wall cut away in order to make the aisles, but there was no cruciform appearance in it at all. With regard to what Mr. Spiers has said as to there being no polygonal apse in churches in Germany, unless I am very much mistaken (I will not be quite sure), the little ruined Abbey of Heisterbach, near Königswinter, has a polygonal apse.

PROFESSOR G. BALDWIN BROWN [*H.A.*], briefly responding to the vote of thanks, said he had listened with great interest to the personal reminiscences of Mr. Thomas Rickman's manner of work from one who had the best possible ground for speaking on that subject. He never read Mr. Rickman's book without fresh wonder at the diligence and the amount of travelling he managed to get through in days when it was not so easy to get about the country as it was at the present day. His book, published as long ago as 1813, had up to the present time never been superseded, although there had been different editions published. It was the text-book, and had remained the text-book, of English architecture to this day.



9, CONDUIT STREET, LONDON, W., 23 May 1895.

CHRONICLE.

BUILDING CONTRACTS.

The Institute Heads of Conditions, Clauses 18 and 20, and the Court of Appeal.

The recent case of Lloyd Brothers, builders, of Swansea, against a Mr. Milward is one of peculiar interest at the present moment; and the Institute is much indebted to Messrs. Collins & Woods, of Swansea, the plaintiffs' solicitors, for the particulars printed at pp. 522-23. The question at issue between the parties had reference to the construction of Clauses 20 and 22 of a Form of Building Contract approved and issued by the National Association of Master-Builders, Liverpool, which clauses are practically identical with Clauses 18 and 20 of the Institute "Heads of Conditions," now, by the Resolution of the Special General Meeting held 13th inst. [p. 521], to be superseded; and also with the same two clauses of the "General Conditions for Building Contracts" adopted by the Central Association of Master-Builders of London.

Mr. Justice Lawrance, it will be seen, gave judgment for the plaintiffs, holding that the architect's certificate, having been given in good faith, was final and conclusive. Upon appeal, the Court of Appeal reversed this decision, basing its judgment on the ground that when once a dispute has arisen, of which the parties and the architect are aware, although there has been no claim for arbitration, the architect's authority to give a final certificate has determined.

Visit of German Architects and Engineers.

The apology made by the President, on behalf of the Council, for their arrival at the General Meeting of the 20th inst. a quarter of an hour late, gave an opportunity of announcing that about fifty of their German colleagues were in London for a week's visit, and that the Council had had the honour of receiving a small contingent of the number at the dinner usually held at Limmers' during the short time which intervenes between the termination of a Council Meeting and the assembling of a General Meeting. The visitors are all members of the Association of

Architects and Engineers of Rhenish Prussia and Westphalia, its headquarters being situate in Cologne. They brought with them, as a present to the Institute, a copy of the work *Köln und seine Bauten*, prepared by the Association in 1888, and also a copy of their *Cölnher Thorburgen und Befestigungen 1180-1882*. Both works were handed to Mr. Penrose, at the close of the dinner, by the Vice-President, Herr Siepen, who addressed the company both in German and English. By a purely accidental coincidence a review of *Strassburg und seine Bauten*, the work of the Association of Architects and Engineers of Alsace-Lorraine, appears on this page; and it may be seen from the description given of it by Mr. Arthur Cates that the book is of exceptional interest and value. The labours of the architects and engineers of Cologne and its neighbourhood, as shown in the books they have presented, are certainly not less important. The Allied Societies of Manchester and Liverpool, of Leeds and Birmingham, not to mention smaller communities, will be deeply interested in what similar local Societies have been able to do for Cologne and Strassburg, and wonder, perhaps, why they have not already, in their respective localities, rendered a like service to Architecture and architects.

The German Edition of Vitruvius, 1796.

Professor Aitchison's appeal for the editions of Vitruvius wanting in the Library [pp. 321-23] has been most kindly and generously responded to by the distinguished savant, Baron Albert von Le Coq, of Darmstadt, who has presented August Rode's German translation in two volumes quarto, published at Leipzig in 1796—a choice specimen of typography in Roman text. This edition, it is interesting to note, was published by George Joachim Goschen, whose firm at that time was of nearly a hundred years' standing, and one of whose descendants is the eminent statesman of our own country, the Chancellor of the Exchequer in Lord Salisbury's late Government. Baron Le Coq has also presented Part I.—the only Part published—of Dr. C. Lorentzen's edition, Latin and German on facing pages, 8vo, Gotha, 1857. Only five editions are now required to complete the Institute collection of all the known editions. These are the small folio Latin edition published at Venice in 1497; the *Editio Princeps*, Latin and Polish, 2 vols., 1837; *Les dix livres d'Architecture*, new edition, with atlas, 2 vols., 4to., Paris, 1859; and the *Editio Princeps* in English, London, 1771 and 1860.

Recent Papers on Hospitals.

The Lancet of the 11th inst. has an article by its "Special Sanitary Commission" on the Ventilation of Hospitals and the Treatment of Infected Air, with special reference to the General Hospital now in course of erection at Birmingham. Mr. William Henman [F.], the architect of the new

building, read an excellent Paper on the general subject of Hospitals before the Leeds and Yorkshire Society in April of last year [see *JOURNAL*, Vol. I., Third Series, p. 439], and many of the points he raised have been treated favourably by *The Lancet*. In the same issue of that journal there is also a leading article in which special attention is directed to the Paper on "Fever Hospitals," read before the Institute on the 28th February by Mr. T. W. Aldwinckle [F.], and printed in full at p. 265, with the discussion thereon; and *The Lancet* thinks that the subject was then thoroughly debated and considered.

The Architectural Association Sketch-book.

Mr. Edgar H. Selby [A.] fears that the reference made on the 9th inst. [p. 453] to the completion of the "New Series" of the *Sketch-book* of the Architectural Association may lead some to suppose that the work is terminated. On the contrary, a "Third Series," of which Mr. Selby is Hon. Secretary, is going on; and the first six parts of its first volume have already appeared.

REVIEWS. XXVI.

(74.)

STRASSBURG AND ITS BUILDINGS.

Strassburg und seine Bauten. Herausgegeben vom Architekten- und Ingenieur-Verein für Elsass-Lothringen. Mit 655 Abbildungen im Text, 11 Tafeln und einem Plan der Stadt Strassburg. Large 8vo, Strassburg, 1894. Verlag von Karl J. Trübner, Strassburg.

The collaboration of some twenty-two contributors has resulted in the production of the handsome and useful volume whose title heads this notice, comprising nearly 700 pages, with 655 illustrations in the text, 11 plates, a large plan of the city, and a good index. The book is the latest of a series illustrative of German cities, from time to time produced by the local Architectural Societies, among which may be mentioned *Berlin und seine Bauten*, 1877; *Dresden: Die Bauten, technischen und industriellen Anlagen von Dresden*, 1878; *Köln* und seine Bauten*, 1888; *Leipzig und seine Bauten*, 1892; and Vienna: *Technischer Führer durch Wien*, 1874—all deserving of the notice of the English architect who may care to make himself acquainted with the progress of other countries.

As an introduction the situation, geology, and climate are exhaustively treated, and admirably illustrated by geological plans and sections of great interest in connection with the Rhine, its diluvium and alluvium.

The history of the city is followed out from the Roman Argenteratum to the memorable siege and capitulation in 1870, by which it was reunited to the German Empire, 189 years after its capture

* See this and the preceding pages: Visit of German Architects and Engineers.

by the French; its cession to France having been confirmed in 1697 by the peace of Ryswick.

Lamentable as was the destruction caused during the siege—the repair of the damage to the Cathedral having occupied ten years—in the result new life has been given to the city. The extension of the lines of circumvallation have since then doubled the area available for the city, and provided space for the new private and public buildings, the detailed descriptions of which give so much value to this volume.

The minster, the churches, the ancient and Renaissance domestic buildings are fully described and illustrated; but the special interest of the book is centred in the section devoted to New Strassburg, which occupies nearly one half of the work and describes the buildings which add fresh grace and beauty to the “wondrously beautiful city”—“*wunderschöne Stadt*”—of olden time.

The Kaiser Platz, to the north-east of the Broglie Platz, is designed to form the centre around which the great public buildings of the new city should be grouped. The Emperor's Palace, erected at a cost exceeding £140,000, occupies the entire north-west side, and faces the great college building of the University, which, with a north façade 400 feet long, closes the long vista from the Palace across the Kaiser Platz, along the 100-foot-wide Kaiser Wilhelm Strasse, over the stately University bridge which spans the junction of the rivers Ill and Aar, and then across the Universitäts Platz to the striking group of University Buildings.

On the opposite side of the Kaiser Platz, on either side of the Kaiser Wilhelm Strasse, as first instalments of the public buildings to be grouped around the Palace, two beautiful buildings have been erected—one for the University and Provincial Library, the other for the Provincial Assembly or House of Representatives.

The Library takes the place of the ancient and valuable library of 350,000 volumes and 2,400 MSS. destroyed in the siege. The liberality of the German Government and of other nations and public bodies made good the loss so fully that in 1886 the new Library consisted of 610,000 volumes and 4,000 manuscripts, and the new building provides space for 1,400,000 volumes and opportunity for extension when needed.

The House of Representatives, although of perfectly harmonious design with the preceding, does not repeat the elevation of the Library, but preserves its own individuality; and each building standing entirely detached, with streets on every side, each elevation is considered and carried out as completely as the front.

These buildings were erected from the designs of Messrs. Hartel & Neckelmann, and on the death of the former have been carried out by Professor Neckelmann. The beauty and harmony of the design, the excellence of the execution, the mastery of refined detail, evinced in every part,

bear testimony to the profound study and thorough education in details which alone could produce so satisfactory a result. When looking at these buildings the unavoidable admiration for such excellent works must, for an Englishman, be sadly tempered by the humiliating remembrance of the vast difference between those buildings erected in a foreign provincial city within twenty-five years of a destructive siege, and the latest specimen of official architecture, or rather of architecture by Select Committee of the House of Commons, which, after a period of incubation of about the same period, has been reared facing the St. James's Park Parade as a permanent evidence of the indifference to architecture which so often characterises the conduct of Government buildings in this country.

The splendid aggregation of buildings for the University is arranged in two lines of isolated edifices behind the great central college building, the Chemical, Physical, Botanical, Geological, Mineralogical, and Zoological Institutes, with the Astronomical Institute and Observatory at the end, being placed in gardens and with spacious open surroundings. The Medical Section of the University is also provided with an admirable series of buildings grouped at the Spital Thor to the south of the Great Municipal Hospital, and housing, in isolated blocks, the Institutes of Experimental Physiology, of Anatomy and Pathology, of Psychiatry, of Physiological Chemistry, of Gynæcology, of Pharmacology, of Surgery, and of Ophthalmology.

Of all these buildings, as also of the principal churches, the Great Central Railway Station, the bridges, abattoirs, and other public and private buildings and modern residences, excellent plans, elevations, and sections are given.

The expenditure on the new buildings has been great, and particulars are given of the cost of each. The four great churches—die Neue Kirche, die Neue Jung St. Peter (Herz Jesu) Kirche, die Katholische Garnison-Kirche, die Evangelische Garnison-Kirche—cost some £185,000. The Palace, House of Representatives, Library, University, Medical School, and Railway Offices cost over £1,000,000. The restoration of the Prefecture and other public buildings destroyed in the siege—new churches, schools, barracks, abattoirs, markets, bridges, water-supply, town and street improvements, and municipal works have consumed nearly £900,000. Thus, between 1871 and 1894, the expenditure on these specified public buildings, which do not include the vast Central Railway Station and many other works, has exceeded two million pounds sterling, and is still going on, the projects for new public offices such as Post Office, Law Courts, Record Office, Ministerial Offices, &c., being still in progress. It is well to note that the population of Strassburg is about 125,000—less than that of many London parishes, as St. Marylebone, St. Pancras, &c.

This book on New Strassburg deserves careful study by all interested in the advancement of urban development in England, and conveys an admirable lesson of the nation's gain by the intelligent co-operation of the State and the Municipality in carrying out public works uninfluenced by the dictates of wasteful economy.

The whole volume is replete with information admirably conveyed, which may well form subject of careful study to every architect. To our brethren of Elsass-Lothringen the thanks and acknowledgments of our own body are certainly due for having produced so excellent and valuable a work, which, if rightly studied here, should much influence the manner in which public works may hereafter be dealt with, and help to qualify the narrow views by which so many good aspirations have been cramped and rendered in execution futile or ridiculous. There being two copies in our Library—one in the Reference Library, presented by the Architekten- und Ingenieur-Verein für Elsass-Lothringen, and one in the Loan Library, presented by the writer of this notice—it will be easy of access to the student; but to those students whose resources would not be unduly affected by the expenditure of the very moderate price* at which it can be obtained, I strongly recommend its acquisition for the careful study which its merits deserve.

ARTHUR CATES.

(75.)

STATICS AND DYNAMICS.

Mechanics: An Elementary Text-book, Theoretical and Practical, for Colleges and Schools. By R. T. Glazebrook, M.A., F.R.S., Assistant Director of the Cavendish Laboratory, Fellow of Trinity College, Cambridge. Statics, price 3s. Dynamics, price 4s. Fcp. 8o, Cambridge, 1895. [The University Press, Cambridge.]

The latest addition to the Physical Series of the Cambridge Natural Science Manuals consists of two little volumes by the Assistant Director of the Cavendish Laboratory, devoted respectively to Statics and Dynamics.

Many good elementary treatises upon these subjects are already in existence—so many, indeed, that at first sight it would appear that there was hardly room for another. Mr. Glazebrook, however, justifies his undertaking by claiming to treat the subject in what, though really the oldest, is yet a novel manner. "Mechanics," he says, "is too often taught as a branch of pure mathematics"; and he proposes to "follow the track of the founders of mechanics" by examining the behaviour of bodies in certain simple cases, and endeavouring to deduce the mechanical laws to

* The publisher in forwarding the book states that members of the Institute, by applying direct to the "Architekten- und Ingenieur-Verein für Elsass-Lothringen," will be supplied with copies in paper covers at the price of 16 marks (16s.) a copy; bound in cloth, 18 marks; half-bound, 19 marks, the ordinary selling prices being 20 marks, 22 marks, and 23 marks. This offer will remain open up to the 1st August 1895.

which the bodies are subject from the result of these observations. In short, he considers that mechanics should be placed on the same footing as chemistry and other natural sciences, which, as has always been recognised, cannot be properly studied except by means of numerous and careful experiments, performed by the student himself.

It is a little disappointing to find that, notwithstanding the excellent principle thus laid down, the collection of experiments prescribed in this treatise is very meagre. In the course of the volume devoted to statics—which, exclusive of preface, answers to examples, and index, comprises 176 pages—only eleven experiments are suggested; an average of one to sixteen pages. In the "Dynamics," the text of which covers 242 pages, there are twenty-nine, or, roughly speaking, one to eight or nine pages. Even of this small number the performance of several would probably be beyond the capability of many "colleges and schools," owing to the inaccessibility of the special apparatus necessary. For what proportion of the institutions in which mechanical science is studied has even Atwood's machine more than a theoretical existence? The devising of mechanical experiments to be performed with inexpensive or easily constructed apparatus is no doubt difficult, but should not be impossible. Mr. Glazebrook would greatly enhance the value of his work by embodying a larger number of such experiments in the second edition of both volumes of his work.

The author's name is alone sufficient to indicate the high character of the work as a whole. There is not much originality of treatment, if we except the experimental basis upon which it is professedly founded; but it would scarcely be possible to introduce originality into an elementary treatise, of a size so compact as that of these volumes, upon such a well-worn subject as elementary mechanics. The work is, however, distinguished by great lucidity of demonstration and general expression; by abundance of explanatory diagrams; and, above all, by a large collection of useful illustrative examples. Answers to these examples, and a good index, are provided in both volumes.

The general appearance of the work is of the tasteful character which marks the work of the Cambridge University Press; and the type, though small, is remarkably clear and legible.

R. A. S. MACALISTER.

(76.)

THE ZIMBABWE RUINS.

The Ruined Cities of Mashonaland: Being a Record of Excavation and Exploration in 1891. By J. Theodore Bent, F.S.A., F.R.G.S. With a Chapter on the Orientation and Mensuration of the Temples, by R. M. W. Swan. New edition. 8o. Lond. 1895. Price 3s. 6d. [Messrs. Longmans, Green & Co., Paternoster Row, London.]

There exists at Kai-fêng-fû, in Honan, the very centre of China, a Jewish colony that has been there

such a length of time that its members do not know where they came from, or when their particular exodus occurred. A similar mystery surrounds the builders of the ruined cities of Mashonaland. The structures which Mr. Bent saw, and has so well described, could not have been raised by such tribes as those existing now in the centre of Africa. Some foreign race must have penetrated the country, and built strongholds for themselves of a character that indicate, not a transient occupation, but a settled community, which there is every reason to believe, inhabited the region for a considerable period of time; and at last, from some cause or another, finally disappeared. Who these people were, and the date of their occupation, is the problem that has yet to be worked out. Some points connected with them may be assumed. The attraction that brought them into that part of Africa was in all probability the gold deposits, which are still an influence, as we see at the present day, when another foreign population is again forming permanent settlements on the very same ground. The old mines, some of them reaching far into the earth, made by these early settlers have been discovered; remains of furnaces, crucibles, and moulds for ingots were found by Mr. Bent, thus leaving scarcely a doubt as to the business that engaged these people. Who they were is not so evident. Arabia is, from its geographical position, the most likely country to have sent explorers. The Phœnicians sent to Britain for tin, and they may have sent to Africa for gold. The Egyptian Pharaohs, as early as the third and fourth dynasties, carried on mining operations in the Sinaitic Peninsula; and gold came to Egypt from the land of Punt, a rather mysterious country, which may or may not have been in the middle of Africa. That it was the gold-producing land of Ophir will naturally occur to most minds; and almost the only point certain about that land is that it lay in the south, and was reached by way of the Red Sea.

There is ample enough scope here for speculation, but as yet the material on which anything like a safe conclusion can be based does not appear to have been found. Except one fragment of stone, which has marks upon it that may perhaps be letters, no inscriptions have as yet turned up. There are only walls and circular towers, with some peculiarities of building upon them, a few fragments of sculpture, and a number of objects which only suggest that the people who produced them were devoted to some of the primitive forms of Nature worship. Mr. Bent's time limited him to the exploration of the remains at Zimbabwe and one or two other places of minor importance; but he reports the existence of many other places of a similar character; and as these sooner or later are certain to find explorers, evidence of a more certain kind may perhaps yet be brought to light.

The first account of these remains in Mashoua-

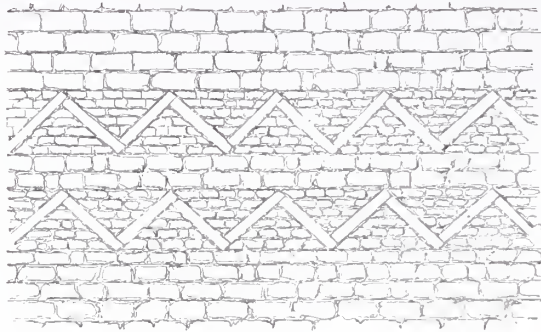
land came to me some years ago from the Rev. John Mackenzie, who was Dr. Moffat's successor at Kuruman, in Bechuanaland. He was about to publish a book,* and he was anxious for some information about the "towers of refuge" I had seen in Persia and Central Asia, of which I supplied him with sketches. Mr. Mackenzie had not seen the ruins, but he gave such descriptions of them as existed at the time; and his conclusions were that they had served a purpose similar to the towers of refuge, and were thus identical in their object with the Round Towers of Ireland † and the Brochs of Scotland.

This supposition suggested that their builders were little more than temporary visitors, who had come for the gold, and merely required places of safety from the wild tribes around them. Mr. Bent, as the result of his labours, it will be noticed, dignifies the remains with the title of "cities," and from his description conveys the idea that there was a permanent occupation which must have continued for a considerable extent of time. The principal ruin at Zimbabwe is described as a combination of fortress and temple, and this character appears to be given to the other ruins scattered over the space between the Zambesi and Limpopo Rivers. The houses of the people were not inside of these, but are supposed to have been scattered about outside, and were probably only bee-hive mud huts. This explanation would, in a sense, still bear out Mr. Mackenzie's theory, for, as a fort, it would be the place of refuge in case of any attack. The large ruin is an irregular oval about 280 ft. in its longest dimension, and about 240 ft. in its widest breadth. The wall that encloses this space is 35 ft. at its highest point; but it varies considerably, and in places it is as low as 15 ft. The greatest base thickness is 16 ft. 2 in., and its thinnest is about 5 ft. The material is granite, which has been trimmed into small pieces, somewhat larger than bricks, and laid without mortar. This account implies a very substantial wall, and of a defensive character far beyond what might be supposed necessary among such rude tribes. The only decorative features upon it, if the term may be so applied, is that of two rows, near the top, producing a sort of frieze, of stones so placed as to form a herring-bone pattern. In the other ruins this feature is also found, with slight variations in the arrangement of the stones. It is a pattern not uncommon in brick buildings, and it is suggested from this, as well as from the size of the stones of which the wall is constructed, that the builders had been previously accustomed to the use of bricks. This ornamentation appears only on parts of the wall, and is connected, ac-

* *Austral Africa*, by John Mackenzie, 1887.

† See a Paper by the late Gordon M. Hills, "A Review of the Architecture and History of the Round Towers of Ireland," *TRANSACTIONS*, 1857-58, p. 66.

ording to Mr. Swan's explanations, with the orientation of the structure as a temple. It may be added that where this pattern appears the



PATTERN ON LARGE CIRCULAR RUIN AT ZIMBABWE (p. 109).

wall is wider and higher—so much so that it contrasts in a marked way with the wall in other parts. Inside of the eastern part of the wall there is an internal wall, running parallel to the other for about 200 ft., leaving a narrow passage, "so narrow in parts that two people cannot walk abreast." The object of this passage is difficult to guess. It commences at one of the entrances to the enclosure, and might be supposed to have a defensive purpose; but there are two other entrances, and they have no such arrangement. The other walls within the enclosure are curiously irregular, and no purpose has been suggested for them beyond the supposition that one or two points relate to the supposed theory of orientation.

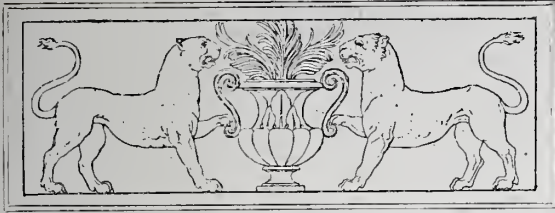
Within the enclosure, and close to the enclosing wall, are two circular, conical towers. The larger one is estimated to have been originally 35 ft. in height; the smaller one is about one-third of the size of the larger tower. These are both solid, and by digging at the base Mr. Bent found that they were not erected upon anything; there was only the solid ground beneath them. Here is a puzzle, to explain their meaning. Mr. Bent refers to an ancient coin of Byblos, in which a Phœnician temple is represented with a similar conical tower within an enclosure. A drawing of the old coin is given, and the resemblance between the two towers is certainly great; but whether we should conclude that both were the work of Phœnicians, and that consequently they were the people who worked the gold mines in Mashonaland, it might as yet be rash to affirm.

Close to this great ruin is a hill which Mr. Bent dignifies with the name of "Acropolis." There are upon it a large number of gigantic granite boulders; and an intricate series of walls has been constructed among them as if, apparently, for defence. On the western side, which is more open and free from boulders, there is another great wall, about 140 ft. long, similar to the one in the ruin below. This wall has also patches of the

"herring-bone" pattern upon it, which, according to Mr. Swan, is connected, at this particular point, with the orientation in relation to the setting sun. It is in parts 30 ft. high and 13 ft. wide on the summit, where there still remain portions of round towers, about 3 ft. in diameter. These alternate with tall monoliths, the purpose of which presents another profound riddle to the explorer. It should be mentioned that there are monoliths also standing on the top of the great wall below. The walls themselves, it is natural to suppose, were primarily for defence; but it would be difficult to explain how these small towers and monoliths could be utilised for the same object.

This brings us to the subject of Orientation, which is dealt with in Chapter V. by Mr. Swan. This can only be touched upon here in the briefest form, and merely to indicate the theories advanced in the book. It has already been mentioned that the herring-bone ornamentation is found only on parts of the walls. According to Mr. Swan, they were placed only on those portions that had a reference to the orientation, and this was a system of determining the seasons or of supplying a kalendar for the year by means of solar observation. In clearing out the interior of the ruin an erection was come upon which is supposed to have been an altar. This is assumed to have been the point of observation, and the conical towers and monoliths served as gnomons; by these means the solstices and equinoxes could be fixed, so that the seasons and yearly functions would be by this simple process arranged to come at their proper times. This is the same theory that appears now to be adopted regarding Stonehenge, where, by standing on the altar stone, on the morning of the longest day, the sun, just as its lower edge reaches the horizon, appears to be perched for a second or so on the top of a pointed, detached stone, now known as "the pointer." If the year was counted from the day this took place, it never could be far out, and it was near enough for all the purposes that were required in early times.

This theory of orientation, as well as the various speculations regarding the ruins in Mashonaland, should be looked upon for the present as only tentative. Further exploration is required in order to clear up the puzzling matters which Mr. Bent's book places before us. He says himself in relation to them: "A thousand questions occur to one which one longs in vain to answer." At present they are a mystery—quite as great and interesting as any novel that has been written about Central Africa; and although Mr. Bent gives us a large contribution of data, still more is wanted. While mystery or uncertainty exists, explorers will be attracted to these ruins; and the necessary knowledge, it is to be hoped, will yet be found which can be the only means of providing a trustworthy solution. WM. SIMPSON.



BUILDING CONTRACTS.*

RESUMED DISCUSSION OF THE REVISED PAPER
AT THE ADJOURNED SPECIAL GENERAL
MEETING HELD 13TH MAY 1895.

Mr. ASTON WEBB, *Vice-President*, in the Chair.

THE CHAIRMAN reminded the Meeting that at the last Meeting an amendment had been proposed by Mr. Hine [p. 470], and seconded by Professor Roger Smith, that the Form of Agreement and Schedule should be referred back to the Council; and that the adjournment of the debate had been moved by the Honorary Secretary, Mr. Emerson, whom he would now call upon.

THE HON. SECRETARY said that the Allied Societies and members generally had had the opportunity of expressing their views upon the revised Paper. The Council had received communications on the subject from the Allied Societies at Sheffield, Leicester, Manchester, Glasgow, Newcastle, Bristol, Nottingham, Dublin, Birmingham, Leeds, Exeter, Dundee, York, and Cardiff. Communications had also been received from Messrs. R. Williams [A.], Frank Fox [A.], E. Gregg [F.], L. Solomon [F.], T. Worthington [F.], G. H. Fellowes Pryne [F.], C. H. Brodie [A.], C. Stanley Peach [F.], J. Osborne Smith [F.], Walter Herring [A.], and Professor T. Roger Smith [F.]. The Council had carefully considered the various proposals, and it rested with the Meeting to decide whether they should be read before proceeding with the discussion. As a matter of fact no question of principle had been proposed to be altered; most of the suggestions had reference to minor details, which, with the permission of the Meeting, might be incorporated if thought fit.

MR. WILLIAM WOODWARD [A.] thought they could scarcely agree to the incorporation of words in the new Conditions without knowing what those words were. If it were possible, it would be more satisfactory to give the Meeting the pith of the proposals.

THE CHAIRMAN then asked Mr. Hall, who had gone carefully through the letters, to give the Meeting, as shortly as he could, the gist of the modifications suggested.

* The draft Agreement and Schedule, and the proceedings at the Meeting of 29th April, are printed at pages 460-476.

Mr. EDWIN T. HALL [F.] said he should be happy to state the effect of the suggestions the Council had received. The Leicester Society said that in their practice quantities generally formed part of the contract, and therefore the revised form did not actually meet with their local requirements; but otherwise, the Society expressed approval of the adoption of the set of Conditions put forward by the Council. The Nottingham Society's suggestion was practically to the effect that the reference should be so limited as to keep down the cost; and they suggested that there should be no expert evidence admitted before the arbitrator. He did not think that that suggestion would commend itself to the Meeting. Otherwise, the Nottingham Society approved the principle of the Practice Committee's clause. The Bristol Society said that there should be no arbitration clause at all, except for certain limited subjects. The Northern Association made no suggestion. The Manchester Society cordially supported the document as promulgated by the Council and the Practice Committee. The Sheffield Society suggested that there should be no arbitrator at all; but as the Institute had for many years committed itself to the principle that there should be an arbitration clause, that, he thought, could hardly be entered into by the Meeting. The Glasgow Institute said that the Scotch practice and the Scotch law differed so much from the English, that practically they had no suggestions to offer. They approved, however, of the arbitration clause proposed by the Practice Committee, saying that they thought it very admirable, and would be of the greatest value to them later on. The Royal Institute of Ireland, without making any specific suggestions, had sent for the guidance of the Council their own particular form, which they thought contained clauses better in some respects than those in the revised Schedule. He should explain that the Practice Committee had had that form before them when they drew up the new Conditions, and they had very thoroughly considered it. The Birmingham Association made no suggestion, but said that the revised Conditions formed the basis of those generally in use in their district. The Leeds and Yorkshire Society stated that in their practice quantities formed the basis of contracts, and therefore any suggestion of theirs would have no particular relevance. The Dundee Institute said in effect that the circumstances of the Scotch practice were so different that they had nothing to suggest. The York Society said that they had every confidence in the Practice Committee. The Cardiff Society said that they had used the old Conditions with satisfaction, but they objected very strongly to the arbitration clause proposed by the Institute of Builders. Then they suggested that the quantity surveyor's fees ought always to be paid out of the first certificate. Passing on to suggestions received from individual

members, Mr. T. Worthington and Mr. Robert Williams proposed that the quantities should be paid for direct by the employers. This was a principle that would be approved of by many, but it was not the practice. Mr. Williams also suggested the insertion of a clause requiring all contractors to pay Trade Union wages and observe Trade Union hours. That was a matter, he thought, that they need not discuss; it was not before them. Mr. Gregg wrote that he saw no objection to adopting the Builders' arbitration clause as drawn. He, however, seemed to be the only one among them who did not object to that clause. Mr. Solomon thought the Conditions excellent, but suggested some slight modifications. Mr. Fellowes Prynne had sent a very great number of suggestions, valuable in many respects, but so detailed that it would be impossible for any General Meeting to deal with them. No General Meeting could draw up a document of the kind under consideration; that could only be done by a limited number. Mr. Brodie had sent some suggestions, and he objected to the use of the word "reasonable." He (Mr. Hall) would like to say a few words upon that. Nothing which was unreasonable would be supported by any court of law; therefore the introduction of the word "reasonable" was not in the least degree objectionable. If an architect were to do anything unreasonable under the contract, the builder could get relief in a court of law; therefore they had not given themselves away in inserting the word "reasonable." Mr. Brodie also suggested that the strike must not be against the particular contractor only to give him relief. But the Committee had dealt with that, because they had said not only that the strike must be local, but that the contractor, notwithstanding any strike, must do all in his power, to the satisfaction of the architect, to proceed with the works, whether there be a strike or not, which enabled him, and of course required him, to make special arrangements. Mr. Stanley Peach had sent a very long list of suggestions. Mr. Osborne Smith wrote from Norfolk criticising certain points, but objecting strongly to the Builders' arbitration clause. Professor Roger Smith proposed that power should be given to withhold certificates, and suggested that they should refer the arbitration clause to the Recorder of London or a County Court Judge, and let him settle it one way or the other. It was not the practice for private Societies to refer a matter of that kind, which was strictly technical to themselves, to even so distinguished a man as the Recorder of London, even if he would undertake it. Mr. Walter Herring had sent a great many suggestions, principally dealing with the payment of the quantity surveyor's fees, and he had made two or three other practical suggestions; they were, however, merely verbal ones, not affecting principle, and they might possibly be considered later on. A telegram had just been

received from Mr. Warren, the Hon. Secretary of the Devon and Exeter Society. It ran:

Clause 11—Draw Institute's notice apparently objectionable provision being paid by contractor for making up extras omissions finally. Clause 24—words or initials "Prime cost" &c. Contractors shall mean unless otherwise stated in specification merchants' catalogue price for such goods.

There was no question of principle involved there at all. With regard to the general question, it was thought expedient that there should be a little description given of certain clauses, and he proposed to address himself to them. First of all, it might be desirable to refer again to the old Heads of Conditions. Many gentlemen thought that they ought to take that document and merely amend it verbally. As a matter of fact, he was sure that if anyone calmly sat down and attempted to do so, he would find of necessity that it would result in a document somewhat resembling that before them. The Heads of Conditions was a very jumbled document. For instance, Clause 3 dealt with setting out; it dealt with the quantities and qualities of materials; and it dealt with the cleaning of the building at the end. Those things did not naturally come together. The setting out had nothing to do with the quality of materials, and the Committee in the new document had endeavoured to put all those things under separate heads. Again, Clause 4 of the Heads dealt with the supply of drawings, the keeping of foremen on the works, and that the builder must not sublet. Those things had no connection one with the other. A document intended for reference should be clear, and when one wanted to deal with a specific subject like subletting, one should be able to turn to the clause dealing with that subject, and not have to hunt for it in the middle of another clause. With regard to the new Form, he wanted them clearly to understand the principles by which the Practice Committee had been guided. In the first place, they thought that the new Form should be very clear and easy of reference; and it would be found that as far as possible each subject was confined to a separate clause. Then the second principle was that each party to the contract should have clear notice of his obligations, and then there would be no injustice. In that connection, he thought it right to refer to the question of paying the quantity surveyor. The principle that had guided the Practice Committee was this: that they ought, on the face of the document, to let the employer and the contractor see everything they had to pay. There should be no smuggled or secret operation going on at all. Why should not the employer know that he would have to pay the quantity surveyor, either through the contractor or out of his own pocket? The Conditions stated clearly that those were things that had to be paid, and how they were to

be paid; and surely that was desirable. The next principle was that the architect should have control of the works to the end—that the building should be erected under his direction, and not under the direction of the arbitrator. That principle should be kept clearly before them, because that was really the essence of the difference between the Committee and the Builders—for, under the Builders' clause, no building could be erected except under the direction of the arbitrator. That was not sound at all. The direction should be in the architect; he was the judge of first instance, and appeals from him might be made at the end. With regard to their own differences, an objection to the Heads of Conditions was that it was merely a series of heads. Some rather prided themselves upon that. They, in fact, preferred a torso, where others preferred a child that would run alone, that had legs and arms of its own—that was the essential difference between them. What was the practice? Mr. Woodward told them at the last Meeting that he simply attached the Heads of Conditions to their specification, and they made it a contract. They did nothing of the kind; they were only the heads of a contract. That meant that they had to extend it to a document as long as the revised Conditions before it became a workable contract. Then it was said, "If that is so, how is it that so many contracts are made 'under it?'" For the simple reason that in nine cases out of ten both parties were honourable men, and if a letter was simply exchanged between them, it would be all that was necessary; but in drawing up a contract, one had to meet the contingency of having to deal with men that were not honourable, both employers and builders. Further, one had to provide for the death of either party, when the lawyers step in and say what are the duties and obligations of the parties, and under the old Heads they were not defined. In the new Conditions the Committee had endeavoured to define them. To answer some of the objections which had been made: the first point was that raised by Mr. Arthur Cates. He objected, in the letter published in the *JOURNAL* [p. 465], to Clause 10. He (Mr. Hall) would tell them the history of that clause. Mr. Cates's objection, in which he was joined by Mr. Woodward, was that it was unfair to the contractor to throw upon him the obligation of looking at the architect's drawings and saying whether they varied from the contract drawings or not. He would explain how that arose. It was said that the architect should know whether it was an extra or not. That clause was put in to help the contractors, and not to oppose them. Under the old Conditions a contractor could not claim any extra whatever arising out of a drawing unless that drawing was distinctly *signed as an extra or variation*. The Builders in negotiating with the Committee said: "That is unjust to us; we cannot

"get architects to sign a drawing and say it is an extra; and under that contract we cannot get anything paid in respect of a drawing unless it is signed as an extra." The Committee replied: "That is a sound objection; we do not want to do anything that is unjust to you, and we will strike out the words objected to." Then the Committee went on: "But now, we do not want two things to happen: we do not want that you the contractor shall be watching our drawings, and whenever you see a drawing that is a slight extra you shall make a note of it, and when you see a drawing that is an omission take no notice of it, and at the end of the contract pile up a long list of drawings which are slight extras without giving us credit for omissions to meet those extras." Therefore the Committee put in those words with the Builders' absolute consent, so that instead of the clause reading that they shall not claim an extra unless the drawing is specifically signed as such, it now reads:

The Contractors shall not vary from the drawings or specification except as provided by Clause 4, or by the authority of the Architect, which is to be sufficiently proved by any writing or drawing given by him.

Then the Committee cut out the words "and signed as an extra," and to meet that said:

If the work shown on any of the details or the further drawings or details referred to in Clause 1, or necessary to comply with any instructions, directions, or explanations which may be given from time to time by the Architect, is, in the opinion of the Contractors, in excess of that comprised in the Contract, they shall, before proceeding with such work, give notice in writing to this effect to the Architect.

Then the clause went on that if they did not agree as to the extra the arbitrator should settle it. Was not that absolute justice to the builder? It gave him an opportunity of raising the question. But under the old clause he had no such opportunity, unless the architect specifically signed his drawing as an extra. Therefore, instead of its being a reproach to the Committee as an injustice to the builder, it ought to be placed to their credit for leaving out words that were objectionable and putting in what was thought reasonable. Supposing they were carrying out a building, and, for the sake of argument, they had a handsome screen in a hall which they chose to make a little more handsome, making compensation by striking out work somewhere else—was not that a thing that occurred every day? They wrote to the builder what they proposed to do, and the builder said, "Quite right," and that was the end of it. That was the practice, and the new Conditions met it by saying that it should always be settled at the time, and if not, the builder should give notice; so the builder was in a better position than before. The next objection raised by Mr. Cates was as to Clause 12. He challenged the payment for Bills of Quantities. But what

was there in the remotest degree objectionable there?

The fees for the Bills of Quantities (if any) and the Surveyor's expenses (if any) stated therein shall be paid by the Contractors to the Surveyor named therein immediately after payment of the amount of the first certificate in which they shall be included.

It was said that that was ambiguous. Why was it ambiguous? The usual practice was to pay out of the first certificate, but supposing that the builder said, "I have reason to think there are 'inaccuracies in these quantities,'" it was right, surely, that the architect should have the power to say, "Let it be investigated; in the meantime 'I will not include it in the first certificate, but 'when I do include it, you shall pay it.'" Was not that an absolutely equitable way of dealing with it? And why should they not protect the quantity surveyor? It was said that it was improper to put his name in. Why? Was he not a person who had to be paid? The Conditions stated that the employer should have the power to pay the merchants from whom the architect selected goods under provisional amounts. Surely the reason of that was because a moral obligation rested on the architect to see that the merchants who, on his recommendation, supplied the goods should be protected. And the quantity surveyor, who in nine cases out of ten was nominated by the architect, had an equally moral claim upon the architect to see that he was paid. And if the builder did not pay him, the employer should have power to do so. Those were the two greatest questions that had been raised in the present discussion. Had they not been treated with absolute equity? The subject had been discussed again and again in the Practice Committee with the sole desire to deal equitably; the Builders themselves had agreed to the clauses, and yet it was said that there was something immoral in their provisions. It could not be immoral if they put on the face of the document every obligation under which the employer or contractor was bound. It was wrong to have any conditions which left the responsibilities of the parties in doubt. Only a few weeks ago, in the course of a discussion on Mr. Strahan's Paper [p. 197], Mr. Woodward stated that he had had a difficulty; he had been settling an account and putting his own quantity surveyor's fees in to be paid by the contractor. The contractor then made a claim for the fees of his own quantity surveyor. Mr. Woodward asked his professional brethren to advise him what to do. If Mr. Woodward had had this clause, he would have had no difficulty whatever, because it was there laid down that the quantity surveyor should be nominated and agreed upon, and his fees should be paid. If Mr. Woodward had had the benefit of that contract, he never would have had that complication with his contractor; so he hoped that even he would see that there was a

little reason in the clause. Referring to the matter of sub-contracting, the question had been threshed out in great detail with the Builders. The point was this: A contractor entered into a contract to build a house for £10,000, and that £10,000 included many provisional amounts for work done by contractors nominated or approved by the architect. He was bound under his contract to finish the whole of the buildings, and therefore was responsible for everything that was in the £10,000, and this responsibility was specifically stated in the Conditions. The Committee had defined it by this clause, not made it worse, and the Builders had agreed that that was the right and just way of dealing with the matter. Another point. The head contractor made a profit, or presumably made a profit, on sub-contractor's work; and they said that he should earn that profit by seeing that the sub-contractor complied with the specification and Act of Parliament, and that he did not put his hot-water pipes within an inch of the woodwork when the Act specified three inches. Further, the contractor was bound to give the District Surveyor notice of the works; but if the sub-contractor was, as some speakers had said, a separate contractor, he probably or possibly, under the Act of Parliament, must give a separate notice to the District Surveyor. Incidentally, that might work out in this way—that the District Surveyor would be entitled to three or four separate fees, because it was contended that each separate contractor must give him separate notice. The District Surveyor might see no objection to his having three or four sets of fees; but still he thought that an employer might take a different view. It was better that one notice given by the head contractor should undoubtedly cover the whole responsibility. The last question that he should trouble the Meeting with, which he thought was the crux of the whole document, was the question of the Arbitration Clause. The principles underlying that clause were these: first of all, the architect was the judge of first instance; secondly, there should be an appeal from everything that he said or did, with certain reservations; thirdly, that there should be notice of every dispute. He would draw their particular attention to the fact that in the Builders' clause all those points might be raised at any time without notice, or might be bottled up until the end of the contract, and then brought forward; so that a huge case relating to a building which had taken, perhaps, three or four years to construct might be brought forward without any notice whatever having been given to the architect when the questions arose. Was that justice? Did it not mean that the architect or the builder might be (if the employer did the same thing) in the position of not being able to answer the case at all? Not having had notice of the difficulty that had occurred three years before, how could he bring evidence to meet the charge before the arbitrator? That was

a principle of great importance. Their own clause said that there must be notice given of every question in dispute, and in the Builders' clause there was no notice whatever. Then, finally, the Institute clause said that the appeal should be at the end, but with special power to have it at any time by mutual consent. They all recognised that there was a great deal to be said for having an arbitration at different times of the contract; the Committee had not shut their eyes to that fact; it was a great convenience to both parties to settle important disputes as they arose; but it was quite another thing to give a litigious builder an opportunity of raising day by day and week by week questions of dispute which must of necessity delay the contract, delay the execution of the works, and end in grave trouble all round. Therefore the Committee had put in that which was quite just, that if there was a matter in dispute which both parties agreed ought to be settled at the moment, it was to everybody's interest to settle it, and by mutual consent that was done; but, as a general principle, the balance of argument was for saying that the rule should be a reference at the end, to determine all matters in dispute. That must, he thought, commend itself to everybody; but he should like to give them the opinion, not of himself, or of any person highly interested in the matter, but of a gentleman who read a Paper before the Institute a short time ago, an eminent barrister, Mr. Strahan.* He said, speaking of the power of the builder to have arbitrations:—

In the first place, he can harass the employer by opening up everything arising or done under the contract, and by making all sorts of allegations as to the conduct of the architect and the employer himself. By insisting on having all these investigated, he can give great trouble and cause enormous expense. Very often the mere threat of doing so is sufficient to induce the employer to come to an arrangement all to the advantage of the contractor.

Now, that was an important opinion of a gentleman who had not seen their Conditions, who knew nothing about them; and, therefore, he was not a party man at all. He went on to say:

In such contracts I usually advise that a clause be inserted making the architect's decision on all disputes and matters arising during the progress of the works final and conclusive until the completion of the works. This is necessary to prevent delay through the reference of disputes to arbitration during the progress of the works—delay which is sure to give rise to further disputes as to penalties, time of completion, and other matters.

That was the opinion of an independent gentleman. What did Mr. Currey say? Mr. Currey had written him a letter that day in which he said:

It would be a matter of great regret if the labour of the Practice Committee for the last three or four years were all rendered useless. I feel it is quite hopeless to enter into any further negotiations with the Builders' Institute, particularly after the letter of 25th ult. which they thought fit

to send to the R.I.B.A. My recollection is entirely at variance with the statement that their assent to the several clauses was subject to the acceptance by the Committee of an arbitration clause to be settled by the solicitors. . . .

In my opinion the arbitration clause suggested by the Royal Institute of British Architects is fair and reasonable, and is the utmost which should be conceded by the Institute. . . . I should not have ventured to trouble the Meeting with my observations, but as Chairman of the Practice Committee I may, perhaps, be excused.

The Chairman of the present Meeting (Mr. Aston Webb), during the discussion of Mr. Strahan's Paper, had said [p. 214] that he had always understood that the architect was made absolute during the progress of the work, both in regard to the question of materials and to the manner in which the work was to be executed; otherwise he did not see how the work would ever get finished. That was the principle on which the arbitration clause before them was drawn. In the Builders' circular letter [p. 466] it was said that they had given way on many clauses because they were to have the right to an arbitration clause to be left to the settlement of the solicitors. If that argument was accurate, it was a most disingenuous one. The Builders were giving them (the Architects) the shadow, while they retained the substance for themselves. The Builders must surely have given the Committee credit for little common sense if they thought the Committee were going openly to walk into such a snare. Finally, he would like to read them the opinion of counsel on the clause before them. Counsel was asked these questions:

1. Whether the clause as drawn by the architects gives power to the arbitrator to hear and determine any question or dispute of whatever kind that may have arisen under the contract, except as to those matters left to the sole discretion of the architect.
2. Whether it gives the arbitrator power to review and revise every decision of the architect on every question, except on such matters as are left to his sole discretion.
3. Whether it is clear that, with the consent of both parties, arbitration can be resorted to at any time during the progress of the works.
4. Whether the clause is not a fair and equitable interpretation of the clause settled in September 1892.
5. Whether it is such a fair and proper clause as a builder could be on a private contract properly advised to accept.

The answers were:—

- 1, 2, 3. Beyond question, yes.
4. Yes. In my judgment the earlier clause had all the effect of the later, which, no doubt, expresses the intention of the parties more clearly in the interests of the Builders.
5. I answer the last question unhesitatingly in the affirmative.

That was counsel's opinion on questions which, they would all agree, were perfectly fair questions, and not written with any intent to draw an *ex parte* opinion from him. The Committee's solicitor, Mr. Harrison, of Messrs. Waterhouse, Winterbotham, Harrison & Harper, desired him (Mr. Hall) to say that he had not seen the counsel to give him a hint on the subject; and that counsel was the

* "The Legal Position of Architects in relation to Certificates and Awards," *ante*, p. 197.

gentleman who had advised all through on the other Conditions, and therefore knew them by heart. The solicitor stated in a letter to him that he cordially agreed with the opinion of counsel. In conclusion he would ask, were they going to follow the lead of the Builders, who were interested parties; or were they going to follow the lead of the Council and the Practice Committee, who had no interest whatever except to guide them to be fair and equitable in their dealings with the Builders? That was the question before them. If they gave a vote adverse to the proposition before the Meeting, then they said in effect: "We would rather follow the guide of an interested party than follow the disinterested advice of gentlemen who have spent years in studying this question, with the sole and only object of dealing absolutely with fairness and with equity between builder and employer." Further than that, he would say that, if by their vote they came to a conclusion adverse to the proposition, they would certainly have struck a blow at the working of the Practice Committee or any other committee of the Institute. Gentlemen could not be found, busy men could not be found, to give years and years of their labour to come before this general body, and then to have it said: "Very well, we ignore all the labour and advice that you have given us, and we choose instead to take the advice of gentlemen who are interested in opposition to your views." If that was their vote, it would be received, of course, with very great regret. He hoped and believed it would not be their vote, because he hoped and believed that they had, as some of the Allied Societies had said, perfect confidence in the Practice Committee; and if they had that perfect confidence, they would express it by their decision that evening.

Mr. T. H. WATSON [F.] said he had carefully compared the arbitration clause, and it seemed to him that the clause as drawn by the Practice Committee contained words quite sufficient to bring into arbitration any possible question that could arise. That being so, although possibly there might be some little things which they might not look, and hoped never to have to look, too curiously into, he had little doubt that many of those things that were proposed by the Builders it would be open to the arbitrator to consider. Knowing, however, what he did of the builders and their business habits, he thought that all reasonable men and all fair-minded men would accept that very fully drawn clause, and rest perfectly satisfied with it.

Mr. C. FORSTER HAYWARD [F.], F.S.A., asked for information about a document, a copy of which he produced, which, he said, had been in general use amongst several architects, and which he had recently purchased. It did not purport to be "Heads" at all, but was endorsed "Re-issue: January 1894. General Conditions for Build-

ing Contracts. As agreed with the Royal Institute of British Architects and the Builders' Society and adopted by the Central Association of Master Builders of London. R. S. Henshaw, Secretary, 31 Bedford Street, Strand, W.C. Price fourpence." That he believed to be an exact copy of the Institute Paper, and he had adopted and used it, thinking it was the same thing. He wished to ask whether that document was the same thing as what were called the "Heads of Conditions."* He knew it to be at the present time part and parcel of very many contracts.

Mr. C. STANLEY PEACH [F.] understood from Mr. Hall's explanation that the proposed Form of Agreement was a legal document, and therefore it must be discussed as such, although he thought that as they were architects it was not their business to do so. He submitted that it was impossible to contract out of an Act of Parliament; yet, nevertheless, it seemed that this was what the suggested Form attempted to do. It also appeared to limit the operation of Acts, which could not be done. He thought that the new Form was as "jumbled" as the old Heads of Conditions, and referred to the two distinct covenants of Clause 2 of the Schedule, which clause is annotated as "Copies of Drawings and Specification," and asked if any reasonable man would expect to find a covenant as to deposit of copy of estimate in a clause dealing with furnishing copies of drawings, &c., and their retention and return, and annotated as dealing with "Copies of Drawings and Specification." He submitted that the covenant to deposit copy of estimate should be a separate clause, and be grouped in the Schedule with covenants of a like nature. He thought that Art. 3 of the Form of Agreement contained a strange proviso. The words were: "Provided always that no person subsequently appointed to be Architect under this Contract shall be entitled to disregard or overrule any decision or approval or direction given or expressed by the Architect for the time being." Suppose an architect were superseded in consequence of becoming insane, apparently the succeeding architect would, by this clause, be bound by the vagaries of a madman; and he asked if that was the intention of the covenant. He submitted that in ninety-nine cases out of a hundred if the architect first appointed is superseded it is on account of his

* The Paper handed in by Mr. Hayward was found to be an exact copy of the "Heads of Conditions" published by the Royal Institute of British Architects, and for many years registered as its property at Stationers' Hall—with the exception of its title and the price it was sold at. The Royal Institute Paper is endorsed as follows:—

BUILDERS' CONTRACTS. HEADS OF CONDITIONS SANCTIONED BY THE ROYAL INSTITUTE OF BRITISH ARCHITECTS. Usui Civium. Decori Urbium. London: Published by the Royal Institute of British Architects, 9 Conduit Street, W. Price Sixpence. [Entered at Stationers' Hall.]

illness or death, and a man in failing health might, and probably would, give decisions which under other circumstances he would not have given while in health, and a scheming contractor might take advantage of this. Surely the succeeding architect should not be debarred from remedying matters of this kind, and still more so if the architect first appointed be superseded for negligence or incompetency, or where collusion between architect and contractor may have taken place. Mr. Peach said that Clause 4 of the Schedule appeared to limit the operation of Acts of Parliament by confining the responsibility of the contractor to matters "with whose system" the "structure is connected," whereas the contractor was bound to uphold and protect such things as electric mains, gas and water pipes, telephone or telegraph wires, whether a supply from any of these things was connected to the structure or not; and in reply to a question from Mr. Hall, Mr. Peach gave as his authority for the statement the Electric Lighting Act 1882 and the Electric Lighting Orders Confirmation Act 1889, and the several Provisional Orders.* Another point he should like to call attention to was the insertion of the words "free of cost" in Clause 2. They appeared to him unnecessary in the face of the rules of the Institute.

MR. LEWIS SOLOMON [F.] wished to speak with regard to the few matters that he had brought under the notice of the Council. Clause 2 said: "Such copies and details shall be kept on the works until the completion thereof." That, he thought, was rather a mistake, and might be amended. The proper place for full-size details was with the tradesman or artist who had to carry them out. Clause 9 said: "The architect and any person authorised by him." He should like the word "person" to be altered into "persons." If it were put in the Conditions of Contract that "the architect and any person" should be admitted, the builder might say, "I am only bound to admit one person, and I refuse to admit any second person," precisely as he had the power to refuse admission to a District Surveyor's clerk, because he was not specifically bound to admit him. In Clause 11 something should be inserted to show that the priced quantities are not to apply where there is an evident error in the pricing. For instance, he happened some time ago to have priced quantities, and it was found that the brickwork in cement was priced £17 per rod extra over mortar. Assuming that he had ordered all the brickwork to be in cement, there would have been an enormous addition to the cost. He had had

the same thing occur in another contract, where concrete made with cement was charged 12s. a yard more than if made with mortar. Something should be done, he thought, in the new Conditions to prevent that occurring. He had also seen priced quantities where ordinary straight joint pointing was put down at a higher price than tuck pointing. It happened that the client, in order to save money, struck out the tuck pointing and ordered straight joint pointing; the builder claimed an extra, and it was a fine question whether he was not entitled to it. That could not be done under his Conditions of Contract, because he always put in a special clause to that effect. Clause 15 he did not think they should agree to; that was a matter of principle, not a matter of detail. That a sub-contractor should do work, and that the contractor, with no voice in the matter, should be charged for any *lâches* not under his own control, he thought, was wrong. Clause 17, which laid down that the contractors should not sublet any portion of the work, wanted a slight modification. For instance, the architect did not want to interfere with the pulling-down sub-contractor the builder might choose to engage. He wished to bring those points before the Committee for them to consider, not in any spirit of opposition at all. With regard to the issue of the document, could it not be done in some shape like the Bankruptcy papers or other papers issued by the Government, where the marginal notes were very full, and the blank spaces were really blanks, and nothing had to be erased? He noticed that there were alternative methods to scratch out one thing and insert another, and he thought those alternatives should all be left in blank, so that the architect could fill them in in the way he desired.

MR. G. H. FELLOWES PRYNNE [F.] said that if it was open to him, he would like to raise a few questions on the suggestions he had sent in. He understood that those suggestions would be considered. [The Chairman assented.] With regard to the third article of the Agreement, it was rather taken for granted as a *sine quâ non* that an arbitrator must be appointed. Might not the following words be inserted: "unless the contractor shall state reasonable grounds for objection to such nominee, when the matter may be referred to the arbitrator," and so on? [Mr. HALL asked who was to say that they were reasonable. That had been a subject of great discussion with the Builders, and it had resulted in a compromise, which was certainly fair.] Then it was taken for granted that an arbitrator would be appointed. Why say "to the reasonable satisfaction of the architect" in the first clause of the Schedule of Conditions? It would be as easy to define "reasonable" in one case as in another. Then near the end of that clause, after "approval or direction," he would add, "which shall be proved to have been given." He thought that was

* See Clause 12 and Sub-sec. 2, Clause 12, Electric Lighting Act 1882. For notice before touching or altering mains, see Clause 17, Sub-sec. A, Electric Lighting Orders Confirmation Act 1889. See also Gasworks Clauses Act 1847, Telegraph Act 1878, and the various Acts of Water Companies.

reasonable. [MR. HALL said he might answer that at once. So long as the architect was the architect of the building, the employer ought to be responsible for whatever that architect did; and if a subsequent architect came in and disagreed with what had been done, and wanted a change, he could only treat it as a variation under the contract and pay the builder for altering it.] He agreed with Mr. Hall, but still thought that for the protection of the new architect as well as employer such directions should be proved to have been given in writing or otherwise. Then, at the end of Article 3, he suggested the addition of the words "except only as regards defective work or materials contrary to the intent and meaning of the specification and drawings." The learned counsel to whom he had referred this said that it was certainly a weak point, and his opinion was very strong. Then, in Clause 2 of the Schedule he suggested that it should read "verified and signed." If an estimate was verified, it should be signed by the contractor and made part of the contract, or signed, anyhow, as connected with the contract. Then the next point was important. The contractor, of course, had a clerk of the works or a foreman, and between Clauses 9 and 10 he proposed to insert a clause to the effect that the architect might be represented by his clerk of the works, who should not only be put in as of right, but appointed under a condition specifically mentioned in the contract. A clerk of the works clause ought to be given, stipulating exactly the power of the architect to employ him, and not only to employ the clerk of the works, but stipulating the extent of his powers, and that no extras should be ordered by him. He should be glad if the Committee would consider that clause, which he suggested should read:

The Architect may be represented on the works by a clerk of the works, or agent, who (if appointed) shall, in the absence of the Architect, furnish the Contractor with the Architect's instructions and directions as to the progress and execution of the works, and the Contractor shall duly attend to and comply with such instructions and directions, and shall, upon the written requisition of the clerk of works, stay the further progress of any portion of the works, which in his judgment is being constructed with unsound or improper materials, or workmanship, until the opinion and determination of the Architect shall be obtained thereon; but such clerk of works, or agent, is to have no power whatever to order any extra works, or deviation from the specification and drawings, and the Contractors will have no claim for extra works ordered by him.

Those terms were taken from three Conditions that he had had—Mr. Waterhouse's, Sir Gilbert Scott's, and Mr. Street's—he had tried to embody the three. [Mr. LACY W. RIDGE [F.] said they must remember that this was a contract between the employer and the builder; it was already very much complicated by the introduction of the architect, whose position had to be defined. He thought they would do wisely in not recognising the architect's deputy.] He (Mr. Prynne) was sure it would be a very great mistake if they did not.

As they had got over the complication of introducing the architect, a clause such as suggested would overcome the difficulty of his assistant. In Clauses 13 and 14 he noticed that the architect had no power whatever to withhold a certificate under any conditions. It was most eminently necessary that he should have. He proposed the insertion of the following:

The Architect shall be entitled to withhold any certificate in respect to work not carried out to his satisfaction, or while the Contractors fail to comply with his instructions, or make needless delay in proceeding with the works.

It was a simple clause, but it avoided any distinction. [MR. HALL said that in his opinion that was a penal clause which could not be supported in a Court of Law. If a man had done work and was entitled to payment under his contract, he was certain that that clause would not hold water. The payment clause, No. 27, dealt with that point. The architect would not issue a certificate if a man had not done his work in accordance with the contract, because he was not entitled to money at all.] He (Mr. Prynne) found that that clause not only acted as a lever to prevent trouble and delay, but the very fact of having the power to withhold the certificate until the work was carried out in accordance with his instructions had been sufficient to have them carried out without the necessity of litigation or arbitration. The omission of "Clause 14" in the Arbitration Clause was a great mistake. In the Heads of Conditions No. 10 was included in the Arbitration Clause, and it seemed a great pity that the architect's decision as to material at the beginning of the work should not be decisive. [MR. HALL explained that that had been very fully considered; but the Builders said it was not just to them, and the Committee had had to give way.] He felt that these Conditions had the fault of being drawn much more from a builder's than an architect's point of view. The builder, of course, might wait till the end of the contract till the thing was settled; but it was very difficult to go back on the material that one might have condemned at the beginning of a building. [MR. HALL: The architect condemned it under Clause 14. If the builder said that he had unjustly condemned it, he brought the matter before the arbitrator at the end of the contract, and claimed for damage sustained, and it had to be dealt with then. One might be certain that in practice, if an architect was doubtful at all as to what he had done, he would call the arbitrator in then to say whether it was right or wrong.] Surely it was not intended that an arbitrator should be called in every time work or materials were condemned. If so, he considered it a most unwise and expensive way of procedure. Who in the course of his experience had found, after condemning work, that the builders did not think it unreasonable? The builder might say that he had a right to arbitration every time a thing was condemned. In

the original Heads of Condition the architect's decision on such matters was final, and in this particular had always been found to work well. There was no sufficient reason given for its omission from the new Arbitration Clause. He sincerely hoped that this question would be carefully reconsidered by the Council.

MR. ALEX. PAYNE [*F.*] thought that the Arbitration Clause had gone too far in allowing the builders to open up disputes. It said: "The arbitrator shall have power to open up and review any certificate, opinion, decision, requisition, or notice." Did that mean that supposing they had gone on smoothly with the contract, and everything had been agreed and they were getting near the end of the job, if the builder found that it had not paid him he might refer to arbitration anything that had gone before from the commencement of the work? If it were distinctly understood that the arbitrator had only power to open up and review matters of which such notice had been given at the time the dispute occurred, that was sufficient. [MR. HALL pointed out that it said earlier in the clause: "then either party shall forthwith give to the other notice of such dispute or difference."] But that came a long way down; would it not be better to express it, "when due notice has been given"? He should like also to ask if it would be possible to use the Conditions where the quantities were made part of the contract. It would be absolutely mad, he thought, to agree to the clause as submitted by the Builders. The clause recommended by the Committee went too far in the way of allowing litigation, and it would be better not to have any clause at all than to hand themselves over to people who wanted to litigate. He always put in his own contracts that no matter should be referred to arbitration that had been previously agreed between the parties.

MR. DOUGLASS MATHEWS [*F.*] thought Mr. Payne was quite correct. They ought not to let the contractor open up everything at the end of the work unless either party gave the other notice of the dispute or difference.

MR. W. H. SETH-SMITH [*F.*] thought that the discussion pointed to the conclusion that they should not look at those general conditions as a legal document, but that they should still look, if not to the actual wording, at any rate to the sense of what the old set of Conditions announced, that they were only Heads of Conditions; otherwise, if they attempted to make a legal instrument of it in their amateurish way, they were sure to run their heads against a brick wall. He very heartily supported Mr. Fellowes Prynne's proposition as to the insertion of a clause in reference to the clerk of the works. With regard to the Arbitration Clause, if the principle which had guided the Practice Committee in that matter were adopted—that is, of leaving all the questions of which notice had been given till the conclusion of the works—that might lead them into great

difficulty occasionally. For instance, supposing the example Mr. Hall had mentioned of a million of bricks being condemned by the architect was agreed to be referred at the end, and those bricks had proved to be too porous, or of a quality not as good as the builder should have put in—it was impossible to redress the grievance of the employer at the end of the contract when they had been built in. There were many points that a builder might raise which, if they were referred to the end of the contract, might create some difficulty. He fully understood that the Practice Committee must have given an enormous amount of attention and consideration to such a weighty matter as this principle which had guided them in drafting these conditions, because the Arbitration Clause was referred to in other clauses. The sealed bill of estimates was rather an important point; if that bill was sealed it must be verified, and who was to verify it? The quantity surveyor might; but he had been told that evening of a case in which the sealed estimate for a large contract was handed to the architect by the builder, and he said that it was not his practice, and he declined to leave it sealed. The architect opened it, and found a mistake to the extent of £1,000 against the contractor; needless to say the contractor was rather pleased. It was a difficult thing when one had to deal with questions of that kind, which were constantly occurring. One's client wanted to know during the progress of the work what a suggested extra would cost. [MR. HALL explained that that had been fully considered, and in the printed form there was the omission of a marginal note, that everything put in square brackets in the document was intended to be an alternative, and the note that ought to be in the margin read: "To be left in or struck out as may be agreed in each special case."] He (Mr. Seth-Smith) would suggest in the 3rd clause of the Schedule, after the words "to be inferred therefrom," the insertion of the words "as being necessary for the proper execution of the works." He thought that would make it a little clearer. With regard to certificates of completion, the words in the 27th clause were, "when the building is practically completed." He should like to know the principle that had guided the Committee in adopting that particular clause, and the stipulation as to payments, and what the upholding responsibilities were. It was customary with some architects (it had been with himself) to issue a certificate when the building was practically completed, and it was very difficult sometimes to define, without that, when the exact period of upholding terminated. He did not know whether the clause which the School Board had adopted would be any help in making the contractor responsible for anything that was fraudulently neglected beyond the upholding period.

MR. HALL replied that there was no such

thing in those conditions as a final certificate. They had purposely avoided it. They had said that if the contractor had done anything objectionable and fraudulent he should be held liable until the Statute of Limitations released him. In the old Heads of Conditions there was a final certificate of completion as to which there had been no end of litigation, and the practical result was this: that if the architect gave a final certificate of completion, and it was found afterwards that the building was not completed in accordance with the contract, the probability was that the employer had a good ground of action against his architect.

MR. WILLIAM WOODWARD [A.] said that as he intended to oppose the Conditions being accepted, he would like to make a few observations. There was no necessity to apologise for one's opposition to the revised Conditions, as two or three speakers had suggested. They had had a very fair hearing from the Chairman and the Committee throughout. With regard to the Builders' agreement, he never supported, and should not support, the Builders' Arbitration Clause. In reference to the old Heads of Conditions: he had adopted them for many years, and they had never been questioned, as they would have been if they had not been perfectly legal; and he might say that no builder or lawyer had ever yet been able to upset them. If they were attached to the specification, and referred to in the tender as forming the conditions of contract, they were perfectly legal, and he challenged Mr. Hall to point to any opinion of counsel which declared that they were not. [MR. HALL answered that the Bankruptcy Law had been altered three times since those Conditions were drawn, and the Bankruptcy Clause alone was absolutely illegal. If that was not sufficient he could give one or two other points in the Conditions, and also counsel's opinion as to the merits.] Mr. Hall had placed the Meeting in a very unfortunate position. They were about to vote, and Mr. Hall had told them that they were going to vote in this way: Whether they would support the interested motive of the Builders; or whether they would support the hard work of the Practice Committee for the last six years. That was not the way to put it. It was not a question of whether they were to vote for an interested party in the matter at all. The Builders certainly were entitled to have these Conditions fair, and the whole beauty of the former "Heads of Conditions" was that they were agreed to by the Builders. Now what position should they be in if they voted in accordance with Mr. Hall's suggestion? The Meeting would vote that the Conditions should be adopted. But what would be the use of them? They would not be of the slightest value. Assume the Conditions approved and printed, and the week after one wanted to enter into a contract with a builder. Take, for example, any substantial firm with whom one

desired to enter into a contract. What would be the result? The builder would ask: "Are these the new Conditions that the Council of the Institute have issued, or are they the Conditions previously agreed by the two?" One replied: "They are the new Conditions," and the builder would say at once: "I decline to sign them." The Conditions would then be absolutely useless. Now the main point he drew attention to, which Mr. Hall had not at all explained, was this: he had not explained the operation which must take place in the builder's office in order to discover whether the full-size details were or were not in excess of the small-scale drawings. Mr. Hall knew perfectly well with regard to a stone front that the builder must be put to an expensive and difficult operation in order to find out at the moment whether those drawings were in excess. The architect was the man who should know, and did know, whether they were in excess of the small-scale drawings. Mr. Hall had referred again to the surveyor's charges, and he used an argument which was really almost amusing. He said that the builder might come to the architect and say: "You know I have a suspicion that these quantities are insufficient." So that the mere fact of the builder coming to the architect (with a very distinct object so far as his experience of builders went, namely, that of paying the surveyor out of the first certificate), and raising a suspicion as to the quantities, was a justification for the architect not to include the surveyor's charges in the certificate. Then there was another important question: Were they to vote on the Conditions as they stood? Had they been amended? Would they be amended? Were they, in a word, to vote on the principle of the Conditions, or on the Conditions as they were printed?

THE CHAIRMAN said it was proposed to add some such words as the following to the resolution which had been moved: "Subject to such verbal amendments as in the discretion of the Council may appear to them desirable." He thought that possibly the Meeting might see fit to leave these matters, which would be carefully considered by them, in the hands of the Council.

MR. G. T. HINE [F.] wished to say, as the mover of the amendment "that the Agreement should be referred back"; that he moved it, not in any antagonistic spirit, but merely to afford an opportunity of ventilating and reconsidering the subject. As he now understood, the Conditions had been before the Practice Committee for a great number of years, and he was therefore afraid it would be no use referring them back again to this Committee. He understood that it was not obligatory upon any member of the Institute, any more than on any member of the Institute of Builders or any other builder, to accept the Agreement as it stood, and it was therefore open to any architect or his client to add to, amend, or withdraw anything which he desired. Therefore,

with that understanding, he begged leave to withdraw his amendment.

MR. T. M. RICKMAN [A.] said there had been certain difficulties with the Conditions of Contract which had been published and put forward by the Institute for a number of years past. The Master Builders' Association had wanted exceedingly to introduce quantities as part of the contract, and they had published a document consisting of a set of Conditions in which they had inserted the quantities as part of the contract, and they had put at the back of those Conditions the statement that they were founded upon the Conditions agreed to by the Royal Institute of British Architects and the Builders. The real advantage of the old Conditions was that they did meet, that they had met, with the agreement both of the Builders and of the Institute. So far as regarded the new Conditions, except the Arbitration Clause, and some very small exceptions which, he thought, could easily be got over if there were a real desire on the part of the Institute and of the Builders to meet each other, he thought those Conditions were a very great improvement upon the Conditions which had been in vogue. As regarded the Arbitration Clause, there was one important point: whether the arbitration should take place only at the end of the works or at such immediate times as might be necessary. It seemed to be generally agreed that in large works it might be absolutely necessary to have an arbitration in the course of the contract. All that was wanted was that the clause providing that the arbitrator should only be called in at the end of the work should be put in brackets; and if that was left open, then in each case, when agreeing upon the Conditions, that clause would be inserted or would not be inserted according to the status of the building they were engaged upon. And so with a very large number of other points raised in the Conditions, they might be varied with advantage in each case. As regarded the Arbitration Clause, he had been in hopes that the Institute would have maintained the principle of the Arbitration Clause which had been adopted and published by it for so many years. If the present Meeting were perfectly satisfied to withdraw from that clause, that they would not accept such a thing, then the vote would be passed and the Conditions would be published without any sanction whatever from the Institute of Builders. And the first consequence would be that whenever it was intended to apply this set of Conditions, the builder on the one side and the architect on the other would be practically agreed, after striking out a few words here and introducing a few words there, on all the clauses except the Arbitration Clause, and upon that they would have to go through the fight that the Committee had gone through, and it would be a question which of the two parties was the stronger. But the object of the Committee, and his object, so far as he had

had to do with it for many years, had been, if possible, to put before the Institute a set of Conditions which would not require that fighting over. To put a set of Conditions forward which would form an absolute contract he did not hope. He was sorry when it was found necessary in the course of the negotiations with the Builders to put the Conditions in the form of a contract instead of Heads of Conditions; but he found that the feeling on behalf of the Builders was so strong that it was necessary to give way, and they had adopted the form before them. The consequence of passing these Conditions as their ultimatum of the form of an Arbitration Clause would be that in every case the subject would have to be threshed out again, for which he should be very sorry, as he should feel that a very large part of the time which had been given by himself and others to the subject for so many years had been thrown away.

MR. A. S. FLOWER [A.] called attention to a point in Clause 4 which had not been mentioned, "and of any water and lighting companies," suggesting that it should read, "any water or lighting companies."

The resolutions were then put from the Chair, and duly carried [see Minutes, p. 522].

THE CHAIRMAN felt sure that, before the Meeting closed, they would think it only right and proper to thank the members of the Practice Standing Committee who had given such an immense amount of their time and valuable experience to the consideration of the question. He was glad Mr. Rickman had been present, because he was one of those who had taken the greatest possible amount of trouble over the matter, and he was quite sure that if anyone could have come to an arrangement with the Builders over the question of the Arbitration Clause Mr. Rickman would have done so. Mr. Hall had made the subject his own, and had thoroughly mastered every point that could arise. Mr. Boyes, too, had also given a great deal of time to it; so had the Chairman, Mr. Currey, and all the Committee. He asked the Meeting to pass a hearty vote of thanks to them.

MR. OCTAVIUS HANSARD [F.] said that, as an old member of the Practice Standing Committee, and having been behind the scenes of the great and indefatigable labour that had been devoted to the subject, he should be only too pleased to second such a vote of thanks. The Committee deserved their heartiest congratulations.

The vote of thanks was agreed to and carried with loud applause.

The sense of the Meeting having been taken as to the desirability of printing in the JOURNAL all the communications on the subject which had been received from the Allied Societies and from members, it was understood that the *résumé* given by Mr. Hall was sufficient.



MINUTES.

ADJOURNED SPECIAL GENERAL MEETING.

BUILDING CONTRACTS.

At the Adjourned Special General Meeting, held on Monday, 13th May 1895, Mr. Aston Webb, F.S.A., *Vice-President*, in the Chair, with 35 Fellows (including 10 members of the Council) and 20 Associates (including 1 member of the Council), the Minutes of the Meeting held 29th April 1895 [p. 477] were taken as read and signed as correct.

The Hon. Secretary announced that since the last Meeting a circular letter inviting suggestions on the revised Form of Conditions of Contract had been despatched to the Allied Societies in the United Kingdom, and that communications in reply had been received from all, with the exception of the Liverpool Society. He also announced that various communications on the subject had been received from individual members of the Institute. Mr. E. T. Hall [F.], having, at the request of the Chairman, given a brief summary of the several communications, and discussed various suggestions contained therein, proceeded to explain the principles which had guided the Practice Standing Committee in their work of revision, and dealt at considerable length with the principal objections raised against the revised document. A general discussion ensued, during which Mr. G. T. Hine [F.] asked leave to withdraw his amendment [p. 470], and the Chairman having intimated that the verbal modifications suggested would be taken into consideration by the Council, it was

RESOLVED, with two dissentients, That the Royal Institute of British Architects do hereby approve the Paper and, subject to such verbal amendments as in the discretion of the Council may appear to them desirable, do authorise its issue as "A Form of Agreement and Schedule of Conditions for Building Contracts sanctioned by the Royal Institute of British Architects."

It was further

RESOLVED, That the Royal Institute of British Architects do withdraw its assent to the further issue of the "Heads of Conditions of Builders' Contracts" at present issued with the sanction of the Royal Institute.

It was further

RESOLVED, That the Council do send a notification to the above effect to the Council of the Institute of Builders, and afterwards in due course to the professional Press, announcing the issue of the New Form in substitution for the said "Heads of Conditions."

A vote of thanks to the Practice Standing Committee, moved by the Chairman and seconded by Mr. Octavius Hansard [F.], was carried by acclamation, and, the proceedings having terminated, the Meeting separated at 10.15 p.m.

MINUTES. XIV.

At the Fourteenth General Meeting (Ordinary) of the Session, held on Monday, 20th May 1895, at 8 p.m., Mr. F.

C. Penrose, F.R.S., *President*, in the Chair, with 19 Fellows (including 9 members of the Council), 24 Associates (including 1 member of the Council), 1 Hon. Associate, and 8 visitors, the Minutes of the Meeting held 6th May 1895 [p. 477] were taken as read, and those of the Adjourned Special General Meeting held 29th April were read, and signed respectively as correct.

The Secretary announced the decease of James Piers St. Aubyn, *Fellow*.

The following members, attending for the first time since their election, were formally admitted and signed the respective Registers—namely, Paul Waterhouse [F.], Harry Tom Boden Spencer [A.], and Henry Ernest Kirby [A.].

The following candidates for membership, whose nomination had been previously approved by the Council, were recommended for admission:—As FELLOWS, Charles Busted Fowler (Cardiff); Francis Thomas Dollman [A.]. As ASSOCIATES, Herbert Phillips Fletcher; George Hubbard; John James Joass (*Pugin Student 1892, Owen Jones Student 1894*); Geoffrey Prater Armstrong; Walter Robert Jaggard. As HON. CORR. MEMBERS, Alexander Wilemans, edl. v. Monteforte (Vienna); Ferdinand Fellner (Vienna).

A Paper by Professor Baldwin Brown [H.A.], M.A., entitled THE CHARACTERISTICS OF PRE-CONQUEST ARCHITECTURE, was read by the Author, and, having been discussed, a vote of thanks was passed to him by acclamation, and the Meeting separated at 10 p.m.

The Royal Institute of Ireland.

The following are the officers and Council for the year 1895, elected at the Annual Meeting held in January:—President, Mr. Thomas Drew [F.], R.H.A.; Hon. Secretary, Mr. Albert E. Murray [F.], A.R.H.A.; Council, Messrs. J. J. O'Callaghan, C. J. McCarthy, J. R. Carroll [F.], Sir T. N. Deane, R.H.A., J. H. Pentland [F.], C. Geoghegan, R. C. Millar [F.], W. M. Mitchell, R.H.A., and W. K. Parry; Auditors, Messrs. R. O'B. Smyth and C. A. Owen.

The Manchester Society.

The Annual General Meeting was held on the 23rd April, when the officers and Council for the year 1895-96 were elected as follows:—President, Mr. John Holden [F.]; Vice-Presidents, Messrs. John Ely [F.] and R. Knill-Freeman [F.]; Hon. Secretary, Mr. Paul Ogden [F.]; Assistant Hon. Secretary, Mr. Edward Hewitt [F.]; Members of Council, Messrs. R. I. Bennett [F.], A. H. Davies-Colley [A.], T. Chadwick [A.], R. Knill-Freeman [F.], F. Mee, J. D. Mould [A.], W. A. Royle [F.], E. Salomons [F.], J. H. Woodhouse [F.], T. Worthington [F.], J. S. Hodgson, H. E. Stelfox [A.], and P. Scott Worthington [A.]; Auditors, J. W. Beaumont [F.] and C. H. Heathcote [F.]; Education in Architecture Committee, Messrs. A. H. Davies-Colley [A.], John Ely [F.], F. Mee, J. D. Mould [A.], G. H. Willoughby [F.], J. H. Woodhouse [F.], P. E. Barker [A.], G. Brown, P. Hesketh [A.], J. S. Hodgson, H. E. Stelfox [A.], and P. S. Worthington [A.].

LEGAL.

Builders' Contracts—Architects' Certificates [p. 505].

LLOYD v. MILWARD.

In January 1893 Messrs. Lloyd Brothers contracted with the defendant, Mr. Milward, to build shops and premises in College Street, Swansea, at the price of about £4,000. The Form of Contract adopted was that issued by the National Association of Master-Builders, Liverpool. The architects employed were Messrs. J. P. Jones, Rowlands, and Margrave, of Swansea and Cardiff. The builders claimed to have completed the work in or about

April 1894. The defendant, however, would not admit that the works were completed, and from time to time sent lists of additional work, which the plaintiffs at once carried out. The defendant still contended that the works were not completed, and also objected to the amounts of various items in the plaintiffs' account of extras. Ultimately he gave the architects full details of his objections, and the architects thereupon measured up the work, and on the 14th June granted a final certificate under Clause 20 of the Contract. The defendant then repudiated the certificate, and claimed that he was entitled to go to arbitration. Under these circumstances the plaintiffs commenced an action for the amount due upon the final certificate. The case was tried before Mr. Justice Lawrance at the Glamorganshire Autumn Assizes. By an arrangement between counsel the facts were not gone into at all, but it was assumed, for the purpose of argument only, that disputes had arisen between the parties at the date at which the final certificate was granted. Mr. Justice Lawrance gave judgment for the plaintiffs, holding that Clause 20* was not subject to the operation of Clause 22,* and that the certificate, having been given in good faith, was final and conclusive.

The defendant appealed to the Court of Appeal, who, after reserving their decision for six weeks, gave judgment in April 1895 as follows:—

THE MASTER OF THE ROLLS.—In this case, the action is brought by builders against the building owner on a contract made between them. The action is brought for the price of work done under that contract, and the plaintiffs rely upon this; they state that they had done the work, and that they had obtained, under Section 20 of the contract between them and the defendant, a certificate from the architect, and that that certificate was conclusive evidence of the works having been duly completed, and that the contractor was entitled to receive payment of the final balance. Well, that is Section 20 of the contract. If nothing had happened to prevent the application of that section, it is obvious that the plaintiffs are right, and must be entitled to recover, and the Judge has so held. Then the defendant says he relies upon Section 22, and he says that before the architect had given this certificate an open dispute, known to both parties and known to the architect, had arisen between the two parties, the contractors and the building owners, as to this work; and that when that dispute openly had arisen, and it cannot be denied that it was existing and was known to them both and was known to the architect, then by Section 22 of the contract the architect's power to give the certificate relied upon by the plaintiffs was entirely gone, and that the dispute must be settled under Section 22 by an arbitrator.

It seemed to me difficult for some time to see how to reconcile Section 20 and Section 22, but I have come to the conclusion that the contention of the defendant is right that Section 20 stands; but that Section 22 is a proviso upon it, and that if the conditions mentioned in Section 22 arise before the architect exercises his power of granting a certificate, then his power to grant a certificate is gone. I think those conditions did arise in this case, because the dispute was an open dispute as to the works having been duly completed, and that dispute was known to both sides, and therefore brought the case within Section 22, and that was before the architect had given his certificate. When he gave it, therefore, he had no power to give it, and it was of no effect; and I am of opinion that therefore the defendant was right, that the action cannot be maintained, but that the case must go to arbitration. We think, therefore, that we must allow the appeal, and that the judgment of the learned Judge was wrong.

LORD JUSTICE LOPES.—This is a rather peculiar case.

* These Clauses 20 and 22 of the Conditions of Contract referred to are identical with Clauses 18 and 20 of the Institute Paper (now superseded) of "Heads of Conditions" [see p. 505].

The building owner here seeks to be relieved from the effect of a final certificate of his architect. For some time I thought the certificate was final and conclusive, and could not be impugned. The case, however, depends upon the true construction of two clauses in the building contract, namely, Clauses 20 and 22.

Now it is most important to bear in mind in this case that it was assumed—in point of fact, it was admitted, I may say—that there were disputes with regard to the due completion of the work in existence before the giving of the final certificate of the architect, and that the architect knew of such disputes, and with such knowledge gave his final certificate. That is assumed, and, as I say, admitted. Then it depends upon the true construction of these two clauses. Clause 20 is: "A certificate of the architect," and then follow these material words, "or an award of the referee, hereinafter referred to, as the case may be," having the effect, as it appears to me, at once of showing that the certificate of the architect may be overridden or altered, or there may be a substitution of an award of the referee for the architect's certificate: "A certificate of the architect, or an award of the referee hereinafter referred to, as the case may be, showing the final balance due or payable to the contractor, is to be conclusive evidence of the works having been duly completed, and that the contractor is entitled to receive payment of the final balance, but without prejudice to the liability of the contractor under the provisions of Clause No. 12."

I now come to Section 22. In my judgment that section overrides Section 20 to the extent that in certain cases, and in this particular case to which I have alluded, namely, where disputes had arisen before the giving of this final certificate, it overrides what otherwise would be the effect of Section 22. I will not read Section 22 at length, but it provides that "in case any question, dispute, or difference shall arise"—between whom?—"between the proprietor or the architect on his behalf"—that is, the building owner or his architect—"and the contractor as to what additions," and so on—I will not read that—"as to the works having been duly completed." Then what is to happen? Then this is to happen: The matter is to be referred to the arbitration and final decision of a gentleman named, and the award of such gentleman, called here the referee, is to be equivalent to a certificate of the architect, and the contractor is to be paid accordingly. Therefore, it appears to me, in the circumstances which have arisen in this case, the award of the referee is to take the place of the certificate of the architect, and in point of fact is to override it. I think the meaning of the two sections taken together is this, that the certificate of the architect is to be final and conclusive if there is no dispute; but if there is a dispute, then the award of the referee is to take the place of the certificate, and is to be substituted for it. Under these circumstances I think that in this case the learned Judge was wrong, and that this appeal ought to be allowed.

LORD JUSTICE RIGBY.—I am of the same opinion. On the construction of the agreement in this case, and particularly Clauses 20 and 22, it was in my judgment the intention of the parties, shown by the language of the agreement, that, with the exception of the cases particularly mentioned in Clause 22, every dispute that might arise should be referred, not to the architect, but to the special referee mentioned in Clause 22. The excepted matters are described as matters left during the progress of the works to the sole decision or requisition of the architect under Clauses 2, 10, and 11. It has nothing to do with a dispute arising on the final completion of the works. It is shown in the case that a dispute did arise, and was made known to the architect and also to the opposite party. In my judgment the jurisdiction of the architect to make a final certificate was thereby ousted, and the dispute fell to be determined by the special referee. The final certificate actually given was under the clauses *ultra vires* and of no effect, and the judgment for £281 6s. 11d., which by that

final certificate would appear to be due, entered for the plaintiffs must be set aside.

The Building Line.

LAVY AND URJOHN V. THE LONDON COUNTY COUNCIL.

This was a case stated by a Metropolitan police magistrate, which came before a Divisional Court on the 1st May, and is reported in *The Times* of the 2nd May 1895 as follows:—

Upon July 24, 1894, the appellants were charged with having at 391 City Road, in the parish of Islington, in the County of London, unlawfully erected a certain structure beyond the general line of buildings in City Road without the consent in writing of the London County Council, contrary to section 75 of 25 and 26 Vict., c. 102; 45 Vict., c. 14, section 10; and 51 and 52 Vict., c. 41. By the Metropolitan Management Amendment Act 1862 (25 and 26 Vict., c. 102), section 75, it is enacted that "no building, structure, or erection shall, without the consent in writing of the Metropolitan Board of Works, be erected beyond the general line of buildings in any street, place, or row of houses in which the same is situate, . . . such general line of buildings to be decided by the superintending architect." By section 28 of the London County Council (General Powers) Act 1890 (53 and 54 Vict., c. cexliii.), "any person deeming himself aggrieved by the certificate of the superintending architect may, within 14 days after notice of such certificate has been given or served, appeal to a tribunal to be constituted as in the section mentioned."

The facts were as follows:—The appellants were the owners of the house 391 City Road, which was 38 ft. from the footway. It had a forecourt, which for many years was bounded by a brick wall 2 ft. or 3 ft. high, 9 in. thick, with an iron railing 5 ft. 6 in. in height. That being the state of things, the appellants from time to time made applications for leave to build upon the forecourt. The applications were refused. Prior to 1894 the appellants erected on the dwarf wall a hoarding for advertising purposes. It was placed against the railings so as to get their support, and it had struts for additional support. The County Council gave notice to remove it, and on the 5th of May 1894 the hoarding was removed and replaced by what was now complained of—viz. a wall 11 ft. high, 14 in. thick, with its face put back 4½ in. from the line of the old dwarf wall, so that there might be a ledge to support it. The summons was taken out on 11th July, and on 13th July the architect gave his decision under section 75 of 25 and 26 Vict., c. 102, as to what the building line was. That decision was appealed from. On 24th July the appellants appeared to the summons, and the respondents asked for an adjournment. The adjournment was granted upon the terms that the rights of all parties as they were on 24th July should be preserved—i.e. that the matter was to be in the same position as if the magistrate had begun to hear the appeal on July 24th. Adjournments took place from time to time, and on 19th October the architect's decision was confirmed by the Tribunal of Appeal. By that confirmation the building line was finally decided to be the line of the house 291 City Road. The magistrate found that the wall was erected as an advertising station, but that it was intended to serve also as a boundary wall for the forecourt, and on 7th December made an order upon the appellants to demolish the erection, and found, so far as it was a question of fact, that it was a structure in front of the general line of buildings. No consent to the erection being made was ever given by the respondents, the London County Council.

Mr. Dickens, Q.C., and Mr. R. Cunningham Glen appeared for the appellants, and submitted that, as on 24th July the appeal from the architect's decision was still pending, there was no decision upon which the magistrate could make the order to demolish; further, that the erection was not a "structure" within section 75 of 25 and

26 Vict., c. 102. They cited *Barlow v. Kensington Vestry* (11 A.C., 257), *Spackman v. Plumstead Board of Works* (10 A.C., 229), *Wendon v. London County Council* (1894, 1 Q.B., 227; 1894, 1 Q.B., 812), and *Lord Auckland v. Westminster Board of Works* (L.R. 7, Ch., 596).

Mr. Channell, Q.C., and Mr. F. F. Daldy, for the respondents, cited *The London County Council v. Cross* (66 L.T., 731) and *Ellis v. Plumstead Board of Works* (41 W.R., 496).

The Court dismissed the appeal.

Mr. Justice Day in the course of his judgment said:—I am of opinion that the magistrate was right. The hearing was adjourned from time to time till October, and by that time the decision of the architect was affirmed. There was always a decision and a certificate of the superintending architect. It happened that the magistrate did not give his decision till the decision of the architect became a final decision. But that is immaterial. There was the architect's decision. It is perfectly clear that this structure is now under the jurisdiction of the London County Council. But it is said this is not a "structure" at all. It was either a building, structure, or erection. I think that all the points of attack upon the magistrate's decision fail.

Mr. Justice Wright concurred.

The London Building Act 1894, section 212.

MATHEWS V. SALT.

At Clerkenwell Police Court, on the 3rd May, before Mr. Horace Smith, Samuel Salt, builder, was summoned by the London County Council, at the instance of Mr. J. Douglass Mathews, District Surveyor of Clerkenwell, for having contravened section 74, subsection 2, of the London Building Act 1894 (57 & 58 Vict., c. cexiii.), in the erection of the White Horse beerhouse, Collier Street, Pentonville.

The offence alleged was that the portion of the building used for the purposes of trade was not separated from the part of the building used for dwelling purposes by walls, floors, &c., of fire-resisting materials.

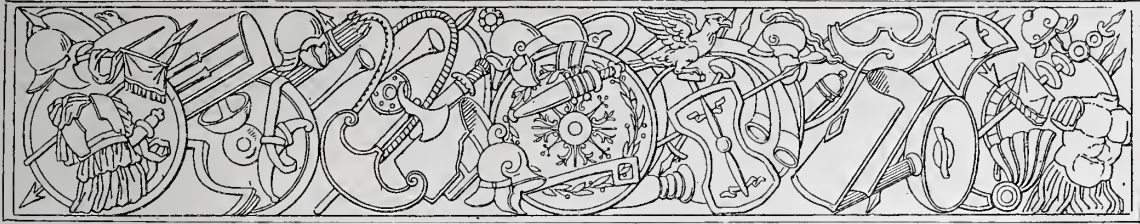
Mr. Berry prosecuted; and Mr. J. P. Grain and Mr. Sydney Knox defended.

Mr. Grain argued that the building was practically commenced before the Act came into operation; and further, that, being a public-house, it did not come under the section which dealt with premises used for the purposes of trade and manufacture, a beerhouse being classed with hotels and places for refreshment. A contract for building was actually entered into in April 1894, and the Act was not passed until August 1894, coming into force on January 1, 1895. The building was being erected for Messrs. Whitbread & Co. The actual signing of the document of contract was in September 1894, after the passing of the Act. He contended that the section was intended to deal with large store buildings, and that a beerhouse was to all intents and purposes a private building.

Mr. Berry argued that the contract referred to by Mr. Grain was not a contract entered into before the passing of the London Building Act 1894, within the meaning of section 212 of that Act, and that a beerhouse was a building used partly for the purposes of trade and partly for domestic purposes.

Mr. Horace Smith held that the contract submitted was not a contract contemplated by the Act. It was not a contract with the actual builder. He also held that a beerhouse was used for the purposes of trade. He made an order for the work to be done in accordance with the County Council's request, which was that the ceiling between the ground and first floors should be of fire-resisting materials.

It has been said that this decision, so far as it relates to section 212, is in conflict with that of Sir John Bridge in the *Bedford Court Mansions Case*, reported at page 264. It will be seen, however, that the circumstances of that case differed in a material point from those of the present.



ART IN PRIMITIVE GREECE
AS TREATED BY GEORGES PERROT AND CHARLES CHIPIEZ.

By the President, FRANCIS C. PENROSE, M.A., F.R.S.

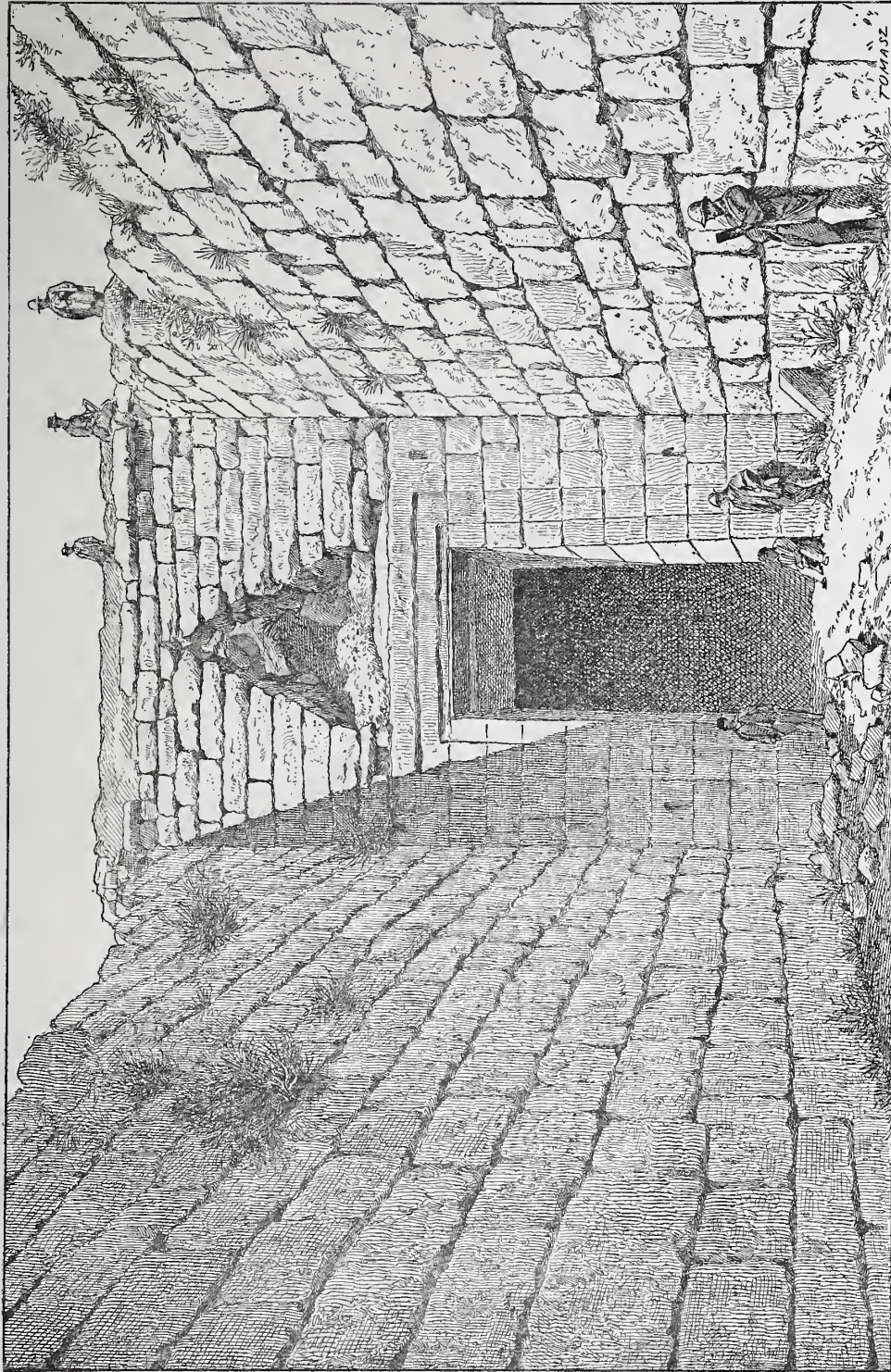
THE work of MM. Perrot and Chipiez, of which the book under notice is a translation,* embraces so many objects that in this notice the discussion of many of them must be curtailed. One may dismiss the introductory chapter and commence with calling attention to the judicious remarks on the effect of the geography and climate on the character of the people (pp. 28, 29, &c.). A country of harbours, superficially smaller than Portugal, but having a seaboard more extensive than that of Spain; supplied with defensive mountain barriers, calculated to isolate the inhabitants into small groups; with scarcely a road until Roman times; with an atmosphere healthy to the body, and, by its brilliancy, encouraging the artistic faculty; abounding in marble, thus facilitating the sculpture of the great period; an almost entire absence of metal making commerce a necessity. All these circumstances, however, would have had but little effect had not the genius of the people contributed its share.

It is a most important subject of speculation to try and discover the derivation of this wonderful people, particularly the later Hellenes of the Great Period. "The most authoritative historians, such as Herodotus and Thucydides, whilst they lay stress on the slight resemblance observable between Pelasgic and Greek dialects, are inclined to believe that no real difference of race existed between the two peoples. They are disposed to see in the Hellenes tribes which through some sort of natural selection came out of the Pelasgian stock and rose to superior culture.† It is a highly probable hypothesis. Nowhere do we find, either in a mythic or historical form, the faintest echo of a religious strife such as would have taken place had Pelasgian gods been superseded by Hellenic ones." From this point (pp. 55-111) follows a lengthy discussion on the obscure movements which seem to have taken place in the country, ending with the Dorian conquest of the Peloponnesus—about the eleventh century B.C.—not without interest, but having little or nothing to do with architecture. The same may be said of the next chapter (pp. 112-139), on the Stone Age in Greece. Paleolithic specimens are rare, but neolithic not infrequent. At p. 139 we touch primitive architecture in the island of Thera—now Santorin—an island of extreme interest to the geologist on account of the changes wrought by subterranean fires—changes supposed to have taken place some sixteen or seventeen hundred years B.C. There is not much to tell architecturally about Thera, but it seems to mark a period. A hundred pages follow with an account of Troy—that is, of Hissarlik—which shares with Tiryns and Mycenæ the chief interest in these volumes, the three sites the exploration of which is almost solely due to the energy and liberal enthusiasm of Dr. Schliemann, led on by his undying belief in the verbal inspiration of Homer. The reader is recommended, in addition to the account which MM. Perrot and Chipiez give of

* *History of Art in Primitive Greece—Mycenian Art.* From the French of Georges Perrot and Charles Chipiez. Illustrated with 544 engravings in the text and 20 coloured

plates. 2 vols. Large 8o. Lond. 1894. Price 42s. Messrs. Chapman & Hall, 11, Henrietta Street, Covent Garden.

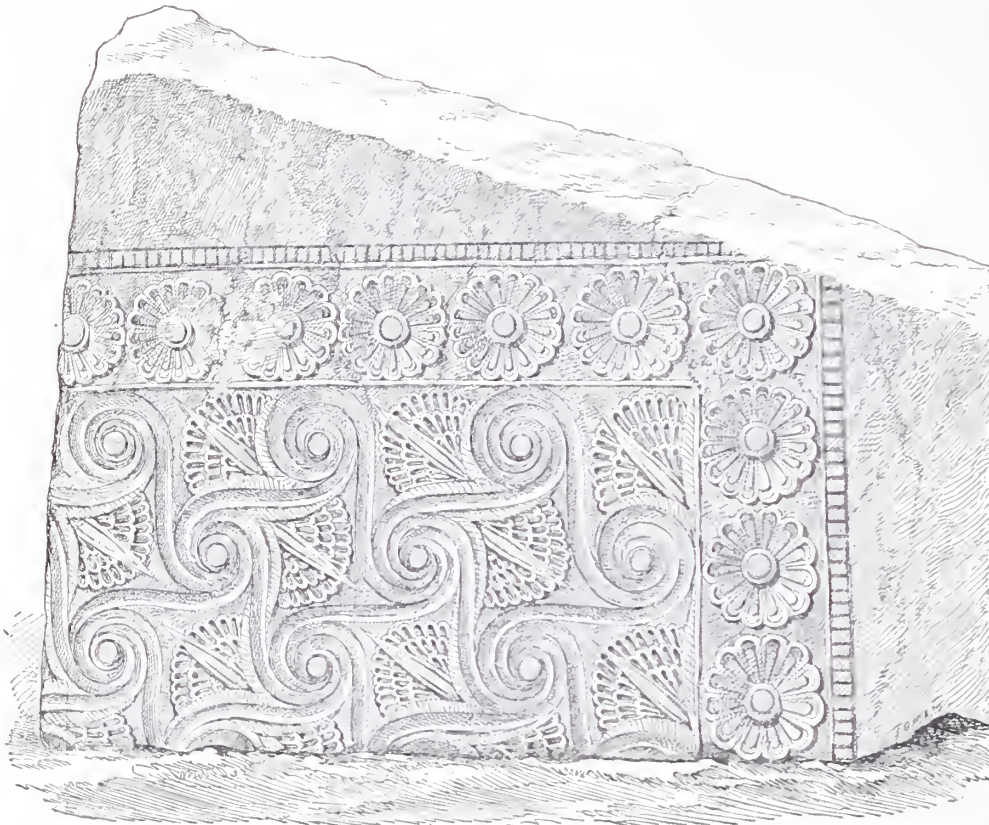
† *Herod.* i. 58 and i. 60.



[FIG. 121.]—THE TREASURY OF ATRIVS. PRESENT STATE.

a site which has never been at all doubtful, and has not been much interfered with by settlements earlier or later than that of its builders in the Pelasgic period. The plan of this fortress in Plate II. forms a strong contrast with the Plate I. of Troy on the hill of Hissarlik. There are several other very good illustrations of parts of the structure. The reader may be cautioned against an error in p. 274, line 25. The letter *r* on the plan does not refer to the entrance which the author is describing, but to the sally port or postern at the bottom of the staircase on the other side of the hill.

At p. 294 the third great example of a primitive fortress is described, viz. Mycenæ. This example, as well as the previous one, is well illustrated, and in this edition the English student has the further advantage of several of the woodcuts from Schliemann's *Tiryns*



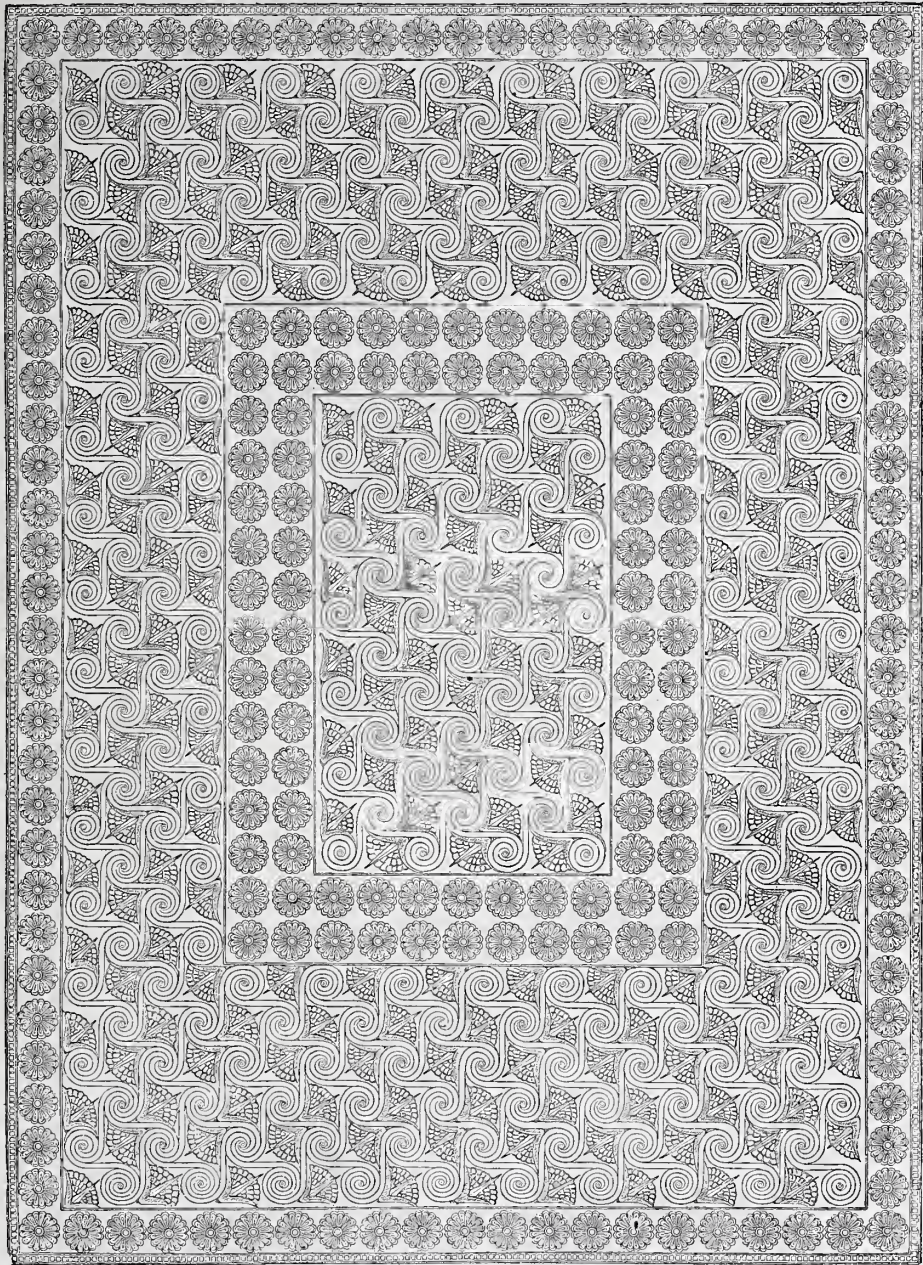
[FIG. 217.]—FRAGMENT OF SLAB FROM CEILING FROM DOMED TOMB AT ORCHOMENUS.
ABOUT ONE-SEVENTH ACTUAL SIZE.

and Mycenæ, as the Publishers acknowledge in the Preface. So much of this fortress and the so-called Treasury of Atreus remained above ground before the late excavations that it is extraordinary that Strabo should have said that it had been so entirely destroyed by the Argives "that no trace of it remained in his day." Pausanias, however, describes these

places very distinctly, and our authors argue, with much plausibility, that whilst he must have actually seen the Lion's Gate and the Treasury of Atreus [p. 527], the royal tombs discovered by Schliemann were probably hidden at the time of his visit, and that he quoted in what he recorded on the subject from an earlier chronicler named Hellanicus. Whilst on the subject of the references to passages from ancient authors quoted in this work, it is a serious defect that the references are hardly ever complete, the name of the author without any further reference being thought to be sufficient. After the account given of Mycenæ the description follows of a number of tombs found at the Argolic Heræum, at Nauplia, and in parts of Attica. The authors then proceed to the Acropolis of Athens. In p. 404 there is a curious error as to the height of the Acropolis, which is stated to rise above the general level *nine*

hundred and eighty-five metres. Had it been written 985 the error might easily have arisen from the misplacement of the decimal point, for 98·5 would be a very fair statement of the case. Also it is not accurate to state that the rock, except at the western end, is so precipitous on all sides as to defy all attempts at an escalade; in point of fact, it was actually scaled by the Persians in the neighbourhood of the Erechtheum.

Respecting the "Pelasgi-con," p. 405, the authors put forward a view which seems to have something to recommend it, although it differs from the general opinion, which limits the quarter bearing this name to the western part of the hill; their view being that it formed — at any rate originally — a complete belt around the Acropolis; but the arguments on which they rely could only be readily understood by those with a minute local knowledge of the place.



[FIG. 218.]—RESTORATION OF CEILING IN DOMED TOMB AT ORCHOMENUS. ONE-THIRTIETH ACTUAL SIZE.

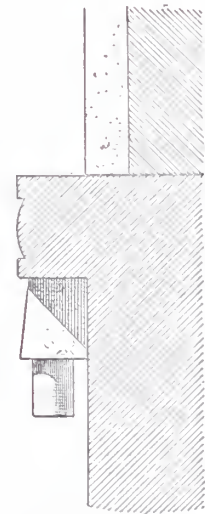
In treating of the Pnyx the authors reject its usual identification as the place of assembly—the *Bema* of Pericles and Demosthenes—for the much-controverted theory of Welcker and others, who consider it as a sanctuary of Jupiter.

At pp. 418-429 is the description of the very remarkable domed tomb at Orchomenus, almost vying with the Treasury of Atreus at Mycenæ in size, and quite so in regard of sumptuousness. Figs. 217 and 218 (pp. 528-529), and several of the following cuts, should be referred to in connection with this building—beautiful in themselves, and also showing germs of the ornaments in use in the Great Period. At p. 446 we find allusion to the practically new language imported into archæological investigations by the examination of potsherds, signs and evidences of date which had escaped the observation of the earliest explorers. For this “sherd lore,” as it may be called, the Mycenæ discoveries furnish an important and recognised standard of comparison. At p. 459 attention is directed to the curious fact that whilst the Greeks, in these primitive times, were accustomed to use lime for making plaster with great effect, they never employed it for making mortar, but were contented with clay for this purpose. It is rather singular that in speaking of the great size of the stones used in the Cyclopean walls in Greece no mention is made of the buildings of the same race of people in Italy, where sometimes—and particularly at Alatri—even larger stones have been used than any at Tiryns.

At pp. 469-470 is a discussion on the comparative antiquity of the walls built with approximately horizontal courses and of those in which polygonal blocks have been used, and the earlier date is ascribed to the former method. There will be differences of opinion on this point, but it is certainly true that some walls of polygonal masonry can be referred to dates of only moderate antiquity. At pp. 481-483 the origin is considered of door openings diminishing upwards, which are attributed to timber door jambs having been used inclined towards one another, figs. 189-190. At p. 492, referring to the fact that the columns used at Mycenæ and Orchomenus diminished from the top downwards, contrary to the now received method, the primitive practice is derived by our authors from the original wooden construction of the superstructure in domestic buildings, the large top diameter of the column offering a stronger hold upon the necessary framing; but then follows the strange observation that the

props of our chairs and tables are a “survival of this primitive arrangement”—an illustration it might be, but not a survival, for the cases of the two things, buildings and furniture, are quite distinct. The *point d'appui* for the building is the ground; that of the piece of furniture is its seat or table-top.

The discussion of the timber construction of this period is useful in showing how the timber type, imitated in the maturer style in stone, took its origin. The subject is pursued further in the second volume. The labyrinth scroll was evidently a great favourite in the ornamentation of this period; but when a spiral is used, it is always the simple spiral in which the convolutions increase in diameter by equal increments. The more beautiful and expanding scroll of the Ionic volute, &c., was a later invention. Towards the end of the volume there is a discussion on the use of metal coverings, which added greatly to the richness of the principal apartments, whether of the palaces or the tombs. The reader may see in these the relationship to Phœnician art by reference to the gold overlayings of so much of the architecture of Solomon's Temple and the connection of Hiram's Tyrian workmen with that building.

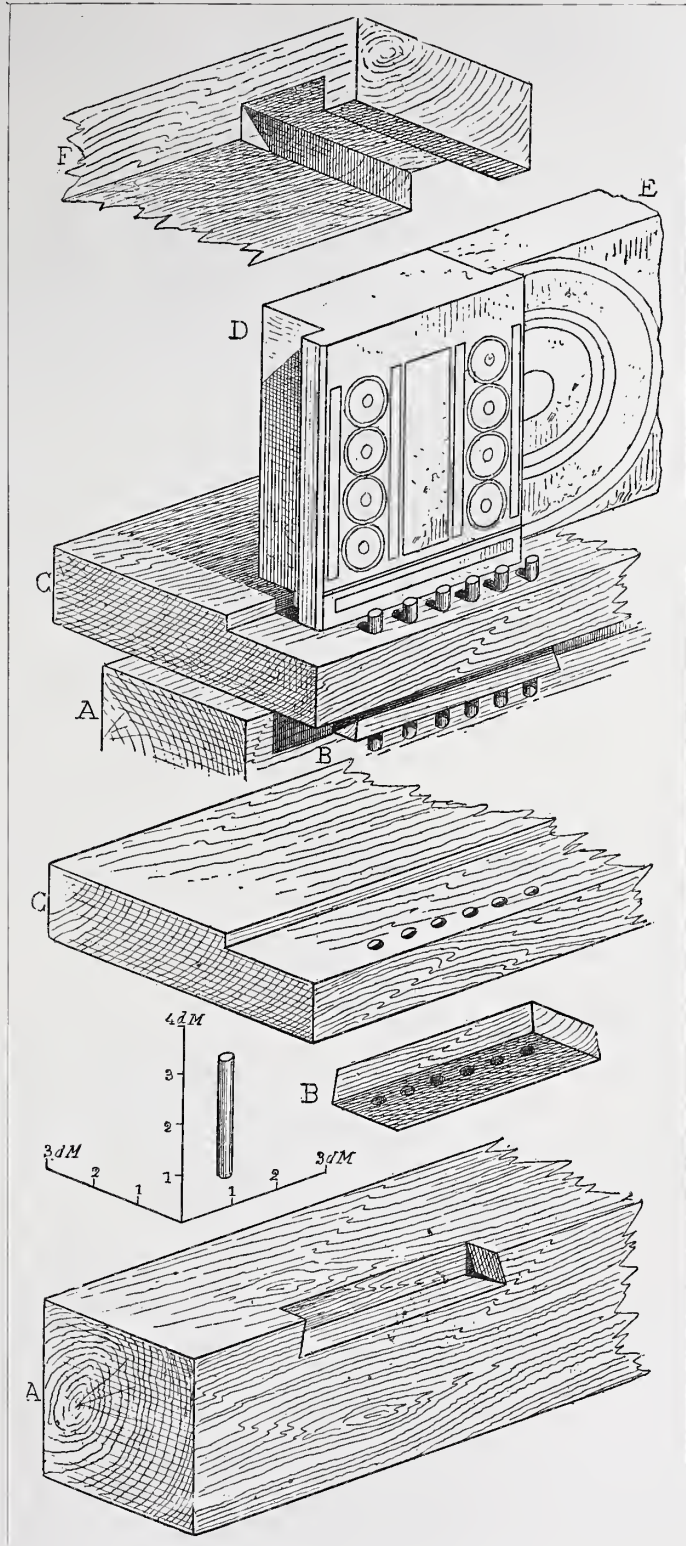


[FIG. 304.]—GUTTA IN C.
TEMPLE AT SELINOUS.

At p. 5 of vol. ii. some tombs are referred to at Mycenæ, in which the skeletons were found in a sitting posture, and which seemed to be quite different from any found elsewhere in Greece. It is remarkable that Mr. Flinders Petrie has lately discovered, at a place called Nubt-Ombos, near Denderah, a number of tombs belonging to

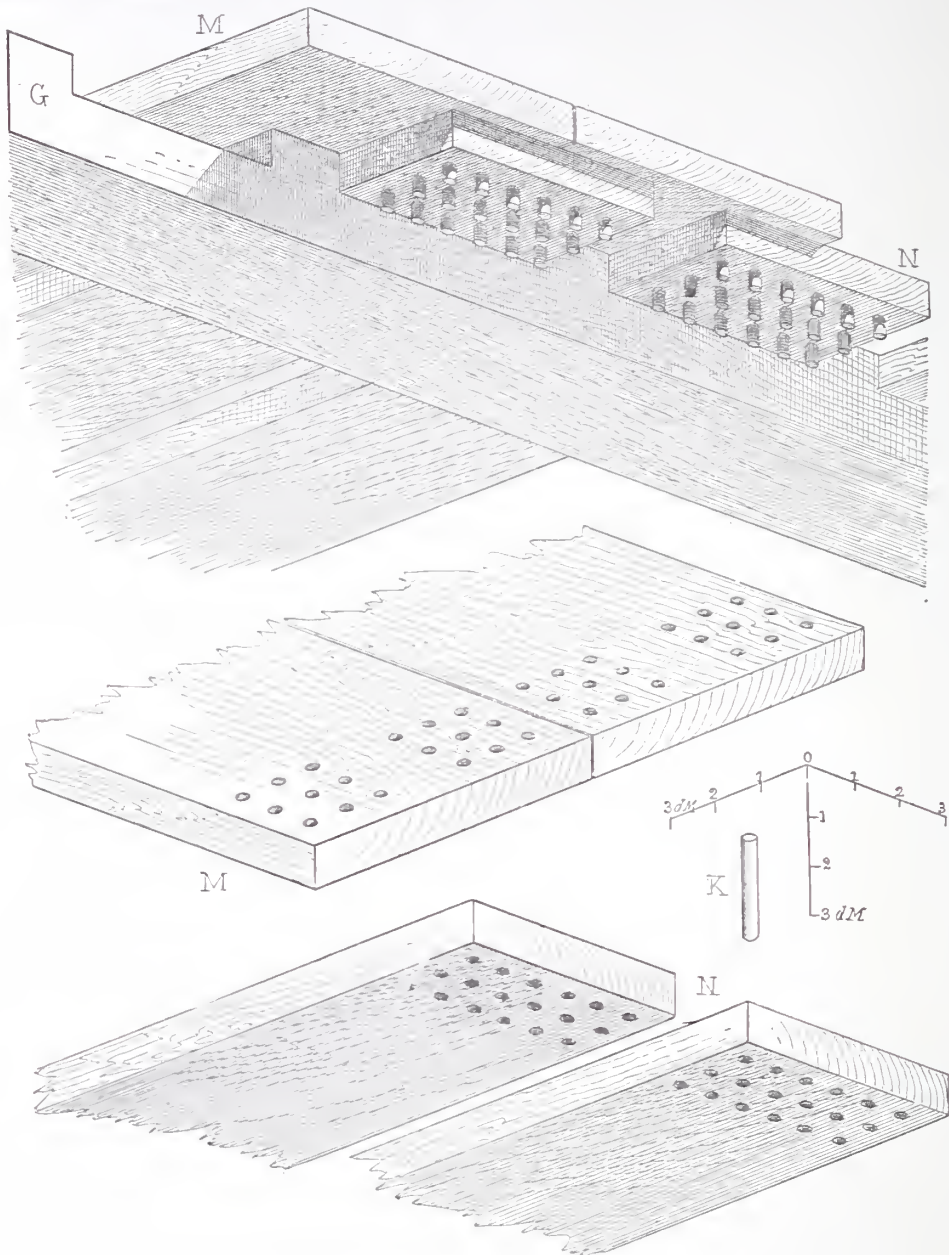
a race very different from any known race of Egyptians, and of which the relationship has not yet been identified, in which the bodies were placed in a very similar posture.

Although the frontals of the beehive tombs, such as the Treasury of Atreus, were generally elaborately ornamented, it appears that it was the final intention, as soon as the family sepultures were all complete, to entirely conceal these frontals with a solid wall. As the graves which have been discovered in them were always interments, this filling up would have taken place much more rapidly than a columbarium of the Roman pattern, in which ashes only were deposited. The authors find no signs whatever of cremation at Mycenæ, which is remarkable, as, according to Homer, it was the usual form of burial—at any rate for a chief. From pp. 19 to 45 we have a discussion at great length on the general character of the shaft and beehive tombs, with the conclusion that the former were the earliest, and probably belonged to a different dynasty, namely, the *Perseidæ*, the latter being those of the *Pelopidæ*. The elaborate architecture of these latter is also in favour of that view. It is right, however, to say that there are differences of opinion on this point. A detailed description of the tomb called the Treasury of Atreus follows, with Plates IV.-VII., the first giving the details of the present condition, the three latter as restored by the authors, with their reasons for each step very fully detailed in the text. Chapter VI. consists of a discussion on the religious architecture of the primitive period. Any existing remains which



[FIG. 305.]—MYCENIAN PALACE, SECOND EPOCH. SHOWING THE SEVERAL PIECES OF THE ENTABLATURE: ARCHITRAVE AND FRIEZE.

can be identified are shown to be very scant, and it is also true that the passages in which Homer mentions temples of the gods are few in number. This does not, however, prove



[FIG. 308.]—MYCENIAN PALACE. SECOND EPOCH. SHOWING THE SEPARATE PIECES OF THE CORNICE.

that there may not have been a considerable number, though of comparatively small size, and which have subsequently been rebuilt on the same foundations.

In some temples, of which considerable remains exist, there are not wanting evidences of portions of much greater antiquity than the general mass of the structure, and this claim of

great antiquity is supported in several notable instances by recent investigations based on their orientation. There are, however, in this volume, descriptions of two ancient shrines, one on Mount Ocha, in Eubœa, and the other in Delos (see p. 95). They are both very small, and seem thereby to confirm the view already advanced that this early epoch was not a time of much display in temple architecture. On p. 97 the authors, without however assigning any argument, refer the Delos example to a comparatively late period—the eighth or ninth century B.C. In their description of Plates VIII., IX., X., the authors justify the introduction of wooden galleries on the top of the citadel walls by reference to a decree respecting a restoration of the walls of Athens dated A.D. 323. It should be stated, however, that the relief on the Nereid tomb, of a much earlier date, which represents a besieged city, shows nothing of the kind, but battlements only. The different styles of masonry in the walls of Mycenæ are explained (p. 110) by successive reconstructions, and the polygonal masonry, as already observed, is considered to be later than that with approximately horizontal courses. In the same page the advanced character of the military engineering at Mycenæ and Tiryns over that of Troy is referred to. In Plates XI., XII., and fig. 301, the authors seem to have allowed much liberty to their fancy in the restorations of the palace architecture. The strange appearance of the columns diminishing from the top downwards seems, however, to follow the evidence as already mentioned. In the long discussion on the origin of the Doric Order there are some interesting suggestions, particularly the derivation of the guttæ from constructive pegs; and it may be allowed that the reconstruction given of the timber architecture of the palaces of this period and the explanation of the wooden types used decoratively in the later stone architecture are well dovetailed into each other. The reader will probably see how the argument applies more readily by inspection of Figs. 304, 305, and 308 [pp. 530–32], than in reading the twenty pages of text on the subject. Fig. 320 is a very plausible explanation of the form of the antæ in a Doric temple. The authors seem to decline to accept the favourite theory of the derivation of the Doric capital from the Egyptian—as, for instance, the example at Beni Hassan—but give no derivation of it themselves. The metal work depicted in Plates XVI., XVII., and XIX., fig. 391, and several others of the figures, shows a great superiority in this branch of art over sculpture and painting. Pottery, in Chapter XI., is a distinct subject in itself, and is well illustrated; and this is of the greater importance in consequence of the Mycæan pottery having become, as already noticed, an archaeological standard. The gold and silver ornaments illustrated in figs. 504 to 540 are particularly worthy of attention, and show the high order of merit to which this branch of art had attained.

In the last chapter, of recapitulation, it is argued with much probability that the primitive Achæans, to whom the marvellous works at Tiryns and Mycenæ, &c., were due, had already fallen into a great state of decadence when they were overthrown by the ruder Dorians about 1100 B.C., which for a time, but fortunately not finally, threw backward the civilisation of Greece.

Lastly, it may be observed that the wealth of illustration in this work is very remarkable, almost all the 544 woodcuts are in themselves interesting and also well drawn, some of them being of great elaboration. Almost the only desideratum is connected with the text, which would have been better if it had been less prolix; an opinion in which the English editor, judging from his remarks in the Preface, seems to have anticipated me.

* * The Institute is much indebted to Messrs. Chapman & Hall, the publishers of the English edition, for the loan of the blocks with which the above review is illustrated.



9, CONDUIT STREET, LONDON, W., 13 June 1895.

CHRONICLE.

The British School at Athens.

At the Business General Meeting, held 10th inst., the President invited the attention of the Institute to an appeal now being made on behalf of the British School of Archaeology at Athens to the Prime Minister, with a view to obtaining for the School an annual grant of money. He held in his hand a paper which had been sent round to the Universities, the Public Schools, and to a great many influential persons for their signature; and he hoped, if the Meeting saw no objection to its being so done, that it would be sent in on behalf of the Institute under the Common Seal. The proposed Memorial, which the President then read, is as follows:—

To the Right Honourable the Earl of Rosebery, K.G., First Lord of the Treasury, &c.

We, the undersigned, desire to express our conviction that the British School at Athens has already done excellent work, and that its establishment upon a sound financial basis is of vital consequence to research in all branches of classical study. Athens is every year becoming more and more the centre of the archaeological world. The concentration in the Museums there of the numerous and highly important discoveries made of late years in Greece has made personal study in Athens indispensable to a complete training. These Museums contain an unequalled collection of materials for the investigation of prehistoric and early archaic Art. The architecture of Greece in all its periods can nowhere else be studied to such advantage. In the department of Christian antiquities, moreover, the student may find in Athens and elsewhere in Greece valuable openings for research.

For those who intend to take up archaeological work on Greek soil, it is obvious that the presence of a competent Director to guide the Student, and access to a good archaeological library, such as the British School has already acquired by gift and purchase, are absolutely essential. It is also clear that for those who, without any desire to become professed archaeologists, are qualifying themselves for educational work in our Universities and Public Schools, a season or two spent at Athens, with the advantages offered by the School, must be of permanent value.

That other nations recognise the importance of maintaining such a centre of work on Greek soil is evident from the fact that German and French institutes, amply supported by State endowments, have flourished at Athens for many years. The Americans also have a very successful School, which enjoys an income of £1,400 a year, contributed by sixteen Universities and Colleges.

It can hardly be the wish of Englishmen that the British School at Athens should be less efficient than the other foreign institutes, still less that, after nine years of good work, carried on with limited resources, the School should be closed for want of adequate financial support. And yet, with a precarious income of less than £500 a year, it cannot be said that this contingency is beyond the reach of probability.

It may be thought that the School might fairly expect support from the Universities, and, as a matter of fact, the University of Oxford has hitherto contributed the sum of £100 a year to its maintenance. It is, however, only too well known that the prevailing agricultural depression has of late years seriously crippled the resources of both our great English Universities as well as of individual Colleges, so that it is practically impossible for them to offer such support as they would undoubtedly desire to such an institution as the School at Athens. The smaller Universities, University Colleges, and the Public Schools have no funds at their disposal for outside purposes.

The effort to raise an adequate endowment by private subscription having failed of success, we, as representatives of the leading learned bodies and educational institutions in the United Kingdom, or as interested on general grounds in the progress of classical research, venture to urge upon Her Majesty's Government the claims of the British School at Athens to direct endowment by the State. If precedent is needed, it may be found in the annual grants recently made to University Colleges and to the Biological Laboratory at Plymouth, which bears to the study of natural science the same relation as the School at Athens bears to Classical Study. If an annual grant of £500 could be made to the School, the remainder of the income necessary to maintain it in a state of efficiency would no doubt be forthcoming from private sources. We confidently commend the case to your Lordship's most favourable consideration.

This School at Athens, continued the President, had been connected with the Institute on former occasions. When the Organising Committee were collecting the private subscriptions, with which the School had for nine years been supported, and when they had fifties of pounds at their disposal, they offered a Studentship to a man nominated by the Royal Institute of British Architects, and a very worthy young man—Mr. R. Elsey Smith [A.]—won it, and became the Greek Travelling Student for the year 1888. Another point which made it of extreme importance that some grant from the Government should be given was that it would place the British School at Athens on a national basis. They had heard of the injury lately done to the Parthenon by an earthquake. The French and German Schools, having been publicly recognised by their respective Governments, had had the whole say and consultation as to what should or should not be done in the matter; but the English School had not been approached or consulted in any way; whereas, if the School had had Government recognition, there was no doubt that the English would have been consulted on equal terms with their colleagues of France and Germany. There was no hostility between the Schools; on the contrary, they worked harmoniously together. The French and German Schools, and the American, were on extremely good terms with the English. But the last was

sadly hampered by poverty, and therefore Mr. Penrose hoped that the Institute would as a body support the appeal.

Mr. H. H. Statham [*F.*] then rose, and, as a matter of form, he said, seconded the President's proposal. He was doubtful, however, of success on account of the traditional indifference in England to bestowing Government money upon any archaeological scheme; but it was their duty to do their best to put the matter before the Government, and he joined most heartily in an attempt to advance the objects of so important a national work as the British School at Athens.

The Meeting having unanimously agreed to the proposal, the Memorial will be executed by the Council on the 17th inst. and forwarded forthwith to its destination.

The Annual Elections.

Although the Annual General Meeting appointed eight Fellows and six Associates (in one or two instances without asking their consent) to act as Scrutineers to conduct the elections of the Council and Standing Committees for 1895-96, only five Fellows and six Associates attended on Friday the 7th inst., the day selected for the Scrutiny. The number of envelopes, containing the voting papers, issued reached 1,450, and of these 499 were returned—only one having been sent back, and because it reached the Institute some days too late. Of the 498, the Fellows returned 204, the Associates 280, and the Hon. Associates 14. In the case of the Council election, the Scrutineers rejected 8 papers for Vice-Presidents, 12 for Members of Council, and 6 for Associate-Members. The numbers rejected as invalid by the Scrutineers in the case of the Standing Committees were not reported. The Scrutineers who acted, and to whom a hearty vote of thanks was recorded last Monday, were Messrs. Burmester, Jarvis, Searles-Wood, Seddon, and Woodthorpe, *Fellows*; and Messrs. Brodie, G. Hamilton Gordon, Greenaway, Niven, Satchell, and M. Wonnacott, *Associates*. They met at 11 a.m., and the majority did not separate until half-past seven.

Admission Fees to the Examinations.

The Council have decided to raise the fees paid by applicants for admission to the respective Examinations ultimately qualifying for candidature as Associate. After the 31st December of the current year, the fee for the Preliminary will be two guineas (instead of one guinea as at present), for the Intermediate three guineas (instead of two), and for the Final four guineas (instead of three). These make a total of nine guineas for the Examinations alone, but three of the nine will be carried forward as the candidate's entrance fee to the class of Associates should he be elected within eighteen months of the date of passing the Final Examination. No Probationer and no Student

registered as such prior to the close of the current year will be required to pay the increased fee for admission to the Intermediate and Final Examinations respectively.

The fees for the Special Examination qualifying for candidature as Associate have also been raised. In the next Examination, to be held in November or December of the current year, applicants will have to pay a fee of three guineas for the Examination alone, and should they qualify for candidature as Associate they will be required to pay the entrance fee of three guineas when elected. Again, the Board of Examiners have recommended that, after a certain date (not yet fixed) the admission fee to this Special Examination shall be six guineas instead of three—thereby making the total fee for entrance to the class of Associates by specially exempted candidates equal to that to be paid after the close of the current year by candidates who have gone through all the Progressive Examinations.

Allied Societies: Certificates of Alliance.

The Council, at their meeting of the 10th inst., signed and sealed Certificates made out in the names respectively of the fifteen non-Metropolitan Societies within the United Kingdom, allied to the Institute; and these will be forwarded to their several destinations at the end of the week. Such a Certificate of Alliance, asked for, at the close of last year, by Mr. Horbury Hunt, President of the Institute of Architects of New South Wales, was duly executed and forwarded to Sydney, some months ago.

The Modified Reservoir at Philæ [p. 77].

Mr. Somers Clarke, F.S.A., who was a member of the Commission invited to visit Philæ and consider the best means of saving the island, has forwarded the following:—Last year an official announcement was made by the Ministry of Public Works in Egypt the importance of which to the artistic and scientific world cannot be overestimated. By it the Egyptian Government pledged itself not to overwhelm the island of Philæ and the Nubian valley, as had been originally proposed, but to carry out the scheme in a form very much modified. The important part of the announcement ran as follows:—"The Ministry, recognising the respect due to the reasons advanced, has endeavoured to reconcile the material interests of the country with those of science by submitting a modified scheme which has received the approval of the Government. This modified scheme consists in the construction of a dam at Assouan, having its crest at the reduced level of 106 metres—that is to say, 8 metres, or 26 feet, lower than that at first proposed. This will retain water sufficient for Middle or Lower Egypt, but not for both. It entails the submersion of only a portion of

“Philæ Island, containing the smaller monuments, “which could be protected by special works to be planned in accordance with the wishes of the learned societies, and it leaves the other “numerous Nubian monuments untouched.” In February last representatives of some of the learned Societies were invited to visit the island for the purpose of seeing the level to which it is now intended the water shall rise, and to consider the best means of fortifying or protecting the parts of the ancient structures which will be submerged to a greater or less degree.

The dam will be built in the place which has been throughout preferred by the engineer as most suitable for such a structure, *i.e.*, at some distance to the north of the island of Philæ. It may be hoped that the wall will not be visible from the island; it certainly will not be very prominent. The waters of the reservoir, rising to R.L. 106 metres, will leave the Temple of Isis above them—and this is a matter of great importance, as had this building, which retains its roof, been submerged it must have died out slowly.

The monument of the greatest historical importance, the small structure of Nectambo II., at the extreme south end of the island, lies, unfortunately, so low that it will for a time stand in seven or eight feet of water, and the adjoining walls and colonnades will not entirely escape. The intention of the Ministry of Public Works is that every part of the substructures over the island shall be carefully examined, so that by filling in with concrete or by other expedients the stability of the superstructures may be insured, and this does not seem to be a matter of serious difficulty. The island, viewed from without, will, when the reservoir is not full, show little if any change. From within, whilst the monuments still remain, the surface of the island cannot fail to suffer to some extent. There is no reason to think that the sandstone of which the buildings are made will suffer. The quay walls by which the island is surrounded, which are of the same material, are submerged and again emerge every year, and have done so unharmed for 2,000 years past.

Though one cannot but regret, adds Mr. Somers Clarke, that the reservoir must needs be made at this particular place, one cannot fail to see that there has been a very real effort to do as little harm as possible to the historical monuments threatened by the original scheme.

The Art of Ancient Egypt Exhibition.

The Committee of the Burlington Fine Arts Club (17, Savile Row, W.), as the President informed the General Meeting of the 10th inst., have intimated to the Council of the Institute that they will be happy to forward admission cards for the use of students who may desire to visit the Exhibition of the Art of Ancient Egypt held at

the Club. Gentleman who may desire to accept this kind invitation should send in their names and addresses to the Secretary of the Institute as soon as possible; for the Exhibition, which is most instructive and interesting, closes on the 6th prox.

Visit of German Architects and Engineers [p. 505].

The *Deutsche Bauzeitung* of the 1st inst. gives an account of the recent visit to England of the Architects' and Engineers' *Verein* for Rhenish Prussia and Westphalia, whose headquarters are in Cologne, and others. The following translation is a summary of the article:—

Although the proposal to undertake a week's excursion to London at first met with disapproval, the idea was gradually taken up by the members of the Cologne Society and other Societies; so that on the 18th May fifty-two names of those intending to join the party were sent in to the Dom Hôtel. Thirty-three of these were from Cologne, four from Bonn and Düsseldorf, two from Aachen, Düren, and Münster, while Frankfurt, Coblenz, Andernach, Godesberg, and Oberkassel were represented by two members. Four of the party were guests; and the others belonged to the architectural and engineering professions respectively. The arrangements were carried out by the Directors of the Society and the Committee, consisting of Herren Bouressi, Schreiber, Siegert, and Unna. The members started on Sunday, May 19th, by an early train to Flushing. The passage to Queenborough was stormy, cold, and disagreeable. The journey, however, in two of the reserved saloon carriages of the London, Chatham and Dover Railway, was pleasant.

On Monday a trip was made on Cook's omnibuses through the City and West End as far as the Albert Memorial, and a visit was paid to the South Kensington Museum, and afterwards to the gigantic Olympia Theatre at Addison Road. In the evening Herren Heimann, Kaaf, Mewes, and Stübgen, and eight others, were entertained at dinner by the Council of the Royal Institute of British Architects. About fifteen English professional colleagues sat down to dinner, which followed a Council Meeting of the Institute, when Mr. Penrose, the President, briefly proposed the health of their German guests and the Society of the Niederrhein; and when in reply Herr Stübgen pointed out that, besides there being an artistic relationship between the two nations, both came from the same stock, there was a display of enthusiasm. He thanked his English colleagues for ready support in arranging and carrying out their programme, and presented to the Royal Institute, in the name of the Society of Cologne, two volumes, *Köln und seine Bauten* and *Kölner Thorbürgen*. His speech was at various times accompanied by loud cheers, and especially as he brought it to an end in English. Mr. Penrose responded to his good

wishes for the Anglo-German contingent in the heartiest manner. Through the ready medium of the German Embassy, the gates of the great arsenals of Woolwich were opened on Tuesday to the travellers, who were shown round by several competent officers. Returning to London by steamer, a visit was paid to the Tower and the new Tower Bridge. Then followed an excursion to the British Museum; and the evening was spent at the Empire Theatre.

On Wednesday most of the party visited Hampton Court Palace, Richmond, and Kew, inspecting the numerous pretty villas in the vicinity. Two smaller parties visited respectively Oxford University and the cathedral of Winchester. Oxford, with its numerous colleges, which for the most part were monasteries originally, and which they resemble in many respects even to-day, with its picturesque old cloisters and capacious courtyards, its halls, chapels, and churches, with the charm of its mediæval streets, will be a constant source of delightful recollection. On Thursday, again through the influence of the German Embassy and Royal Institute of British Architects, the whole company of fifty-two were received at the north entrance of Westminster Hall by the Resident Engineer, and by Mr. Jones, the Clerk of Works, and escorted through the Houses of Parliament, the heating, ventilating, and electric appliances of the building being very thoroughly explained. After luncheon the party proceeded to Westminster Abbey, where they were met by Dr. Troutbeck and his daughter, Georgina, who was as good a linguist as she was amiable and charming. In the Society's name Herr Stübben in a brief speech placed a wreath of fresh laurels from which hung ribbons of black, white, and blue, and bearing an appropriate inscription, on the tombs of Robert Stephenson, of Charles Barry, George Gilbert Scott, and George Edmund Street, and also a wreath on the monument to Isaac Newton. As a sixth wreath was lacking, the visitors placed some loose flowers and their visiting cards at the foot of the statue of James Watt; while Herr Thomstzek, from Bonn, expressed in a brief but impressive speech his respect for the renowned engineer. The homage paid to the tombs of the various kings and queens was small compared with that—which was absolutely spontaneous—shown to England's great men in art and science, although, be it said, they were quite carried away by the great roll of celebrities. The visitors expressed their thanks to Miss Troutbeck, Herr Unna presenting her with a copy of *Köln und seine Bauten* specially inscribed and beautifully bound. Meanwhile the Royal Institute of British Architects had arranged for an intelligent guide to be at the principal entrance of the Law Courts in the Strand, to take them over this extensive group of buildings. Obviously, the most artistic feature is the large entrance hall, in

which is erected a fine statue of the architect, the late George Edmund Street. Punctually at five o'clock the company was received in person at the west entrance of St. Paul's by Mr. Penrose, who accompanied them and explained everything of interest in the cathedral. In the crypt Herr Stübben placed a last wreath on Christopher Wren's tomb, addressing a few words of hearty thanks to Wren's worthy successor.

On the Friday the party divided and went off in different directions. The electric underground railway and its construction, the sewer outfalls and drainage at Barking, the Tilbury Docks, Windsor Castle, and the famous abbey of St. Alban's were visited by the various parties. In one of the docks lay the *Spreë* (Lloyd of North Germany), under repair: this magnificent vessel was most courteously shown to the visitors by Captain Wilhelm Meissel. The party painfully realised that there was no harbour in Germany that possessed a dock sufficiently large to repair a vessel of the dimensions of the *Spreë*, the only dock of this kind being under construction at Bremerhaven. Later, the evening was spent by some at the Crystal Palace at Sydenham, by others at the British Museum, and at the Imperial Institute.

For the last day (Saturday) it had been arranged for the whole company to go to Canterbury. The majority, however, preferred to remain in London, as, though they had seen so much that was worth seeing, there was still so much to see. The others on their arrival at Canterbury Station were most agreeably surprised to find the Secretary of the Royal Institute of British Architects awaiting them. Mr. White, commissioned by the Institute, had started the previous day to make arrangements for their visit to the cathedral, to escort them over it, and look after their comfort. The inspection of the cathedral and its environments occupied over two hours, while two other hours were spent in walking round the picturesque old town. *Finis coronat opus*. Both the town and cathedral made a lasting impression upon the visitors. Still more charming was, perhaps, the environment of the cathedral, with its old cloisters, chapter house, and some portions in ruins shaded by huge trees overgrown with creepers and a profusion of flowers. Everywhere between the tops of trees and green leaves lay lovely views of architecture in endless variety, one view excelling another in a most astonishing way. The heartiest acknowledgment was made to Mr. White for his assistance; and mention must not be omitted of the exceptional interest our English professional colleagues have shown in the work of our German Society, especially its publications. *Berlin und seine Bauten*, *Dresden*, *Hamburg*, *Frankfurt*, *Köln*, *Leipzig*, *Strassburg und seine Bauten*, &c., have received unanimous recognition; nay, the English have notified their intention of following the example of the Germans.

A supper in the upper large room of the Criterion terminated the visit to the English metropolis, which had taught much and left much to remember. It was the Queen's birthday; and, as some member exclaimed, "God Save the Queen!" all present rose from their seats to join in the singing (the melody, as is well known, being the same as that of the Prussian Hymn), when it was felt that they were descended from the same race of people, as well as professionally related.

A delightful passage on a smooth sea and under a cloudless sky brought the party on Sunday, the 26th May, back to the Continent and, in due course, the Rhine.

"Drain" or "Sewer"?

The question when a drain ceases to be a "drain" repairable by the house owner or occupier, and becomes a "sewer" vested in the local sanitary authority, has been much before the Courts of late; and if certain magisterial rulings may be reckoned as good law, the effect will be to increase enormously the responsibilities of sanitary authorities, and cast a considerable burden upon the rates. A case in point is that of *the Vestry of St. Leonard's Shoreditch v. Hyde*, decided by Mr. Bushby on the 2nd ult. The magistrate doubtless was bound by the decision of a superior Court in the case of *Travis v. Utley*, in which it was laid down that a drain running under the basements of three adjoining houses, and carrying the refuse matter of all three houses into a public sewer, is a "sewer" within section 4 of the Public Health Act 1875, and vests in the local sanitary authority. This decision, however, has been more than once questioned, and it would seem to be necessary to either review or overrule it, or obtain legislation to save local authorities from the costs of unexpected miles of sewerage cast on them by judicial construction.

Additions to the Library.

Acoustics in relation to Architecture and Building, by Professor T. Roger Smith [F.], has been presented by the Publishers [Crosby Lockwood & Son]. This is a new edition of the Professor's well-known work; the text has been revised by him in a few places, and additions made touching recent appliances for the transmission and development of sound, and the remedying of acoustic defects in existing buildings. Otherwise the text remains as in previous editions. *Drainage Work and Sanitary Fittings*, by William H. Maxwell [London: The St. Bride's Press], has been prepared chiefly for the use of students, with the object of bringing together in a condensed and handy form the main points connected with the construction, examination, and testing of drainage works.

Bye-way History, or Short Studies of Out-of-the-Way Places, is the general title of what promises to be a useful and interesting series of

Papers [London: B. T. Batsford]. An excellent start is made with *Blethingly*, by J. Tavenor Perry [A.], a pamphlet containing 27 pp. of matter plentifully illustrated by the author, from whom it has been received. *The Buildings of the Holy Sepulchre*, by Geo. H. Jefferey, contains six measured plans and sketches illustrative of the architectural history of the buildings of the holy sites. The plans, made from actual measurement on the spot, have been designed more especially for the purpose of illustrating the accounts of the buildings in the various Pilgrim Books of the early ages of Christianity, and are described by extracts from the best-known pilgrim accounts, with which, Mr. Jefferey states, the drawings agree.

Mr. Thomas Gildard, Hon. Member of the Glasgow Architectural Association, has presented *An Old Glasgow Architect on Some Older Ones*, being the subject of a Paper read by him before the Architectural Section of the Philosophical Society of Glasgow on the 3rd December last, and now published in pamphlet form from the *Proceedings* of the Society. *A Table of Oligocene, Eocene, and Cretaceous Strata* is the title of a pamphlet prepared for private use by Mr. Frederick Meeson, architect, District Surveyor for East Hackney North. *Archæologia Oxoniensis*, Part V., presented by the Publisher [London: Henry Frowde], contains the following Papers: The Architecture of the Bodleian Library and the Old Schools, by J. Park Harrison; British Remains near St. Mary's Entry, by the Editor; Two Mediæval Cellars in Oxford, by H. Hurst; and Notes on recent Archæological Discoveries. *The Bi-annual Report*, ending 31st December 1894, of work done and general information, &c., relating to the Public Works Department of the Johannesburg Sanitary Committee, by Charles Aburrow, has been presented by Messrs. Clowes & Sons. *The Memorandum Judiciaire* of the Caisse de Défense Mutuelle des Architectes has been received from M. Charles Lucas [Hon. Corr. M.]. *The Twelfth General Report*, 1892 to 1894, of the Mitchell Library, Glasgow, has also been presented.

Mr. Falkener has presented to the Loan Library a copy of his well-known work *The Museum of Classical Antiquities* [London: Longmans, Green, & Co., 1860], and to the Reference Library a *Description of the So-called Tomb of St. Luke at Ephesus*, contained in a series of letters by G. Weber, with notes by W. Harry Rylands [H.A.], and a letter from the donor [London: Harrison & Sons, 1881].

Amongst recent purchases are Trendall's *Examples for Exterior and Interior Finishings*, in the Italian style of architecture [London, 1848], and the following Papers, which originally appeared in sundry magazines and reviews:—

New Courts of Justice Designs. (From *Belgravia*.)
The New York City Hall, by Edward S. Wilde. (From *The Century Magazine*.)

- Acoustic Architecture, by William W. Jacques, Ph.D. (From *The Popular Science Monthly*.)
 Our National Monuments, by Joseph Anderson. (From *The Archaeological Review*.)
 The Ethics of Architectural Competitions, by John M. Carrère. (From *The Engineering Magazine*.)
 On the Distinction between Romanesque and Gothic, by Edward Bell. (From *The Archaeological Review*.)
 Architecture in the West, by Henry Van Brunt. (From *The Atlantic Monthly*, Dec. 1889.)
 The Profession of an Architect. (From *The British Quarterly Review*.)
 The Protection of Dwelling-houses from Fire, by Eyre M. Shaw. (From *Murray's Magazine*, vol. iv. No. 19.)
 A Colonial Monastery. (From *The Century Magazine*, vol. xxiii.)

A Proposed New Class of Members.

"Craftsmen" is the suggested title of a new class of subscribing members proposed to be established under the provisions of the second section of the Charter. The matter is to be taken on the 24th inst., after the presentation of the Royal Gold Medal to Mr. James Brooks. A Special General Meeting expressly summoned for the purpose will be asked to approve and adopt recommendations of the Council embracing both the establishment of a Class of "Craftsmen R.I.B.A.," and the By-laws necessary for defining the conditions of membership of the proposed class. The notice convening the Meeting, with full particulars, is given in the *Supplement* accompanying the present issue of the *JOURNAL*.

REVIEWS. XXVII.

(77.)

A VISION OF GREECE.

Greek Studies: A Series of Essays. By Walter Pater, late Fellow of Brasenose College. Prepared for the Press by Charles L. Shadwell, Fellow of Oriel College. 80. Lond. 1895. Price 10s. 6d. [Messrs. Macmillan & Co., 29-30, Bedford Street, Covent Garden.]

The prose style of the late Walter Pater is a thing by itself—unique. Why this should be the case it is not easy to determine, for the distinguishing characteristic of the style is so simple a matter that one would consider it the essential property of all writers—namely, the absolutely conscientious choice of the right word for every idea. I suspect, however, that it will be allowed by the readers of this remarkable writer that he establishes his conspicuous identity by two singular developments of this simple principle. In the first place, by the patient waiting for, and final selection of, the one very word suitable to his need in any moment of expression, he sometimes—not very often—drops into his sentence one of those uncouth sounds which it is the aim of most masters of style to avoid, as obstructing the rhythm, and thus checking the smooth intelligibility of a phrase. In other words, while well-balanced utterance and the bringing together of beautiful sounds

are much to him, they are not as important as the choice of the exact symbol that will clothe his thought. For the other characteristic, one observes that, either purposely or by the automatic eccentricity of genius, he was wont to push into a sentence a greater variety of thoughts than is the custom with ordinary writers. This peculiarity has at times an untoward result upon the reader, who may, through sheer inability to direct his brain rapidly into fresh directions, miss the fulness of the writer's thought, or read like a sleeper. With common writers a sentence encloses an idea, a proposition, a statement; the words are half guessed from one another, while the natural and expected sequence gives time for the infusion of the thought. With Pater it was otherwise—far otherwise: you start with him hand-in-hand down one of these pleasant paths of thought, in some region of historic twilight where his eyes seem to see more clearly than in the glare of common facts; you share his half-mystic reveries and seem to see with his eyes, when suddenly a word, a *secondary* word, an adjective maybe, or an adverb, opens with a clap the door of some fresh avenue of thought and experience such as in another writer would make half a page of "copy."

There is a world of charm in this, but with it a great bewilderment for the common brains of a high-pressure age. You cannot run and read such writing; you must sit to it, and sit calmly reading and re-reading. You must have read, too, in the past, and to some purpose, if you are to share half the delicate and remote allusions which are with Pater not the food of the discourse but the mere garnishings of the dish.

Not even when Pater read what Pater wrote was it possible to keep pace with the flock of thoughts that ran parallel in his reasoning. I remember well the meeting of a society in Oxford, called officially, I believe, the Oxford Art Club, but better known by a *sobriquet*. It was in Pater's college, Brasenose, and Pater himself was the entertainer, with a paper on *Love's Labour's Lost*—a perfect flood of rich thought and reminiscence, delivered in a gentle voice which those who have heard it must always recall as they read his pregnant sentences. To the majority of his hearers, listening to that paper must have been like drinking at a waterfall—a small gulp now and again, with the tantalising consciousness of the greater volume running to waste.

His mind was like some jewelled golden casket, inlaid not with gems merely, but with ancient gems, curiously wrought cameo and intaglio. In *Greek Studies*, a posthumous volume published by Messrs. Macmillan, and prepared for the press by Mr. C. L. Shadwell, it is proved that, had he wished it, Pater could have filled the rare office of a perfect architectural writer and critic. For various reasons, chiefly, no doubt, because "the world is so full of a number of things," it is not

to architecture that he gives the first place in any of his writings. That he could have done so, as few unprofessional writers can, is shown here and there in the book before me, as indeed in other writings, by flashes of description or analysis which, like a surgeon's knife, lay open the very secrets of architectural anatomy. Here is a definition of the so-called Cyclopean architecture: "buildings constructed of large, many-sided blocks of stone, fitted carefully together without the aid of cement, and remaining in their places by reciprocal resistance"—a definition which it would be hard to make either simpler or more perfect. Again, there is something very penetrating about the following: "Metal-like structures of self-supporting polygons, locked so firmly and impenetrably together, with the whole mystery and reasonableness of the arch implicitly within them." "Mystery and reasonableness of the arch!"—the phrase is as perfect as an arch.

The book is not all concerned with art: some of the papers are on mythological and, one might say, spiritual subjects; but four of the essays are definitely centred on Greek art—namely, two on "The Beginnings of Greek Sculpture," and two others entitled "The Age of Athletic Prizemen" and "The Marbles of Ægina." As to the last, I can wish no one better than that he may avoid my own misfortune—to have visited the Glyptothek at Munich before reading it.

Pater may be all wrong—perhaps it is never of vital consequence whether a critic is right or wrong, for his function is not to inform—Pater, I repeat, may be wrong or incomplete in his estimate of ancient Greek motive; but, right or wrong, he gives a breath to the dry bones of any age he touches which, if not identical with the spirit of that age, is a thousand times more human and more real than the lethargic enthusiasm which most of us can evoke from the union of a Baedeker with a sculpture gallery. He admits himself that our effort of proper appreciation is "not always a successful one within the grey walls of the Louvre or the British Museum." He is concerned in this, as in all his works, to transport a reader, soul and body, into another world. It is a fair criticism that Pater himself has a rapidly expansive imagination, and that, to change the image, a very small anchor will hold him in a very deep sea. Read his *Imaginary Portraits*, a book whose title admits its fantastic nature, and you at once realise upon what slender facts or suppositions he can weave a romance and its environment. A bit of tapestry, a picture, a chance sentence, is a spur to his prose Pegasus, and he is at the gallop before you see him start. In fact one realises, without much regret, that as an imaginative describer he is as happy and as useful as in the sphere of facts. His imagination was glorious. In this very book the descriptions

of things which only exist in the pages of Pausanias or the poets are really more vivid, more vividly real, than his accounts of what anyone can see at Naples or Bloomsbury.

But he is no mere dreamer: fancy in him has not quenched thought, and he is concerned in these essays to show us that we may go widely astray in thinking of the Greek artist in too abstract, too metaphysical, even in too intellectual a light.

No one to-day pays much attention to the Lessing point of view—at least, in this country—but there is plenty of talk about Greek art, in which the talker loses balance, and cultivates the impression that the Greek sculptor was a soul and a chisel. Not so Pater. He is at pains to trace Greek sculpture from its proper origins, and to place it in its proper environments. In so doing he works out two distinct ideas among others: one, the growth of figure sculpture from the rudest symbolism—in fact, from the idol; the other, a more fascinating subject—the place of sculpture among other crafts. The prevalence of smiths' work in very early times, and the connection of art generally with metallurgy, is here brought out with a singular wealth of illustration and corroboration.

But you can't describe Pater's writing—it must be read. And he sits outside criticism, so that his reviewer can do no more than commend him in this last volume to those who know and like him as an old friend, to those who have known without liking him as an enigma they will never understand. He was one of our rarest thinkers and most cultured minds. A year ago he was one of the four greatest living prose writers, of whom only two remain alive. He must have been a good man; and finally—no small praise—he gave an added charm to whatever he handled. *Nihil tetigit quod non ornavit.*

PAUL WATERHOUSE.

(78.)

"SANCTA SOPHIA."

The Church of Sancta Sophia, Constantinople: a Study of Byzantine Building. By W. R. Lethaby and Harold Swainson. Super royal, Lond. 1894. Price 21s. net. Messrs. Macmillan & Co., Bedford Street, Covent Garden.

Humble apology is due to the Institute for this attempt on my part to formally present Messrs. Lethaby and Swainson's work to its notice. Never was a new book more persistently offered to competent reviewers for treatment, never was its review avoided with more persistence than this. Members who had known Constantinople well, and who had no occasion to fear a charge of envy, hatred, and malice either from a professional or a literary point of view, declined the task. One distinguished *raconteur* of the loftier sort wanted fifty guineas for "copy," which I, well knowing that contributions to this JOURNAL could not be

paid for in coin, was reluctantly compelled to refuse; another member had reviewed it elsewhere; a third would have at once removed me to a remoter sphere, for venturing to ask him to do it, and said so in terms of popular iteration. Happily Mr. Brindley has contributed a technical notice of some of the chief glories of St. Sophia, and no one is better able to treat the subject than he. But if the general contents of this book are to be noticed here, there is only myself to do it, and that in the capacity of a free and independent member of the Institute. The fact is the more depressing because I have spent only a week in Constantinople twenty years ago—in Pera too, and not in Stamboul—obviously a shorter period than the authors of *Sancta Sophia* devoted to a practical study on the spot of the renowned edifice. Moreover, I then came fresh from Ahmedabad and Delhi, where domed mosques and tombs abound; from the white marble of Jeypore and the red sandstone of the North-West Provinces, made doubly brilliant by a sun such as never illumined the ugly exterior and ungraceful minarets of St. Sophia, nor even the “denuded Parthenon,” of which the authors write with a kind of concealed groan, nor the Temple of Ephesus, of which they judiciously say very little.

The book in its first four chapters is mainly quotation, Englished by the late Mr. Swainson, topographical, historical, archæological, and descriptive. The fifth chapter is on the ritual arrangements and the several divisions of the interior of the church; the second part of chapter vi. on its lighting; and the seventh chapter continues its history. Chapter viii. refers to Fossati's Reparations, which began in 1847, and is admittedly an abridgment of Salzenberg's text, with a description of the plates in his well-known work. Chapter ix. treats of the ancient precincts and external parts of the church. Chapter x. is on building forms and Byzantine, or rather Eastern, builders, and here and there it is enlivened by such art-exuberance (p. 199) as the following sentence discloses: “In the modern sense the Romans may be said to have invented building, and the Byzantine-Greeks architecture.”* This, however, is almost immediately contradicted (p. 205) by a quotation from M. Choisy, who is made to state that “in Justinian's time to build was the essential rôle of the architect”; and as a matter of fact M. Choisy is the authority on which this tenth chapter is put together. The authors' admiration for the personality of the Byzantine workman,

which, they say, is often delightfully expressed, may be seen in the statement (p. 207) that “a Byzantine brick in the British Museum is stamped ‘XP. made by the most excellent ‘Narsis,’ and a late Roman glass cup bears the legend ‘Ennion made this, think of it, O ‘buyer’”; and reading it one's soul rises to the prophetic! Imagine some inspired Australian writer, a thousand years hence, who discovers in the Adelaide Museum a petrified cake of English soap stamped “Pears. He will not be happy till ‘he gets it!’ and a late English sanitary vase bearing the legend “George Jennings.” None can deny that those enterprising makers have done their best to spread the trade-gospel of “Think of it, O buyer.” But comparisons are odious. The eleventh and twelfth chapters, like the greater portion of the book, are of undoubted value to those Englishmen who can read neither French nor German.

The “Preface,” from beginning to end, is a study in sublime self-consciousness set up in italic. Karnak, the Parthenon, St. Sophia, and the Cathedral of Chartres, Amiens, or Bourges (the reader takes his choice) are therein called “the four great pinnacles of architecture.” The world is also congratulated on the happy fact that St. Sophia was situated in Constantinople and not in the more learned cities of Rome, Aachen, or Oxford, during the period of revived interest in ecclesiastical antiquities; and the first paragraph finishes with a reference, out of which something is to come hereafter, to the “Byzantine theory of building.” How the book was made forms the burden of the second. The late Mr. Swainson did “the larger part of the reading and the whole of “the translation required;” Mr. Lethaby “more of the constructive side [whatever that may mean] of the book, and the whole of the illustrations.” And, as if to disarm criticism of even its feeblest weapon, the public are assured that “Mr. Ambrose Poynter has read the proofs.” The fourth and final paragraph is perhaps the most instructive. Translated back into its original French, it would read very well, but the words in their English garb are exasperatingly fluent, and foreshadow, as it were, the contents of the work that follows. For the unfortunate quotation with which the Preface terminates, “L'art c'est d'être absolument soi-même,” is a terrible indictment against the authors of a book the readable contents of which are solid quotations from Procopius, Paul the Silentary, Salzenberg, M. Choisy, and a host of other writers, great and small, rather than the work of Mr. Lethaby or his talented colleague, the late Harold Swainson; while the illustrations are mostly tracings from other men's drawings. Indeed, they state that they have thought it well to incorporate the actual words of the writers to whom they have referred—meaning, of course, the English equivalents.

* It may be consolatory to the surviving author of *Sancta Sophia* to state that an authority in “Art” greater than he has written that “Building is the erection, Architecture the adornment, of an edifice.” No wonder, after such teaching, the public believe that architecture is a mere matter of draughtsmanship, and that Universities have a course of “Architecture” distinct from another course of “Building Construction”!

Historical Monuments, seen for the first time, arouse, it is well known, certain emotions; and these are necessarily influenced by the facts and traditions connected with such monuments. Crossing the river, by the railway-bridge, into Agra or Delhi the mind becomes inflamed with the wonderful stories of Moghul emperors; and as one looks at the pretentious palaces of Lucknow feelings of sadness, often of horror and disgust, are dominant. The first view of the Acropolis of Athens from the Piræus is inspiring, but when on the Acropolis itself any sentiment evolved from the sight of the remains—the Propylæa always excepted—is tinged with recollections of “Stuart and Revett,” and of the hundred and one elevations of the Parthenon made by French students, all of which have led one to expect more from the reality, especially in effect of colour, than is apparently forthcoming. I confess that when I paid a first visit to St. Sophia the feeling uppermost within me was one of dismay at the vulgarity with which the Turk had desecrated it; but even his presence could not efface the respect every constructor must feel for those who poised the dome on a ring of window-lights. I confess that, in St. Peter’s at Rome, more emotion was aroused by the worn toe of the ancient Roman statue that passes for St. Peter than by the whole of Bernini’s colonnade, or the dome which is honestly put together and scientifically balanced, and, unlike many other domes, gives light to the interior. But no Englishman’s heart ever beat quicker because of a temple dedicated to all the Pagan gods. Yet the feelings of awe and humility that arise during one’s first few steps into the Pantheon who can ever forget? “See Naples and die” is still a hackneyed cry. See the Pantheon and realise the pettiness of modern construction! For what architect, what engineer, who has any knowledge of the great monuments of ancient times and of to-day can look up into that marvellous vault without a sense of baffled inquiry and beaten aspiration! Yet this same Pantheon, if one may so interpret the authors of *Sancta Sophia*, is not one of “the four great pinnacles of architecture.” Though they hope to find “the root of architecture once again in sound common-sense building,” it is not in such works as the Roman Pantheon that they would seek it, but rather at Karnak, at Athens, at Stamboul, and at Chartres.

And now for the “Byzantine theory of building.” a good text out of which sermons in stones may be evolved such as the latest and best-intentioned eulogists of St. Sophia—its noblest practical outcome—have apparently not realised. Now for “sound common-sense building” and the “root of architecture” to be found therein. Given an ancient civilisation of vast extent, dead here, decaying there, devoid of physical force everywhere, and recognisable only by the multitude of its monuments, some intact, others injured or

partially destroyed, all unguarded and most of them disused—a calamity which happens in due course to every great nation or Imperial group of peoples. Then, and in no poetical sense, but sadly prosaic in its realities, “all save the spirit of “man is divine.” But slowly, and with many a contortion, many a yawn, this same man throws off the sleep of ages and awakens to a sense of the treasure he possesses, of the wants he begins to understand, of the means to the ends he would attain. In his midst are ruins of vast edifices, some still standing among heaps of stones hewn and carved, of sculptured capitals and friezes, of monoliths of porphyry and marble, while his own shelter affords him little protection either in cold or sunny weather. What happened? As time went on he gathered up the smaller fragments and arranged them perhaps upon the foundations, still intact, of an ancient dwelling; and as he gradually acquired a knowledge of the uses to which he might apply this and that fragment, he insensibly produced something that learned men of two hundred and more years ago dubbed respectively Byzantine and Romanesque. One may be sure, though, that the Byzantine-Greeks, as the authors of *Sancta Sophia* are pleased to call them, did not start afresh, did not root up the existing foundations of an ancient edifice, or even pull down walls of which they were too glad to make use, but diligently built upon them, and arranged the plan of a palace or a church as they went on and as circumstances demanded, adding a cross-wall here and there to divide it into halls and chambers, or building out a tomb which was to be the rendezvous of pilgrims, and ultimately develop into a shrine or chapel. An old monolith broken in two became a single column by the addition of a block or an annulet; and, if not long enough then, two old capitals were put upon it, so that it might match in height another which was next it. Hence it may be said that the Byzantine theory of building was based upon a copious supply of old materials which were put together by rule of thumb and untutored common sense. And such was the practice, not in Byzantium alone, but in Syria and the Orient generally, as existing remains suffice to prove. It was a Renaissance of solid materials, which has been repeated from time to time in India, the last effort of the kind having occurred when the Moghuls conquered Hindustan and built their mosques and palaces with stones torn from Hindu edifices, and by the enforced labour of Hindu workmen. The same thing occurred all over the Roman Empire of the West; and it was repeated during the ninth, tenth, and eleventh centuries all over Western Europe. Strange as the paradox may seem, it is by destruction and modification akin to destruction that architecture has always developed and progressed. By resuscitation and evolution—and only by such means—it has survived as a living art. The Renaissance

of the fifteenth century in Italy and that of the sixteenth century in other parts of Western Europe began on the old lines of destruction and modification, with the result that the buildings extant of those early Reformation times are still delightful to study, partly because of the *naïveté* or naturalness, or, in other words, the common sense they display—at least to the student who knows where to look for it. Architectonic evolution has followed in principle the evolution of its maker, Man. To quote Darwin: “From the war of nature, from famine and death, the most exalted object which we are capable of conceiving, namely, the production of the higher animals, directly follows; . . . from so simple a beginning endless forms, most beautiful and most wonderful, have been, and are being, evolved.” In like manner the great church of St. Sophia rose to be the beautiful edifice it is, and no one can tell how many monuments of Grecian genius and of Roman power and wealth were ransacked or destroyed to make it grand and glorious.

No such happy or unhappy possibilities can occur in these days, when to pull down, to restore, even to repair the most trumpery work of five hundred or even fifty years ago is regarded as an atrocity of almost Armenian tinge. What Londoner past fifty can forget that glow of enthusiasm with which the City Fathers received an assurance at a civic entertainment from a Minister of State—I think it was Earl Russell when he was Lord John—that Macaulay’s New Zealander was a mythical absurdity. There never could be, he said, “a broken arch of London Bridge” from which the ruins of St. Paul’s might be sketched, because at the least sign of decay the authorities would repair it! I have, however, grave doubts on the subject, for as the culture of the Picturesque develops, who shall say if the City Corporation will be permitted to repair Sir John Rennie’s excellent work? Why not allow London to be adorned with a broken bridge for Australasian and American, aye, and British artists to sit upon? True, a bridge is still wanted in that position for traffic, in spite of the new Tower Bridge; but then it is easy to build another alongside, and that without desecrating an old monument by restoration! Absurd as it is, the principle I am attempting to apply, for the sake of argument, is the principle which guides a part at least of the modern world in its treatment of a ruin, and its collateral craving for prettiness. Had such a principle been recognised by the scientific master-workmen of Pericles, three out of the “four great pinnacles of architecture,” classified in *Sancta Sophia*, would never have attained perfection; and it is pleasant to remind Mr. Lethaby, and the ardent devotees who think with him, of an undoubted fact. Had no destruction and no modification akin to destruction been permitted in the past, there would have been no Parthenon, no St.

Sophia, and no cathedrals at Chartres, Amiens, or Bourges, such as now exist for the delight and instruction of living men.

WILLIAM H. WHITE.

The authors of *Sancta Sophia* have conferred a great boon upon archæologists in bringing together the various works on the subject from the earliest times down to the present day. These, originally written in different languages, are all translated into English, analysed, and compared for us with the existing building, together with the authors’ notes and remarks: for this they are fully entitled to the thanks of all lovers of Byzantine art. As the authors do not profess to have exhausted the subject, let us hope that Mr. Lethaby, if only as a tribute to the memory of his late dear friend and universally loved colleague, Harold Swainson, may be able to further extend our scanty knowledge of the other early Christian churches, now mosques, in Constantinople. Failing this, perhaps their work may influence others to continue the subject. The motive of the writers is to work up, through the early history of this church, first, the reader’s enthusiasm for the edifice, then picture to him by description its wonderful past and existing beauties, and afterwards prove that all this was obtained at a minimum of cost.

Those unacquainted with Mohammedan countries have little idea of the difficulties a Christian writer experiences when he attempts to take measurements and make drawings of an important Turkish mosque like St. Sophia. As far as my own experience goes, I did succeed, with the aid of liberal “baksheesh,” in making a few sketches, but utterly failed to get the carpets raised to enable me to see the marble pavements beneath.

The great lesson to be learned from the interior of this church is the sumptuous and harmonious effect of colour, for there is no single portion which comes forward to destroy the size of the building. The coloured marbles are rich and retiring; the white, carved lace-like, have a mosaic effect, without any broad, unequal masses of light and shade; the domes and the soffits of arches in small tesserae produce a heavenly vaulting. All this durable effect is obtained at a comparatively trifling cost by the studied economy of both labour and material, while the plan is such that the whole of the vast interior is seen at a glance; and when the carvings were gilt the effect must have been even grander than now.

Building Procedure.—The authors remark, “The first thing necessary was to collect marble monolithic shafts.” On the subject of columns I venture to offer the following remarks, which were written previous to reading the authors’ opinions. It may be found that Roman architects when designing were considerably influenced by the kind of monolith columns likely to be at once

obtainable, as the different quarries were situated in very remote parts of the empire. If an architect had to depend on columns being quarried after he had designed them, the chances were, considering the uncertainty of solid rock and the immense difficulty of land and sea communication, that he might have to wait years for them; and, being so essential to construction, no architect could run such risk. As the quarries were mostly worked by convict labour, and it would be necessary to keep the convicts going, it is reasonable to suppose that the quarry overseer would be safe in working monolith columns in groups of sizes as the quarry could produce them.

The writers believe that the bronze moulded annulets, nearly a foot deep, at the top and bottom of the marble shafts are part of the original design. This seems very doubtful; it is more probable that the shafts were worked at the quarries too small for the capitals, and that the bronze had to be introduced to assist the shafts to carry the weight. The sections of these, given in fig. 58 (p. 258), do not appear to be correct when compared with good photographs. The mention of shafts splitting under pressure holds good for laminated shafts, like cipollino, placed endways of the bed, but scarcely applies to those of the arcading; for, being wrought out of porphyry and breccia, the materials are as homogeneous and strong, one way of the bed, as the other. The twin shafts in the West Gynæceum have no metal bands, as these are the proper size for the capitals.

Marble Masonry.—One reads (p. 253): “The great capitals of S. Sophia are remarkable examples of the evolution of beautiful forms on the mason’s banker; the workman *finding form* in the stone block by the application of practical methods.” Now the bulk of the carved patterns, one may say, do certainly imply “Art and Craft,” for, although extremely beautiful, they are the essence of simple mannerism, being such that one master-artist might have drawn full size for the whole of the interior; and which might afterwards be transferred by cut stencil patterns on to the cushioned form, for the mason carver—the angular shadows then being cut deep, and the surfaces of leaves being fluted afterwards.

As regards skilled workmanship in the cutting and carving of marble, there cannot be any question that the Roman work of the first two centuries is infinitely better than that of the Byzantine. The Roman carver, like the Greek, boldly and deliberately, with his hammer and chisel, sculptured away his waste material, producing afterwards with his drill the deep ploughed furrows in the folds of drapery, and stems of his acanthus leaves and “echinus.” There can be little doubt that the art of sculpture and carving had declined to a very low level at the date of Justinian, and that it must have been difficult for Anthemius to find marble carvers—in fact, he would have to make them out

of masons. This may in great measure account for the new style in carving, as unskilled men could not be turned broadcast on to these masses of white marble to produce what design they liked. The prevailing principle of the Byzantine was to get his lace-like mosaic effects on the cushioned surface by drill and chisel, so as to avoid as far as possible manual labour. Want of skill is still more apparent in hard material like porphyry, for, while the Roman cut this material, even in figure sculpture, like marble, the Byzantine produced very primitive work; and though the authors admire the play of light and shade on the shafts and irregular sawn slabs, yet, as regards workmanship, these shafts and slabs are worse than the Egyptian produced, some thousands of years earlier, in harder materials.

It would have been useful if we could have been told more about the pavement; all that is at present known of it seems to be learned from Salzenberg and others, as the authors appear to have seen it only “through the chinks of the matting,” and pronounce it to be Proconnesian marble, whereas the weight of description given by the old authorities would imply greyish-green Carystian. The patterns of Opus Alexandrinum work, as shown in Salzenberg, being precisely the same as are found in the Basilican churches of Rome, it would be interesting to know if this mosaic is really of the time of Justinian, or subsequent. The pattern of border round the square in the Western Gynæceum does appear to be as early as the building itself.

Marble Quarries.—The authors’ remarks about the old quarries show considerable research, giving much useful information. The porphyry mountain, however, is erroneously stated to be situated 25 miles N.E. of Thebes; this should read 125 miles. Letronne, quoted as to transit of blocks, is only theoretical.*

Thessalian Green (Verde Antico).—As probably quite seventy-five per cent. of the coloured marble used in St. Sophia and the other churches and mosques in Constantinople is of this marble, it may be useful to supplement the authors’ information. This rock, although known to the Romans at a very early period, would not seem to have been worked to any extent before the time of Constantine or Justinian; there are eight old quarries showing the methods of working. The monoliths for St. Sophia appear to have been cut out of the vertical face of the rock, as a concave upright matrix shows. In one quarry there is still a sarcophagus block, ten feet long and five wide, worked all round, ready to be wedged up from the bottom bed. In another quarry there are actual sawn faces and “saw-curfs,” showing

* THE R.I.B.A. JOURNAL, Vol. IV. N.S. p. 47; “The Ancient Quarries of Egypt,” TRANSACTIONS, Vol. IV. N.S. p. 5.

that some of the later masses were sawn out. This marble might be called a Byzantine one, as nearly all that is found worked, even in Italy, is of late date; and the bulk of the shafts have the projecting top and bottom mouldings added with joints.

Lapis Lacedæmonius.—This green porphyry is the same as that used in the pavements throughout Italy. It is only obtainable in small irregular lumps, and is quite different from any rock found in Egypt.

Proconnesium.—Much of the marble the authors so name may be found to be "Euboicum."

Carystium (Cipollino).—Probably this was the first coloured marble introduced into Rome. It was worked more extensively than any other; there were a great number of quarries, extending over a large tract of country, from Stoura to Carystus. These quarries produced the largest marble monoliths known.

Marmor Phrygium (Pavonazzetto).—Some of the marble so named may have come from the island of Skyros, especially when it has a "waxy" statuary ground. The Synnadic quarries were probably first used in Rome for the Pantheon. "Leonti," quoted, should be Leoni. He visited the quarries, making complete plans, and sent to London specimen blocks of every variety, which are identical with those in St. Sophia and Rome.

Marmor Numidicum (Giallo Antico).—This marble was most likely introduced into Rome about the same time as the Synnadic. The sizes obtainable were never very large, owing to the rocks having apparently been shaken by earthquakes.*

It is worthy of note that the bulk of the marble used in St. Sophia and in Constantinople generally is local as regards the Mediterranean, and that no specimen has been found there of the beautiful Breccia Africano, so plentiful in Rome; probably these quarries were not worked after the fourth century. The authors are of opinion that the marble surfaces were "polished with wax en-caustic," and quote Vitruvius's oil and wax mixture. This could well be used for coloured marbles, but would disagreeably stain white ones. Instead of "oil" it would answer better to say "oil of turpentine." The illustration and description of the preliminary blocking out of capitals will be found very instructive, as well as the chapter on bronze and mosaic. Similar tesserae to those used in the vaultings are found in the temple of Pæstum and the early Moorish work of Cordova.

The chapter on "Relics, Treasure, and Lighting of Church," charmingly illustrated, is delightful reading. The amount of general information given in the book is enormous, as it is condensed to the fullest extent. There are seventy-five illustrations; but if a second edition be published,

the value would be much increased if this number were considerably augmented. The index also might be made much fuller.

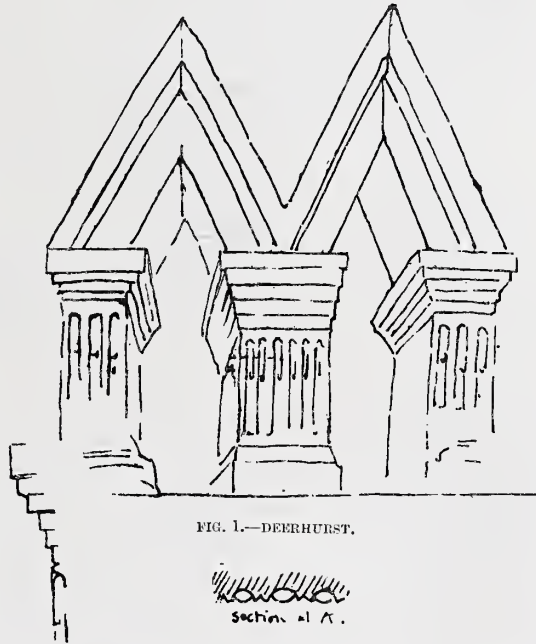
W. BRINDLEY.

NOTES, QUERIES, AND REPLIES.

Pre-Conquest Architecture [p. 485].

From R. PHENÉ SPIERS [F.], F.S.A.—

I find, on a more careful examination of my drawings and a photograph of the town of Earl's Barton church, that the pilaster strips, arches, and other decorative features of the walls there project more than the quoins; so that Professor Baldwin Brown's assumption that the wall surfaces were originally plastered, as actually found at Sompting, is fully borne out, and, it may be said, proved by the comparatively slight projection of the quoin stones. This plastering would also dispose of what seemed to be an anomaly in the projection of the bond stones of the long-and-



short work, whereby a narrow ledge was left without weathering. A few years ago I visited Sompting, and came to the conclusion that the gable terminations of the tower were of much later date than the tower itself, the long-and-short work in which terminates below them. The gable terminations in the spire seemed to be built in imitation of the Rhenish spires, and probably are of twelfth-century date. It would be interesting to know whether the framing of the spire was copied as well as the exterior design.

In suggesting the Byzantine influence, as evidenced by the polygonal apses at Brixworth and

* For descriptions of these quarries see "Marble: Its Uses as suggested by the Past," TRANSACTIONS, Vol. III. N.S. p. 45.

Wing, I was referring to pre-Conquest examples. The apse of Heisterbach, mentioned by Mr. Slater, dates from the close of the twelfth century (1190). Long before that period Byzantine art had ceased to influence the plans of German, French, and English churches; it is only in the carving of capitals, stringcourses and decorative panels that we find a lingering fondness for the Byzantine interlaced ornament. Mayence, Treves, and Bamberg (east apse) have all polygonal apses—a form adopted quite irrespective of any Byzantine influence.

The straight-sided arch [fig. 1], composed of flat slabs leaning against each other at an angle, is a favourite Byzantine decorative feature, especially when found alternating with round arches. It forms the constant decoration of Byzantine sarcophagi, and in early buildings is found in St. John at Poitiers, in St. Genereux (Deux-Sèvres), France,



FIG. 2.—PALACE OF THEODOSIUS II., CONSTANTINOPLE.

and in the Abbey gateway at Lorsch, Germany. Its earliest source was probably the alternating circular and angular pediments of the windows or niches of Roman buildings, and the earliest Byzantine example in a building was on the walls of the palace of Theodosius II. [fig. 2] (408-450), overlooking the Bosphorus, destroyed to make way for the new railway. Similar niche-heads with figures in them, which are found executed in plaster in the interior of the Baptistery at Ravenna, were probably copied from Byzantine ivory tablets: there is an example in the Museum of Bologna of precisely the same design. In the spandrels above the triangular pediment are birds, also found in all Byzantine designs. The west door at Barnack, Northants, has two birds in the spandrels above the arch, suggesting a similar influence.

The East End of Durham Cathedral.

From JOHN BILSON [F.], F.S.A.—

In the discussion which followed Professor Baldwin Brown's valuable Paper [p. 485], Mr. William

White, F.S.A. [p. 503], referred to the remains which have been uncovered by the recent excavations in Durham Cathedral, and expressed the opinion that they belonged to the pre-Conquest church built by Bishop Aldhune, and not to the Norman church of Bishop William of St. Carileph (1093-5). I do not know whether Mr. White has seen what has been found, but I cannot but think that a personal investigation on the spot would have led him to an exactly opposite conclusion. It is only right to say that Canon Greenwell's remark about the taking down of Aldhune's church by Norman builders was not advanced as an argument that the foundations are those of Carileph's church—a conclusion at which he arrived on quite other grounds.

The question is, I think, sufficiently important in its bearing on the history of the architecture of the Norman period to make it desirable that it should be definitely settled. The design of Carileph's work at Durham is, in many respects, so decidedly in advance of any contemporary work which remains to us, either in England or Normandy, that the recovery of the plan of the eastern part of his church becomes a matter of considerable interest, and adds an important item to our knowledge of the planning of the great churches of the half-century following the Conquest.

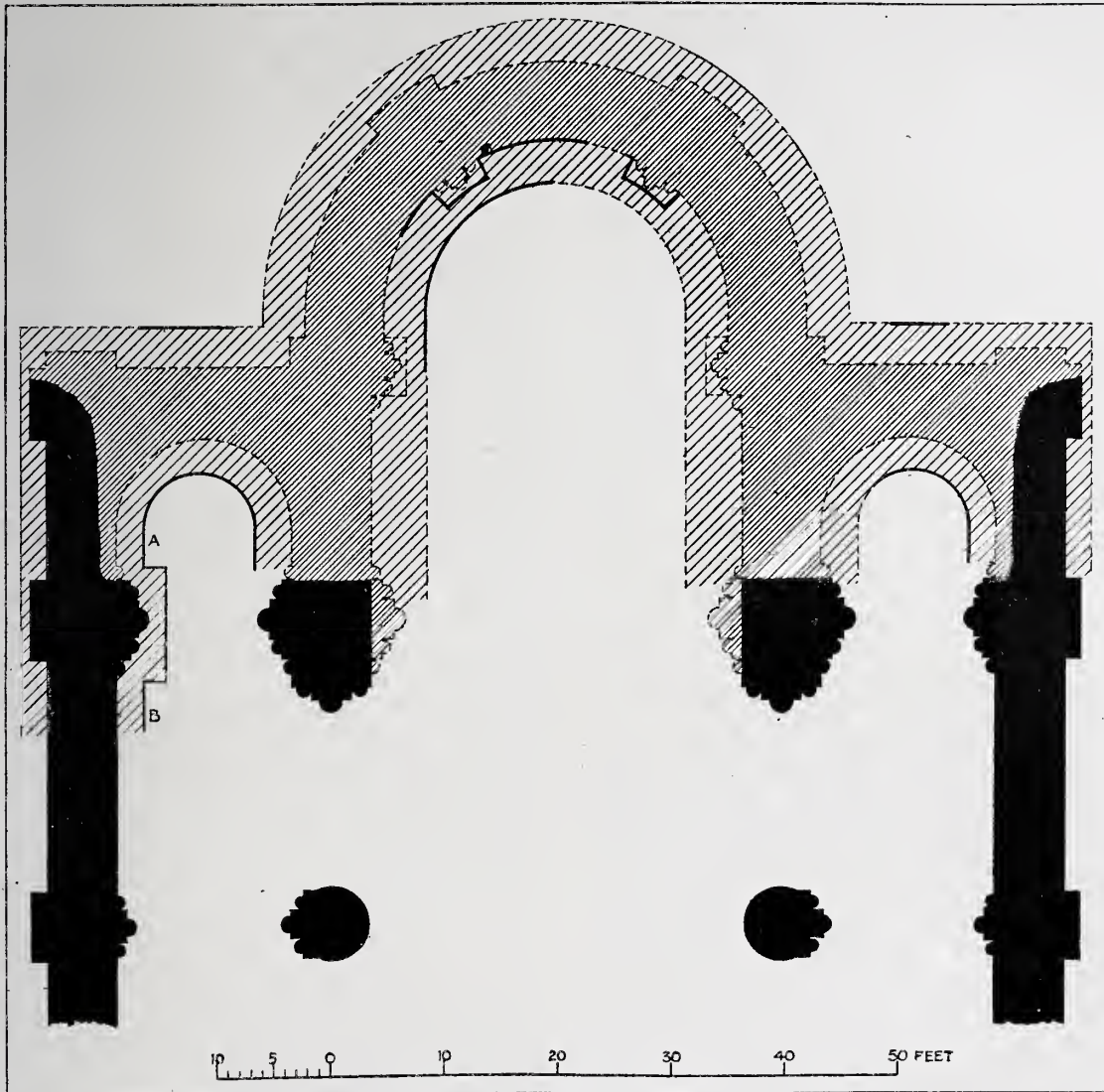
Mr. White says that he should like to base the history of what has been found upon architectural evidence. I propose to rely entirely upon architectural evidence. The accompanying plan [p. 542] shows the recent discoveries in relation to the existing Norman choir, omitting the eastern transept (or Nine Altars), and the eastern bay of the choir which was reconstructed in the thirteenth century when the eastern transept was built. The existing Norman work is shown in solid black, all to the east of this (except what has just been found) having been removed at the building of the Nine Altars. The lighter shading shows the plan of the foundations below the floor level, and the darker shows the walls above the floor. The parts which actually remain are shown by strong lines, as distinguished from those parts which are merely conjectural, shown by dotted lines. The wall-arcades are omitted, in order to avoid confusing the plan with unnecessary details.

Of the great apse which formed the eastern termination of the choir, the inner face was found to be standing, for a length of about 18 feet, to a height of two courses above the floor-level, the upper course being a chamfered plinth which formed the sill of the wall-arcade. In this length occurred the plinth of one of the shafts (or cluster of shafts) which divided the semicircle of the apse into three parts. The lower stone of the corresponding plinth on the opposite side was also in position. The remainder of the inner face of the apse and the whole of the external face had

been removed to make way for the Nine Altars work, but both the outer and inner faces of the masonry foundation below the floor level were exposed for a considerable distance. The base of one of the shafts of the internal wall-arcade of the apse was found in position, and proves that this arcade was of the same character as the

remain, and in both cases are apsidal on the inside and square on the outside. These apse foundations are not quite central with the aisles, a broader set-off being given to the (higher) choir wall than to the (lower) wall of the aisle in each case.

It has been suggested that these aisle apses are



PLAN SHOWING THE RECENT DISCOVERIES AT THE EAST END OF DURHAM CATHEDRAL.

wall-arcades in the choir aisles. There can, of course, be no doubt (and none has been suggested) that this apse was Carileph's work. It is central with the existing choir, and its floor level, plinth level, and base of wall-arcade all correspond with the existing choir aisles.

Of the termination of the choir aisles everything had been removed to some distance below the floor level. But the masonry foundations

part of the foundations of Aldhune's church, and that they belong to apsidal chapels on the east side of the transepts of that church. But this theory involves the supposition that Carileph's designer purposely laid down the plan of his entirely new building in such a manner that his choir aisles were practically central with the transeptal apses of the pre-Conquest church. He is thus assumed to have allowed the elementary

width of his new building and the position of his east end to be entirely governed by the width between the centres of the transeptal apses of the earlier church. And the only motive he can have had for tying his hands in this extraordinary manner was the retention of two quite inconsiderable fragments of foundation work, for only the apsidal inner face (and not the square outer face) was supposed to be Aldhune's work.

But since this theory was advanced, excavation in the north choir aisle has shown that the inner face of the foundation of the aisle wall [at B on the plan] is exactly in line with the inner face of the apse foundation on its northern side [at A]. I think this conclusively proves that both aisle and apse are part of the same work. So far as I understand, the reason why the side apse foundations were supposed to belong to Aldhune's church was that it was found difficult to account for their great thickness compared with the thickness of the Norman walls above ground. The difficulty disappears when we realise that it is a question of foundation work. The outer face of the foundation of the north aisle wall may be seen in the eastern bay, next the Nine Altars, and the inner face has been recently exposed by excavation. This foundation wall is 10 feet 10 inches in thickness, being made sufficiently thick to receive the projection of the buttresses and their plinths on the outside, and of the vaulting shafts and their bases on the inside. The thickness of the foundation of the apse at the end of the north aisle is 12 feet 11 inches, and that of the southern apse is much the same. The thickness of the foundation of the great choir apse wall has been ascertained to be about 14 feet 6 inches.

Whatever Norman foundations may be elsewhere, these excavations have proved that the foundations of Carileph's church were executed with the same care which characterises the whole of this admirable work. I have just referred to the width of the foundation. Their depth has only been ascertained in the case of the apse to the north aisle. Here the bottom of the masonry is 14 feet 3 inches below the level of the aisle floor, and the wall is built on the solid rock. It is clear, therefore, that the failure of Carileph's east end was not due to insufficient foundations. And, since we are dealing with a *vaulted* Romanesque church, it seems much more likely that the great apse failed because the vault was insufficiently abutted. There seems to be some evidence that the apse was vaulted by 1104, and, if the method of vaulting was as much in advance of the time as the aisle vaults undoubtedly were, we need scarcely be surprised at the failure of a groined apse vault constructed at this early date.

The exact detail of this eastern termination, and the precise manner in which the great apse was connected with the choir, must, of course, remain a matter of conjecture. Enough, how-

ever, has been found to show the general arrangement of the plan, which was much the same as that adopted at an earlier date at St. Alban's, and later at Peterborough, and probably Selby. Ruprich-Robert, in *L'Architecture Normande*, shows four plans of this type, Saint-Nicolas (Caen), Abbaye de Lessay (Manche), Saint-Georges-de-Boscherville (Seine-Inférieure), and Saint-Gabriel (Calvados). Ramée's plan of Saint-Etienne (Caen) and Willis's conjectural plan of Lanfranc's choir at Canterbury show a similar type of plan; but the choir aisles finish square both internally and externally, as in Ruprich-Robert's plans of Mont-Saint-Michel (Manche) and Cerisy-la-Forêt (Manche).

Joseph Bonomi, A.R.A., Architect, and his Son.

FROM WM. SIMPSON [*H.A.*], R.I.—

On the death of Joseph Bonomi, the well-known Egyptologist, once the Curator of the Soane Museum, the Council of the Society of Biblical Archaeology requested me, as we had been for many years intimate, to write a memoir of him.* The family supplied me with a number of details, and the following relates to his father, who was an Italian. He had been for some time the architect to St. Peter's at Rome, but had been induced by James and Robert Adam, the well-known architects of the period, to leave Rome and come to London, which he did in 1767, when he was about twenty-five years of age. He remained for a considerable time in the employment of the brothers Adam, and married Rosa Florini, a cousin of Angelica Kaufmann. It was after this that he returned to Rome, where it was understood it was his intention to resume his profession; but the death of a child so distressed the mother that he came back again to England, and was very successful in his practice as an architect. The Sardinian Chapel and old Montagu House, in London, were erected from his designs; also Eastwell House, in Kent, where the Duke of Edinburgh at one time resided; Roseneath, on the Clyde, a mansion belonging to the Duke of Argyll, and many well-known country seats were done by him. He was a very intimate friend of Sir Joshua Reynolds, so much so that when the Royal Academy refused to elect him to the full position of an Academician—he had been made an Associate in 1790—the result was the well-known rupture which occurred between Sir Joshua and that body. He died in Great Titchfield Street on the 9th March 1808, and was buried in the Marylebone Cemetery, where, I believe, a Latin inscription still marks the grave of himself and his wife. His son Ignatius followed in his father's profession, and died in 1870.

The only work of Bonomi's that I have seen is

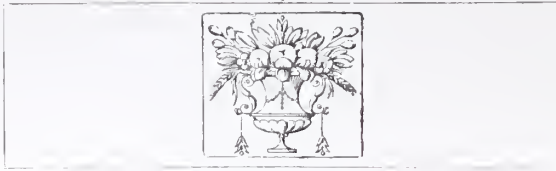
* This memoir was published in *The Transactions of the Society of Biblical Archaeology*, vol. vi. part 2, 1879.

the house in which the two brothers lived—"The Camels," in Princes Road, Wimbledon Park. The internal arrangement of the house, I understood, was in many of its details according to Italian ideas. The only decorative portions of it were two bas-reliefs on the principal gable: these were executed by Joseph Bonomi the younger, and gave the name to the house from the "camels" upon them. These animals appear as the principal part of the design, but the two subjects in reality represent the riddle of Œdipus: on one the infant may be seen crawling on all fours, and on the other there is the old man leaning on his staff. Among the pictures at "The Camels" was a large coloured perspective drawing of the mansion at Roseneath—the design of the elder Bonomi. This had a particular interest from the tinting of it having been the work of Turner. It is the only specimen I have chanced to see of this phase of the many-sided character of Turner's work—that is, of washing in with water-colour an effect into architects' perspective drawings—which it is known he practised in his very early days before he was in a position to sell his pictures.

The career of the son, Joseph Bonomi, the Egyptologist, was intimately connected with architecture, particularly from his study of Egyptian architecture and sculpture. He was one of the early explorers of Egypt, where he remained for many years, dressed like a native, and living quite as the Arabs lived. He was born in 1796, and became in time a student of the Royal Academy. His tastes led him to sculpture, and he was placed under Nollekens, with whom he remained till 1823, when he went to Rome to continue his study of sculpture. It was in Rome that he met Robert Hay, a naval officer, who prevailed on him to go to Egypt, where he remained for a number of years, working with Arundale and others for Hay. While at Medinet Habou, in October 1825, he mentions the arrival of his friend Burton—this was James Burton, not Richard, the celebrity of a later period—who was working on his own account, and who excavated the north-east wall of the great Temple of Medinet Habou in that year. In 1826 Bonomi separated from Hay, and joined Burton at Cairo, where they produced the *Excerpta Hieroglyphica*: this work, now a scarce book, was lithographed by them in Cairo under every disadvantage. In 1829 Bonomi went up the Nile as far as Dongola, measuring temples and copying inscriptions. In 1831 he made another journey up the Nile, and on this occasion he accompanied Linant—afterwards Linant Bey—in his expedition to the gold mines in the desert between the Nile and the Red Sea. While on this expedition Bonomi made an excursion into the Bishereen Desert. In 1832-33 he was again working for Hay in Cairo; at the end of 1833 he

started with Arundale and Catherwood for Sinai and the Holy Land. In this journey Bonomi copied many of the inscriptions in the Wadi Mokatteh, or "Written Valley," and made a plan with measurements of the Egyptian temple at Sarabat-el-Khadem. At that date no Christian was allowed to enter the Haram at Jerusalem, but this party managed to lead the functionaries into the belief that they were officials sent by the Sultan to inspect the buildings in order to have them repaired. Under this pretence they were able to make plans, sections, and drawings of details of the Khubbet-es-Sakhra, or Dome of the Rock, for the first time. This was mainly the work of Catherwood and Arundale, and it led to noted results, for it was on these drawings that Fergusson based his theory of the ancient topography of Jerusalem; and his book on the subject, published in 1847, was followed by a long controversy, which produced a number of works, all of them being more or less of an architectural character. By this time Bonomi had become so completely transmuted into an Oriental, in dress and otherwise, that he was able to pass into the Haram, muttering, as he entered, the Mussulman declaration of faith. In 1834 he visited Damascus and Baalbec, and returned to England. Between 1834 and 1842 he did some work in sculpture, visited Rome, worked for the British Museum, illustrated Wilkinson's *Manners and Customs of the Ancient Egyptians*, and was engaged with Birch and Arundale in bringing out a work called the *Gallery of Antiquities*. In 1842 he went again to Egypt with the Prussian Expedition under Lepsius, and returned to England in 1844. He married a daughter of John Martin, the celebrated painter, in 1845. When the Architectural Courts at the Crystal Palace were being produced he, with Owen Jones, did the designs for the Egyptian Court. It was in 1861 that he was appointed Curator of Sir John Soane's Museum in Lincoln's Inn Fields. Further details will be found in the memoir already mentioned—the volume containing it being in the Library.

I shall only add, as an incident showing how thoroughly Bonomi had transformed himself, that when Lewis Vulliamy, the architect, was travelling in Egypt, a person, to all appearance an Arab, asked him, much to his surprise, in perfect English, to come into a tomb to have something to eat, thus quite reversing Hamlet's definition of the grave. It was Bonomi, the Egyptologist; and this was the beginning of the acquaintance of these two men. I understand that most of Bonomi's drawings of temples, with plans, measurements, and notes, are in the British Museum. It should be mentioned that Bonomi had a very correct eye and an accurate touch, the result being that his drawings of Egyptian sculpture, hieroglyphics, &c., have not yet, so far as I know, been equalled.



MINUTES. XV.

At the Fifteenth General Meeting (Business) of the Session, held on Monday, 10th June 1895, at 8 p.m., Mr. F. C. Penrose, F.R.S., *President*, in the chair, with 15 Fellows (including 8 members of the Council), 12 Associates (including 1 member of the Council), and 1 Hon. Associate, the Minutes of the Meeting held 20th May 1895 [p. 522] were taken as read and signed as correct.

The receipt of donations to the Library was announced, and an expression of thanks to the several donors was ordered to be entered on the Minutes.

The following members, attending for the first time since their election, were formally admitted and signed the respective Registers—namely, William St. John Hu Hancock (Hong Kong), *Fellow*, and James Roger Bramble, F.S.A., *Hon. Associate*.

The President referred to the British School of Archaeology at Athens, and read the draft of a memorial proposed to be sent to Lord Rosebery urging the claims of the school to an annual grant from the Government [p. 534]. Whereupon it was

RESOLVED, that the Council, on behalf of the Institute, do memorialise the Prime Minister in the terms of the Paper read to the Meeting.

The President read a letter from the Secretary of the Burlington Fine Arts Club containing an invitation to students to visit the Exhibition of the Art of Ancient Egypt now being held in the rooms of the Club [p. 536].

A motion by Mr. Octavius Hansard [F.]—That it be a recommendation to the Council to publish the names of the seven proposers of any name or names added by Fellows and Associates to the nomination list issued by the Council—seconded by Mr. Gruning [F.], was discussed and agreed to [Appendix A].

THE ANNUAL ELECTIONS, 1895-96. THE COUNCIL.

The President then read the report of the Scrutineers appointed by the Annual General Meeting [p. 478] to conduct the election of the Council. The following were declared to be the results:—

President.—Francis Cranmer Penrose [unopposed].

Vice-Presidents (4).—Aston Webb, 461; James Brooks, 418; Ernest George, 408; Alex. Graham, 385. The following candidate is not elected:—*Robert William Edis*, 141.

Hon. Secretary.—William Emerson [unopposed].

Members of Council (18)—John McKean Brydon, 399; George Aitchison, 397; Richard Phené Spiers, 392; Edward William Mountford, 384; Arthur Cates, 376; John Alfred Gotch, 376; John Slater, 374; Thomas Blashill, 367; John Belcher, 366; Campbell Douglas, 364; Edwin Thomas Hall, 360; Thomas William Cutler, 350; Paul Waterhouse, 349; Arthur Edmund Street, 344; Benjamin Ingelow, 340; Edward Augustus Gruning, 334; Henry Louis Florence, 331; Charles Hadfield, 315. The following candidates are not elected:—*Leonard Stokes*, 285; *Percival Gordon Smith*, 243; *Thomas William Aldwinckle*, 240; *William Young*, 233; *Ralph Selden Wornum*, 218; *William Warlow Gwyther*, 146.

Associate-members of Council (2).—Thomas Miller Rickman, 236; Beresford Pite, 216. The following candi-

dates are not elected:—*Arthur Smyth Flower*, 139; *Henry Thomas Hare*, 119; *William H Atkin Berry*, 109; *Francis Thomas Wilberforce Goldsmith*, 101.

Representatives of Allied Societies (9).—Alfred Culshaw (Liverpool Architectural Society), Edward John Dodgshun (Leeds and Yorkshire Architectural Society), Thomas Drew (Royal Institute of the Architects of Ireland), John Goodacre (Leicester and Leicestershire Society of Architects), William Henman (Birmingham Architectural Association), John Holden (Manchester Society of Architects), James Jerman (Devon and Exeter Society), Joseph Oswald (Northern Architectural Association), Thomas Lennox Watson (Glasgow Institute of Architects) [unopposed].

Representative of the Architectural Association.—William Douglas Carøe [unopposed].

[The above members declared to have been duly elected compose the Council.]

Auditors.—*Fellow*, Frederick Todd; *Associate*, William Woodward [unopposed].

THE STANDING COMMITTEES.

The President read the Report of the Scrutineers appointed by the Annual General Meeting [p. 478] to conduct the election of the four Standing Committees. The following were declared to be the results:—

Art Standing Committee.

Fellows (10).—Ernest George, 398; William Douglas Carøe, 388; Edward Ingress Bell, 376; John McKean Brydon, 374; Alfred Waterhouse, 372; James Brooks, 368; Edward William Mountford, 344; John Belcher, 342; Frank Thomas Baggallay, 310; William Young, 230. The following candidates are not elected:—*William Henman*, 215; *William Samuel Weatherley*, 180; *Charles Harrison Townsend*, 160; *William Kidner*, 145.

Associates (6).—Beresford Pite, 319; George Campbell Sherrin, 311; George Kenyon, 304; William Henry Romaine-Walker, 289; Henry Thomas Hare, 287; Alexander Nisbet Paterson, 282. The following candidates are not elected:—*Stewart Henbest Capper*, 239; *Arthur Thomas Bolton*, 204; *Owen Fleming*, 194.

Literature Standing Committee.

Fellows (10).—Alexander Graham, 422; George Aitchison, 414; Richard Phené Spiers, 402; Arthur Edmund Street, 376; Paul Waterhouse, 375; Frank Thomas Baggallay, 373; Benjamin Ingelow, 369; Edgar P. Loftus Brock, 361; Sydney Smirke, 341; Frederic Chancellor, 280. The following candidates are not elected:—*James Cubitt*, 225; *Edward Henry Martineau*, 214.

Associates (6).—Arthur Smyth Flower, 377; Andrew Noble Prentice, 376; Leslie Waterhouse, 337; Percy Scott Worthington, 333; Ravenscroft Elsey Smith, 321; Banister Flight Fletcher, 216. The following candidates are not elected:—*Alfred Henry Hart*, 205; *Robert Langton Cole*, 202; *Herbert Arnold Satchell*, 182.

Practice Standing Committee.

Fellows (10).—Edwin Thomas Hall, 353; Lacy William Ridge, 308; Samuel Flint Clarkson, 305; Thomas Battersbury, 282; Henry Cowell Boyes, 280; Joseph Stanislaus Hanson, 275; Walter Hilton Nash, 272; Edmund Woodthorpe, 265; George Enoch Grayson, 264; Edward Augustus Gruning, 261. The following candidates are not elected:—*Joseph Douglass Mathews*, 233; *Thomas Harris*, 206; *Frane Sadleir Brereton*, 197; *Alexander Henry Kersey*, 164; *Graham Clifford Awdry*, 162; *William Warlow Gwyther*, 152.

Associates (6).—William H. Atkin Berry, 377; Augustus William Tanner, 358; Henry Thomas Hare, 346; Robert Stark Wilkinson, 341; Frederick Henry Appleton Hardcastle, 335; George Richards Julian, 297.

The following candidate is not elected:—*John Ernest Newberry*, 222.

Science Standing Committee.

Fellows (10).—William Charles Street, 398; Herbert Duncan Searles-Wood, 394; Lewis Angell, 391; Percival Gordon Smith, 385; Arthur Baker, 372; John Salmon Quilter, 368; Henry Tanner, 353; Henry Dawson, 334; Benjamin Tabberer, 330; William Warlow Gwyther, 323. The following candidate is not elected:—*Banister Fletcher*, 313.

Associates (6).—Henry William Burrows, 353; Francis Hooper, 332; Max Clarke, 326; Bernard John Dicksee, 299; George Pearson, 280; Matthew Garbutt, 275. The following candidates are not elected:—*Thomas Locke Worthington*, 262; *George Austin Pryce Cuxson*, 240; *Thomas Edward Mundy*, 133.

A vote of thanks to the Scrutineers having been moved from the Chair, observations were made on the arduous duties the scrutiny entailed through the number of candidates being greatly in excess of the actual number required to form the committees. Various suggestions were offered in the discussion which ensued, and the President pointed out that the voting list had been issued in accordance with the By-law [Appendix B]. The vote of thanks was then put and carried by acclamation.

ELECTION OF MEMBERS.

The following candidates for membership were elected by show of hands, in accordance with By-law 9:—

<p>As Fellows (2). CHARLES BUSTEED FOWLER (Cardiff). FRANCIS THOMAS DOLLMAN [A.].</p>
<p>As Associates (5). HERBERT PHILLIPS FLETCHER. GEORGE HUBBARD. JOHN JAMES JOASS. GEOFFREY PRATER ARMSTRONG. WALTER ROBERT JAGGARD.</p>
<p>As Hon. Corr. Members (2). ALEXANDER WIELEMANS (Vienna). FERDINAND FELLNER (Vienna).</p>

The proceedings having thus terminated, the Meeting separated at 9.15 p.m.

APPENDIX A.

MR. OCTAVIUS HANSARD [F.] said that before the Reports of the Scrutineers were read he should like to ask whether there was any rule bearing upon the By-laws by which members who were placed on the voting-lists after the Council had issued their original propositions for members should have the names of their proposers disclosed. Under the By-laws, a certain number of names were attached to each name that was proposed, and he wanted to know whether there was any By-law or Rule prohibiting those names being furnished to members.

THE SECRETARY replied that it used to be the custom under the original Charter and under the original By-laws to publish on the voting-papers the names of those who were nominated by outsiders, so to speak, in the margin, and not to mix those names up with what used to be called the "House list." But since the granting of the new Charter—and the By-laws were made under that Charter—that had been entirely superseded. Any new names proposed by Fellows or Associates were put into the body of the list, just as if they had been nominated originally; there was no distinction made. This was confirmed by By-law 30: "Any seven subscribing members, of whom the majority shall be Fellows, may nominate any other member for any of the above-named offices" (that is,

President, Vice-President, Honorary Secretary, member of Council, &c.) "by delivering such nomination to the Secretary before the close of the Annual General Meeting, accompanied by a written undertaking by the nominee to serve if elected. The name of every member so nominated shall be added to the said list, which, with such added names (if any), shall be the voting-list for the election."

MR. HANSARD thought it would be very useful if, when any name was substituted over and above those which the Council had issued, the names of the proposers were printed as heretofore, so that those outside might know who the proposers and seconders were. If he were in order he should move as a recommendation to the Council that in future such a process should be adopted.

MR. HANSARD'S recommendation was supported by Mr. Bruning, with a view to having the matter discussed.

MR. T. M. RICKMAN [A.], F.S.A., thought Mr. Hansard's suggestion might be met if the names of the proposers were published in the JOURNAL in sufficient time before the voting-papers were required to be sent in.

MR. LACY W. RIDGE [F.] agreed that it was information with which the members should be supplied. When the Council brought out a list and other names were afterwards added, they were now quite in the dark as to who had added those other names, and such information would help members in voting.

MR. H. W. BURROWS [A.] asked if there was nothing in the By-laws to preclude the addition of those names. They knew that the House list was backed by the nomination by the Council, and therefore it would certainly be valuable if they could have the same guarantee that those other gentlemen were at least equally backed.

THE SECRETARY said that the only restriction in By-law 30 was that while the names of all candidates for election must be printed in the same type, and in alphabetical order, "the names of members of the existing Council should be distinguished by an asterisk."

MR. JOHN SLATER [F.], B.A., said there was no reason why the proposers' names should not be put in the JOURNAL. Members, especially country members, had often written to him on the subject of nomination, and they had not the slightest idea whose nominees they were. They got a list headed exactly in the same way as the voting-list, but bearing the words, "This is not a voting-list," and then they threw the paper away. Then they got another list with the number of candidates mentioned; but they had not kept their previous list, and they did not know who were proposed by the Council and who were proposed by outsiders. He thought the case would be met if, after the Council's list was published, and other names were proposed by members outside the Council, the proposers' names were printed with their nominees.

MR. C. H. BRODIE [A.] pointed out that the proposal contravened the spirit of the By-law, which was that no distinction whatever should be made between candidates for election. The men must all be properly qualified and proposed, and the By-law seemed to indicate that they should all stand on the same footing, which they would not do if the Council's nominees were, so to speak, earmarked.

MR. RIDGE said the suggestion was not that any alteration should be made in the list; they were all bound to appear in the list alike, except that members of the existing Council were marked by an asterisk; but, inasmuch as members knew by whom the Council's nominees were nominated, he thought it only fair to ask that they should have the same information exactly as to those who were added.

MR. SLATER said that his suggestion was intended quite as much to benefit the candidates who were proposed by others than the Council, because it might be a great advantage for some of the people who were proposed from outside the Council that it should be known that they were proposed by very influential people.

Mr. BRODIE said that, unless the names of the individual members of the Council who nominated those particular gentlemen were stated, they would not put the outside nominees whose proposers' names were to be published on the same footing as the Council nominees.

Mr. SLATER explained that the Council was known, and that it was the action of the Council as a whole.

APPENDIX B.

Mr. C. H. BRODIE [A.] asked to be allowed to say a few words before the vote of thanks to the Scrutineers was put to the Meeting. The Scrutineers had assembled last Friday at eleven o'clock, and within a few minutes were busily engaged counting the votes, except for a short interval for lunch, till half-past seven. He himself was engaged in counting the votes for the members of the Practice Standing Committee. There was a list of 16 Fellows: 10 were elected and 6 were not. It seemed to him that it was unnecessary that so many nominations should be made to the Committees; there were more than half as many again as were elected. Was it necessary to put the Scrutineers to the trouble of counting a list containing 16 names when only 10 could be elected? He thought it should rest with the Council to recommend to the Institute the men whom they considered most fit to occupy a certain position; and, if there were only 10 seats, there could not be, in the opinion of the Council, 16 most fit men to occupy those 10 seats. He would suggest, therefore, to the Council that they should confine themselves strictly to the number of seats that there were to fill. If outsiders thought there were fit men to put up, they could nominate them; and it did not matter, because the fit men could be put on the Committees after the election, which was perfectly right.

THE HON. SECRETARY said that the idea of the Council had been that it was a good thing to put up rather more names than the number actually required, in order to give members of the Institute a choice.

Mr. H. H. STATHAM [F.] said that as a voter he certainly should prefer to have a choice of names.

Mr. THOMAS BLASHILL [F.] entirely agreed with Mr. Brodie. He could not understand why the body which had to select candidates for ten seats should put up more than ten men. Some people were so fond of a struggle, and of giving people the opportunity of a choice and of voting, that they wanted to have a lot of names put up merely that some should be thrown out. The object of those people would be fully met, he thought, if there were any names that occurred to persons outside, because they had the power of sending them in; and if the Council left it to the ordinary members of the Institute to put up the men, if no more names were put up he ventured to think that the Scrutineers would be saved a great deal of trouble. [THE HON. SECRETARY pointed out that if they were only to put up the exact number of names that were required, the election might as well be left in the hands of the Council.] He (Mr. Blashill) could not see that at all. If the Council put up the ten men they thought the best, and that nomination was approved by the Institute, they did not want an election—there was no need for it. But if any members thought that there ought to be a choice, and that the Council had left two or three out who ought to be on, it was open to members to get a sufficient number of people to sign their paper, and then there could be an election.

Mr. CHARLES FOWLER [F.] said there seemed to be some misunderstanding on the point that was being discussed. The Council were responsible for putting up the full number of members of each Committee. They must not put up nineteen if there were twenty to be elected, because they might then be left with only nineteen; but they had no power to withdraw other nominations, or to prevent other nominations. The only way out of the diffi-

culty, if they were to have this elaborate machinery to elect gentlemen some of whom never attended the Committees after all, was for the Council to be empowered to withdraw any number beyond the actual number required on the Committee. But then they might as well have the Committee nominated by the Council. He saw no other way out of the dilemma.

Mr. LACY W. RIDGE [F.] said that it was a perfectly understood thing that more names were to be nominated, not only for the Council, but for all the Committees, than were absolutely required to be elected, and that there should be an election without throwing the burden of nominating more men upon individual members. He himself was convinced that it was a very useful institution. Take the instance of the Practice Standing Committee. The Practice Committee during the last year had been in rather a curious position; they had pulled through what they were pleased to consider rather a great work, and at the same time it had been a somewhat costly one, and one that had given rise to some little differences of opinion. The election which had just taken place would, he believed, be very satisfactory to the old members who had worked on the Practice Standing Committee, because the names returned, and the order in which those names were placed, would show to the Committee that their work had received the general approbation of the Institute. If a lot of new members out of those sixteen who had been put up had headed the poll, and if the old members had been omitted from those who were returned, the feeling of the Practice Committee would have been quite different. Mr. Hall was returned at the top of the poll, and he was sure no man better deserved to be there. Had he been at the bottom of the poll, or had he been left out, then one would have thought that the policy which the Practice Committee had been pursuing had not been approved by the Institute.

THE PRESIDENT thought it desirable that the Institute should know what the By-law said, and requested the Secretary to read it.

THE SECRETARY said that By-law 30 referred to elections of the Institute. As they were aware, there were eighteen members of Council so called, and two Associate members, and the By-law stated: "Such list shall contain the names of at least twenty-two Fellows and three Associates, as nominated for election as members of Council and Associate members of Council respectively." The Council were bound to put up more names. Then the Standing Committees were elected under By-law 49 in the same way: "Procedure for the election . . . shall be as provided in By-law 30 for the annual election of the Council, so far as such provisions are applicable."

Mr. T. M. RICKMAN [A.], F.S.A., thought that there might be a little further intimation given as to the exact position of the members put up for election on the Standing Committees. The Standing Committees consisted of a certain number, about two-thirds of whom had been elected by the members, and the remainder had been left to the election either of the Council or of the Standing Committees. His impression was that it was very desirable not always to fill up the full number of the names, but to leave it for a few weeks, because there might be more outsiders who it was very desirable indeed should be members of each of those Committees. But he thought that in regard to the asterisks that were put against the names of present members of the Committees, some distinction should be made between those members who had been elected on previous occasions or on the last occasion and those who had been nominated either by the Council or by the Standing Committees. Then the members would know that the man they were voting for had already been elected either by the members of the Institute, or that they were nominees of the Council; and if that distinction were made, he thought there would not be the necessity for the large number put forward as in the present case.



PRESENTATION OF THE ROYAL GOLD MEDAL TO MR. JAMES BROOKS [F.]
 AT THE SIXTEENTH GENERAL MEETING, MONDAY, 24TH JUNE 1895.

ADDRESS BY THE PRESIDENT, FRANCIS C. PENROSE, M.A., F.R.S., F.R.A.S.,
KNIGHT OF THE ORDER OF THE SAVIOUR IN GREECE.

COLLEAGUES AND GENTLEMEN,—

THE first and very agreeable duty which we have before us this evening is, as you are aware, that of presenting, in Her Most Gracious Majesty's name, the Royal Gold Medal to the man of your choice. He is an architect whose works fully entitle him to receive it, and we may feel the greater pleasure in conferring the honour because the recipient is one of our own Body.

The Institute has so fully endorsed the recommendation of the Council that it implies a thorough appreciation by the general Body of the reasons which led the Council to make that recommendation. I may therefore, perhaps, be thought to be going over ground so well known to the members who are present as to be of the nature of an unnecessary performance in recounting them. As, however, the proceedings of this evening will be reported far and wide, both in our JOURNAL and in other publications, it may be desirable to mention some details which cannot but be interesting to outsiders.

Mr. James Brooks, on whom Her Majesty this year confers the honour of the Royal Gold Medal, is a native of Berkshire, from the neighbourhood of Wantage. He came to London about 1847 to study for our profession, and became a pupil of the late Lewis Stride, a Fellow of this Institute. That he was a diligent worker in the office goes without saying; he also attended Professor Donaldson's classes at University College, and became in due time a student of the Royal Academy, and attended the professorial lectures. He commenced practice on his own account about 1852, at first—as was natural—in a comparatively humble way, but soon established for himself the career in which he has been so much distinguished, and in which he has enriched the neighbourhood of London, and also many country districts, with some of the handsomest ecclesiastical structures which have been erected during the last thirty years. A complete list of these buildings would be very extensive, and lead me to a length far beyond what the occasion requires. I therefore select a very few from among the most striking examples, placing them approximately in the order of their dates, namely—

The Convent Schools and Chapel of St. Michael, Shoreditch	1863
St. Margaret's, Lee, in Kent	1876
St. Peter's, St. Leonards-on-Sea	1883
St. Mary, Hornsey	1888
St. John the Baptist, Kensington	1892

It is evident that during the ten years which date from 1852 much valuable study and successful practice must have preceded the first of the works I have mentioned; and we may hope that the last named on the list may be succeeded by a goodly following by the same hand.

The style of architecture which Mr. Brooks has chosen for the majority of his churches is either the Lancet, or else the Transition into Curvilinear which succeeded it. In a few instances (one of them being the church of St. Mary at Hornsey) the Perpendicular style has been used very effectively. The treatment is invariably vigorous, and with a simplicity somewhat bordering on severity, particularly as regards the exteriors. This, however, is not the place to criticise, but rather to praise them, and they are worthy of it. Mr. Brooks's fame, no doubt, rests mainly on his ecclesiastical designs; but they are by no means his only achievements. Among his works may be cited a large brewery, an hotel, many secular buildings, two hospitals in connection with sisterhoods, extensive and sumptuous stables built for the Marquis of Londonderry, labourers' cottages, and gentlemen's mansions, one of the most remarkable of which is in South Africa. Mr. Brooks is Architect to the Diocesan Society of Canterbury, and is one of the consulting architects to the Incorporated Society for Building Churches.

Lastly, I feel sure of having your united concurrence with me in the act of handing to our distinguished colleague this Royal recognition of his merits as an architect.

MR. JAMES BROOKS [*F.*], in reply, said that he had suggested to the President that on an occasion like the present it would be a more fit and proper thing that the recipient of the Royal Gold Medal, instead of standing up to give an address, should have a blackboard placed at his side, and he should be asked to make various sketches and designs in the presence of the Meeting; and, having done that to the best of his ability, he should be relieved of the obligation of attempting to do what, speaking for himself, he felt it was quite out of his power to do. He would like to express his gratitude, however, for the very kind manner in which the President had addressed him in presenting him with the Gold Medal, the gift of Her Most Gracious Majesty the Queen. The distinction conferred on him was, he felt, of infinitely greater value, seeing that it came on the recommendation of his brother architects. In years past the honour had been conferred sometimes upon architects and sometimes upon men of letters; and, for good reason, the Institute had decided that not English architects alone, but that their foreign brethren should receive that honour. It was a very great honour for an Englishman, but it was a still greater honour for other than Englishmen to receive such a mark of the Queen's favour on the recommendation of the Institute. Now that he occupied the place of those distinguished men, to whose eloquent addresses it had been his privilege and delight in years past to listen, he felt that he should like to have received a summons from Her Most Gracious Majesty to be at Windsor that evening, for that would have been a good and sufficient excuse for

his not being at the Institute to attempt a duty which he felt he had no power to perform! Nevertheless he felt as deeply as his predecessors had done the honour that had been conferred upon him, and it would have this result, that he would strive more faithfully to do his work as an architect; and, he hoped, to leave marks in his history that would not be entirely a disgrace to the man the Institute had so honoured.

An architect was not like a painter. An architect's buildings stood out in all their goodness or badness—more often, he feared, badness than goodness. There they stood before the whole world, and they made history. The works of a painter found their way into picture galleries and other places where they were accessible only to the few; but the architect's works remained in the sight of all, to speak good or evil of the man himself. Architects had a duty to perform—to endeavour, as far as lay in their power, to imitate those great masters who had left behind them such monuments of their skill and ability as Durham Cathedral and Christchurch, Hants—works which were designed by the same architect and carried out by his directions. When he looked on those works, and studied them, and on such buildings as those of Lincoln, Ely, Salisbury, Hereford, Winchester, and others which remained to them; when he looked on those great collegiate churches—many of them, alas! now only ruins—and on those great parish churches left to them, particularly in Norfolk and Suffolk, or even upon a little parish church in some obscure village, and meditated upon what those men had left behind them, he had been tempted on many an occasion to throw

up that art of which he felt, as greatly now as ever, he was but an incompetent exponent.

Perhaps one of the most necessary things an architect required was the faculty of invention. He would just mention a circumstance in connection with his early life which showed something of that wish to get at the bottom of everything. His father had given him a watch, and he was uncommonly pleased with it. He looked at the inside, and took it all to pieces, and was not so readily able to put it together again. But he was determined when he undertook the task to accomplish it; he did accomplish it, and more frequently than was required he took the watch to pieces that he might clean it again, and so he had never afterwards required the assistance of a watchmaker. He had said that it would have been far better in the interests of his art if he had never continued to pursue that path in which he felt that he had not succeeded in doing so much as probably more opportunities would have enabled him to do. He attributed many of his shortcomings to the fact that at the time, 1847 or thereabouts, when he came to London little or no systematic training was provided for young men about to engage in the practice of architecture. True, there were Professor Donaldson's lectures; but those lectures lacked that full treatment of the art which the Institute now afforded to young men who would avail themselves of the curriculum arranged for their guidance and training. They had now the opportunity of becoming much more accomplished architects than they possibly could have become if they had had to enter their sphere of life in the sort of rough-and-tumble manner of his young days. Then there was no guidance—at any rate, not that sufficient guidance which was now given by the Institute to young men to pursue their studies, and who came there to have their progress tested by a series of examinations. These examinations were now conducted in three stages—first, the Preliminary; secondly, the Intermediate; and thirdly, the Final. Yet they must not mistake him. He did not say that those examinations would make a man a perfect architect who had not got genius. To derive tangible benefit from those examinations he must have a natural gift for his art. What was the result of one so gifted following the course of study laid down? The information that he must possess before he could successfully practise his art he acquired step by step. He was guided where he was weak, instructed where he was strong, and his studies followed a systematic course. Knowledge could not be properly acquired except in a systematic manner; and that systematic manner, thanks to those who had the direction of this branch of the Institute's work, had now been put before those young men who would in a short space of time stand in the place of their seniors. Another result would follow the course of

study laid down by the Institute. He had said that their young men would receive their education and tuition in a systematic manner. He was fully aware that that was not the superstructure, it was only the foundation of the superstructure: it was a means to an end. The result to those men would be a gain of knowledge so great, and in so short a space of time, that they would save years in their lifetime, and would enter upon their course as architects very much sooner than they otherwise could.

In connection with the great honour the Institute had conferred upon him, he should like to mention the numerous letters of congratulation he had received from noblemen and gentlemen, and from large numbers of his friends, fellow-members of the Institute, which rendered the distinction still more interesting and valuable in his sight. If he might say so, at all times he had striven to do his duty, for he had loved his profession. To show that his methods had sometimes been laborious, he should like to mention an instance for the benefit of the younger men present. A contractor called on him one day and said: "Mr. Brooks, you have sent me two drawings for the same object." He (Mr. Brooks) replied: "That is not the case; I sent you one 'drawing.'" It was, he should explain, only a turret, flèche, or something of that kind at the top of a church. Several days after the drawings had been sent to the builder, it occurred to him (Mr. Brooks) that some improvement might be made, and he made an entirely new set of drawings in all their details to show the little variation he required. The contractor came and said: "The two drawings are perfectly alike." "No," he replied, "they are not; work to the one, and 'give me up the first to be torn to pieces.'" He was persuaded that that was the only way in which an architect could possibly leave behind him works that would bear investigation. It might not be a great variation that was required, it was only that little variation which gave a softer, a more delicate and beautiful outline. It was not an entirely new design, but it was the refinement of that design which was necessary for the man to do if he wished to produce work that would bring some credit to him after he was dead and buried.

In conclusion, he was grateful to them for their kindness in listening to a man who was not an orator and could not pretend to say things in other than a commonplace way; but he had strong feelings because he loved the art which he had been practising for so many years. He had tried to impress upon his works some little originality, and to show that there was something of individuality in the man who had designed and carried them out. Once more he would return them his grateful thanks for the honour they had done him.



9, CONDUIT STREET, LONDON, W., 27 June 1895.

CHRONICLE.

The Sixteenth General Meeting.

The presentation of the Royal Gold Medal to Mr. James Brooks was the only business transacted at last Monday's Meeting, which terminated before 9 o'clock. It had been intended to hold at its close a Special General Meeting, to consider a recommendation of the Council proposing the establishment of a new class of Subscribing Members, to be called "Craftsmen"; and if adopted to proceed with the framing of the necessary By-laws, &c. The fact, however, that the General Meeting was graced by the presence of several ladies, and that there were many other visitors—a Special General Meeting being intended for members only—rendered it desirable to postpone the latter until the 8th prox.; and the President, after a few words of explanation, decided accordingly.

The Standing Committees 1895-96.

The Council, acting under the provisions of By-law 46, have appointed five members respectively to the four Standing Committees, viz.:—*Art Committee*: Mr. J. Macvicar Anderson and Sir Arthur Blomfield, A.R.A. [Fellows], Mr. Owen Fleming [A.], and Messrs. L. Alma Tadema, R.A., and W. B. Richmond, A.R.A. [Hon. Associates]. *Literature Committee*: Professor Baldwin Brown, M.A., Mr. J. D. Crace, Mr. R. F. Grantham, Dr. A. S. Murray and Colonel Prendergast [Hon. Associates]. *Practice Committee*: Messrs. Graham C. Awdry, F. S. Brereton, Thomas Harris, A. H. Kersey and J. Douglass Mathews [Fellows]. *Science Committee*: Professor Banister Fletcher and Mr. Lewis Solomon [Fellows], Mr. T. Loek Wortlington [A.], and Mr. Hugh Leonard and Professor Unwin, F.R.S. [Hon. Associates]. The names of the members of the four Standing Committees elected by the Institute are given on preceding pages [550, 551].

The Architectural Association Curriculum and the Institute Examinations.

A deputation from the Architectural Association—consisting of the President, Mr. W. D. Caröe [F.], the ex-President, Mr. E. W. Mountford [F.]; the Hon. Secretary, Mr. Banister F.

Fletcher [A.] and Mr. F. R. Farrow [F.]—was received on the 17th inst. by the Board of Examiners. The deputation stated the views of the Association Committee respecting the periods at which the Examinations are now held, and described the Spring Examinations, usually held in March, as especially inconvenient to members going through the Curriculum of the Association. A suggestion that the Preliminary, Intermediate, and Final Examinations might in future take place at the end of June and commencement of July was thereupon made, and after due consideration was thought a convenient period for members of the Association, some of whom at that time would have come to the end of their respective educational courses, and would be prepared to apply for admission to the Examinations of the Institute. No desire was expressed on the part of the deputation to alter the period at which the Autumn Examinations are now held. The Board, having acquiesced in these views, recommended the Council to adopt them, adding that it was most desirable to meet the wishes of the Architectural Association in this matter. The result is that, during the coming session, the Examinations will be held in November–December 1895 and June–July 1896—the exact dates for which will be published next month. Revised circulars and application-forms embodying the several modifications are now in the printers' hands.

Visit of German Architects and Engineers [p. 536].

The President, Kgl. Geheimer Baurath Bessert-Nettelbeck, and the Vice-President, Kgl. Baurath und Beigeordneter Stübben, of the *Verein* of Architects and Engineers of Rhenish Prussia and Westphalia, have both written letters expressive of the pleasure their Society derived from the recent visit to London. All the three letters bear the date of the 18th June: that of President Bessert-Nettelbeck to the President of the Institute is a kindly worded acknowledgment of the welcome offered to the German Body by Mr. Penrose and a general invitation to visit Cologne; that to the Institute, addressed to the Secretary by President Bessert-Nettelbeck, may be summarised as follows:—"The members of the *Verein* who took part in the excursion to London have expressed the gratification they feel at the manner in which they were received by the Institute and its Council. The reception has become the source of abundant and agreeable memories to the excursionists, and the *Verein* offers its sincere thanks," adding that it would gladly welcome to Germany British architects on some occasion of a similar nature. Vice-President Stübben, who was the leader of the party during the visit to England, also thanks the Institute for the friendly reception he met with, and forwards two pamphlets he has recently written entitled *Gesundheitliche Verbesserungen baulicher Art in*

Italienischen Städten, 8vo. Bonn, 1895, and *Der Bau der Städte in Geschichte und Gegenwart*, 8vo. Berlin, 1895.

Conference on Apprenticeship.

A conference met at Drapers' Hall on Tuesday, 25th inst., to consider a scheme for the advancement of apprenticeship among the crafts. Sir John Lubbock presided. Invitations to attend had been sent to the President and other members of the Institute, and to the President and other members of the Architectural Association. A full report of the proceedings is likely to be interesting. For the moment the short notice of the meeting, which appeared in *The Times* of the 26th inst., is all that can be given here [p. 576].

Recent Books relating to Egypt and Africa.

It may be thought not inexcusable to revert to a series of reviews of new books on Egypt and certain other territories in Africa which have lately appeared in the current volume of the JOURNAL. These, it may be remembered, were, so to say, anticipated in the preceding volume [p. 535] by a remarkable article, the work of Mr. J. T. Last, of the Royal Geographical Society, on some native structures in East and Central Africa, illustrated by Mr. William Simpson from the author's sketches. The first of the reviews referred to was by Mr. R. Phené Spiers of a translation of Adolf Erman's *Life in Ancient Egypt* [p. 149]; the second by Mr. Simpson of a translation from the French of Professor Maspero's *The Dawn of Civilisation: Egypt and Chaldæa* [p. 336]; the third by Mr. J. D. Crace of Mr. Stanley Lane-Poole's *Cairo* [p. 342]. These are followed in to-day's issue by a Review, from the pen of the Rev. Dr. Sayce, the well-known Oxford Professor, of *The History of Egypt*, by Professor Flinders Petrie, a work which, when completed, will form an edition of six volumes. Mr. Theodore Bent's *The Ruined Cities of Mashonaland*, second edition, was reviewed at p. 508 by Mr. Simpson, who now follows the Rev. Professor with some notes on Obelisks and their origin inspired by a perusal of Mr. Bent's description of researches in Abyssinia made by him in 1893.

REVIEWS. XXVIII.

(79.)

ANCIENT EGYPT.

A History of Egypt, from the earliest times to the Sixteenth Dynasty. By W. M. Flinders Petrie, D.C.L., Edwards Professor of Egyptology in University College, London. With numerous illustrations. 8o. Lond. 1894. Price 6s. [Messrs. Methuen & Co., 36 Essex Street, London.]

Whatever Professor Flinders Petrie writes about Egypt is sure to be learned, clear, and interesting, and to contain a good many new facts and theories. The *History of Egypt* which he has just pub-

lished is intended to be the first volume of a series which shall give a succinct and readable history of the country from the earliest times down to the present century. In general plan, however, it differs from any other history of Egypt which has hitherto appeared. It has the character rather of a text-book than of a literary work, its aim being to give all the known facts, clearly and systematically arranged, without any literary "padding." The statement of the facts involves also the authority upon which each fact is based.

A book of the kind must necessarily be illustrated, and in order to ensure accuracy the illustrations are made from photographs. The illustrations, in fact, form part of the authorities to which the author appeals. The scarabs, statues, and architectural monuments represented in them constitute a large part of the evidence for reconstructing the past history of the Pharaohs. It is needless to say that many of these monuments have been discovered by Professor Petrie himself. He has endeavoured to attach the Egyptian dynasties to a chronological scheme, and, starting from the fourth dynasty, to assign to them approximate dates. For this he will doubtless be blamed by over-cautious critics; but I believe that he has done rightly, as without some chronological outline it is impossible to give anything like a clear idea of Egyptian history. At the same time I am unable to share Professor Petrie's confidence in the substantial accuracy of his system of dates; my own belief is that they are too low.

Neither can I agree with his arguments against the prehistoric age usually assigned by Egyptologists to the Sphinx. Why should it be assumed that the tomb underneath the Sphinx was excavated before the figure itself was carved out of the rock? On the contrary, it may be gathered from the picture of the Sphinx on the dream-stela that the whole monument was from the first designed to be a tomb. Whenever I have seen the monument I have been unable to resist the impression that it was made when the rock out of which it is cut jutted out into the ancient channel of the Nile.

The account given by Professor Petrie of the pyramids will be read with special interest: it is a subject which he has made peculiarly his own, and all that he says about it, therefore, possesses exceptional weight. We may note his statement that "apparently the architect who designed and "insisted on all the fine work" in the great pyramid of Gizeh "died during its progress, and "far less able heads were left to finish it."

We may also note the view he gives of the pyramid-temple which he discovered at Medum, and which he afterwards covered again with earth. Temples of the age of the Old Empire are so rare, and their architectural details are still so little known, that the picture is particularly welcome.

Professor Petrie does not seem to be aware of a similar discovery that was made by Mr. Villiers Stuart some years ago to the north of Dahshur. The temple he found there was in an almost perfect state of preservation, and, like that of Medum, was built of large and finely compacted blocks. But it was distinguished by possessing a number of large basons of alabaster, supported on pilasters of the same material. So little care, however, has been taken by the authorities at the Cairo Museum of this interesting relic of antiquity that little is now left of what the excavator found. The blocks of stone have been carried away, and the basons and pilasters have been wantonly smashed.

In a progressive study like Egyptology it is impossible to keep pace with the discoveries which crowd upon us season after season. But there is one discovery made by Professor Petrie after the publication of his book which I cannot pass over. A more perfect example of the scarab given on p. 122 has lately fallen into his hands, and has shown him that the royal name inscribed upon it is really Jacob-har. How an early Egyptian Pharaoh came to bear a name compounded with that of the Israelitish patriarch is a question which it is at present difficult to answer.

I must not conclude this notice of a valuable book without drawing attention to one very useful feature in it. Professor Petrie has given, wherever it is possible, lists of the localities in which the monuments of the several Pharaohs have been met with. Thus under Mentu-hotep I., of the eleventh dynasty, we are told that his cartouches have been found at Gebelen, at Konosso, and on a tablet now in the Louvre.

A. H. SAYCE.

(80.)

THE EGYPTIAN OBELISK.

The Sacred City of the Ethiopians; being a Record of Travel and Research in Abyssinia in 1893. By J. Theodore Bent, F.S.A., F.R.G.S. With a chapter by Professor H. D. Müller on the Inscriptions from Ycha and Axsum, and an Appendix on the Morphological Character of the Abyssinians by T. G. Garson, M.D., V.P.A.I. With 8 Plates and 65 Illustrations in the Text. 80. Lond. 1893. Price 18s. [Messrs. Longmans, Green & Co., Paternoster Row, London.]

Professor Maspero, in his work *The Dawn of Civilisation*, alludes to the pyramid, and its having originated from the tumulus, "in which the earth-work is replaced by a structure of stone or brick" (pp. 358, 359). It is curious that he has no mention of the obelisk, nor of its first development. Other Egyptologists have been equally silent on this point. The natural guess suggests itself, that these monuments are only descendants of the rude standing stones of a primitive time. In Egypt the obelisk is found only as a cut and finished monolith; but the ruder forms that would support this theory of its transition have not as yet been found in the Nile Valley. Mr. Theodore Bent, in his book

The Sacred City of the Ethiopians—published about two years ago—gives a very good and careful account of the obelisks at Aksum; and, as the descriptions are accompanied by illustrations which are reproductions from photographs, a very exact conception of these monuments can be formed. As they appear to throw some light on the genesis of the obelisk, it may be useful to repeat some of Mr. Bent's descriptions and point out their bearing on the subject. Mr. Bent himself suggests the idea that the origin of the obelisk may be found in these rude stones, and I only propose to add some further reasons which seem to strengthen the case. At the same time I feel that the whole question would require to be gone over by a specialist in Egyptology before a final assumption of certainty can be arrived at. The development from the rude stone to the more perfect architectural condition is apparently complete enough, but there may be points of ritual to be considered which may affect the whole question, and upon these I can make no claims to anything like exhaustive knowledge.

The obelisks at Aksum are so numerous that Mr. Bent was unable to count them exactly. They are scattered about over a considerable space of ground; many have fallen, and some are broken and hidden away in gardens. His rough estimate is that there may be about fifty in all.* He recognises their importance in the following words:—"The great point of interest about the obelisks of Aksum is that they form a consecutive series, from these very rude unhewn stones up to the highly finished and decorated obelisks, and it is highly probable that here we have the origin and development of the obelisk" (p. 182). The well-known obelisk at Aksum is still standing. It is a block of granite about 20 feet in height: one side is plain, but the other is decorated, the decorations consisting of the representation of doors and windows, forming nine storeys. A door, with a door-handle, is at the base, while above that the storeys are indicated by what appear to be windows. What symbolism is meant by these has not as yet been made out. There are other similar obelisks, but they have fallen, and some of them are broken. Others are only trimmed into straight lines; but a large number are mere rude stones standing on end. The natural conclusion would be that the rude monoliths are the oldest.

The important feature of these standing stones is that they had at the base an altar stone. Some of these still exist, and are figured in Mr. Bent's book. He describes one as 7 feet 10 inches by 9 feet in width, in the centre of which is a raised portion, and in its centre there is a hollow "resembling a Greek kylix, to receive the blood of the slaughtered victim." [See fig. 1.] There are channels cut in two corners to allow the blood to flow on to the lower platform, where there are

* Gibbon says "sixteen or seventeen," chap. xlii.—W. S.

three similar hollows formed to receive it; there are two more channels to let the blood reach the ground. This clearly shows that these rude monuments were originally altars of sacrifice.

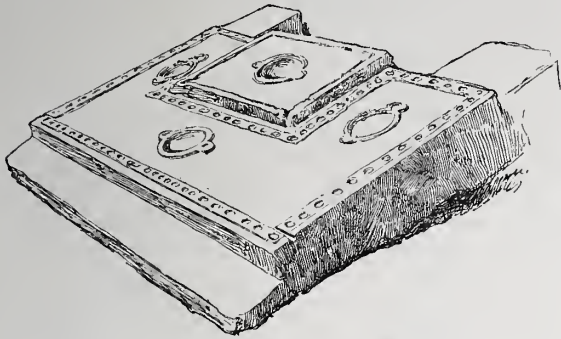


FIG. 1.—ALTAR BASE OF A MONOLITH, AKSUM.

It is generally recognised that the people of Abyssinia, who were known as Ethiopians, are of Arab or Sabæan origin. Gibbon says that their Arab "descent is confirmed by the resemblance of language and manners, the report of an ancient emigration, and the narrow interval between the shores of the Red Sea" (chap. xlii). This has found ample confirmation in Mr. Bent's discovery of Sabæan inscriptions, some of them being as old as the seventh or eighth century.

As this establishes the Semitic origin of the Abyssinians, I quote from Professor W. Robertson Smith regarding the religious rites of these people. He says that in Arabia the altar was "a rude pillar or heap of stones, beside which the victim is slain, the blood being poured out over the stone, or at its base"; to which he adds that this "rude Arabian usage is the primitive type out of which all the elaborate altar ceremonies of the more cultivated Semites grew."* This harmonises perfectly with Mr. Bent's account of the Aksum remains. It may be pointed out that the remarkable thing in Mr. Bent's photographic illustrations is that they represent exactly the sacrificial arrangements which Professor Robertson Smith has described. The one pictures them in words on the authority of old records; the other pictures them by the unerring lens, as he found them still existing; and the agreement between the two is complete.

The obelisk and the stela are classed in Egyptian archæology as different objects. Their position and the purpose they seem to have served appear to have been distinct. We are familiar with obelisks standing in pairs, like sentinels, at the principal gateways of temples; while the stela was placed in the mastaba, or funereal chapel. Although this is true, it may yet be pointed out that both may be considered as "standing stones." To this it may be added that the evidence derived from

the Abyssinian monuments goes far to show that they are both only descendants of the rude stone monolith.

That the stela in the mastaba is a continuation of a standing stone similar to those described can be shown to be highly probable from its having an altar stone at its base, called by Egyptologists a "table for offerings."* An illustration of one will show its resemblance to the Abyssinian altar-stones. [See fig. 2.] The offerings of food to the dead were placed upon this stone. In the Egyptian ritual the food appears to have been prepared, and no sacrifice of life took place at these altars; but as the people of Egypt had reached a comparatively high degree of civilisation, this custom would be only a survival coming down from a time when the animals had been sacrificed at the stela as an altar. That sacrifice was performed at tombs in Egypt is shown by what Diodorus Siculus states, that men with red hair, like Typhon, were sacrificed by the kings at the sepulchre of Osiris. It is now well known that human sacrifice was common over most of the Eastern world at an early date, but that as civilisation advanced this was not tolerated, and animal sacrifice took its place; † a later and improved stage of progress did away with the animal as an offering, and a vegetable substitute became the rule. As Professor Robertson Smith has shown, sacrifice with the Semites, and this is also true of other races, became intimately associated with the idea of food. In

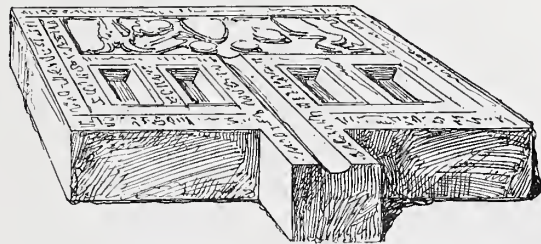


FIG. 2.—EGYPTIAN TABLE FOR OFFERINGS.

Egypt the representations on tombs tell us that offerings at temples and tombs were almost entirely

* "... there is no real difference between table and altar. Indeed, the Hebrew altar of burnt-offerings is called the table of the Lord, while conversely the table of showbread is called an altar."—*Lectures on the Religion of the Semites*, by W. Robertson Smith, p. 184.—W. S.

† Mr. Le Page Renouf says: "The substitution in Egypt of animal for human sacrifice is (I believe) entirely without foundation. And the supposed evidence of human sacrifices drawn from certain pictures has (I believe) been misinterpreted."—*Proceedings Soc. Bib. Archæology*, January 1895, p. 9. We may take it, from such a high authority as Mr. Le Page Renouf, that the change did not take place within the historical period in Egypt. But that country will be an exception if human sacrifice was never practised in it. However, so far as the object of this review is concerned, the existence of animal sacrifice is all that is required.—W. S.

* *Lectures on the Religion of the Semites*, p. 184.—W. S.

composed of eatables—fruit, vegetables, meat, and fowls. Although these might be the offerings made at the tomb to the “double” of the deceased within the historical time, it would not be the rule at an earlier period. Professor Maspero states that at the funeral there were placed beside the body “the quarters of an ox, previously slaughtered “in the chapel.”* That was in the mastaba, and at the stela with its altar table. It will be noticed that this altar table has cavities in it, and a channel for any liquid—it might be blood or libation of any kind—poured on it to flow through and reach the earth. Although differently arranged, it carries out with remarkable exactness the same intention as the altar stone of the Abyssinian monolith.

Mr. Bent also supplies evidence which throws an equal light upon the Egyptian obelisk. He visited a place called Yeha, situated about seventeen miles in a direct line north-east of Adoua; and he has produced very good proof to show that the capital of Ethiopia was at this site, previous to Aksum acquiring that dignity. The inscriptions already mentioned, dating from the seventh to the eighth century B.C., exist at that place. At Yeha Mr. Bent found the remains of what he believes to have been an old Sabæan temple; † its walls are still standing, and he was able to make a plan. It is 20 yds. 1 ft. 2½ in. in length, and



FIG. 3.—PLAN OF TEMPLE AT YEHA (p. 138).
A A, rude stone monoliths.

16 yds. 1 ft. 7¾ in. in width. [See fig. 3.] It had what appears to have been a porch on the west, towards which the only entrance opened; and in

* *The Dawn of Civilisation*, p. 257.—W. S.

† Mr. Bent says that there are the remains of a deserted Christian church within the walls. This leads me to believe that the whole structure was a Christian church. When I was in Abyssinia with the expedition to Magdala, I devoted some attention to the churches. Those in the south are round, but in the north, in Tigré, where Yeha is situated, they are rectangular; in both the holy of holies, where the altar is, there is a distinct building within another, leaving a space all round between; and what Mr. Bent describes as the church within this ruin I take to have been the holy of holies. The entrance being to the west also agrees with the rule of orientation in the Abyssinian churches. The Falashas, or Jews, of that country, I was told, have the entrance on the east. If the ruin at Yeha had been pre-Christian the door would most probably have faced the east. Although it may have been a Christian church, this does not detract from the significance of the two rude pillars at the door, as they are, no doubt, a survival of a pre-Christian arrangement.—W. S.

front of that porch there still stand two rude monoliths, one on each side of the entrance. [See fig. 4.] At the base of one “is an altar with a “circular disc on it, presumably, from the analogy “of the one at Aksum, for receiving the blood “of slaughtered victims” (p. 140). [See fig. 5.] In

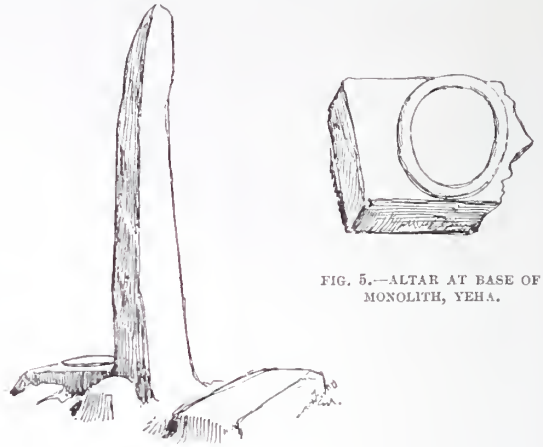


FIG. 5.—ALTAR AT BASE OF
MONOLITH, YEHA.

FIG. 4.—ONE OF THE MONOLITHS BEFORE
THE TEMPLE AT YEHA.

a footnote I have expressed the idea that this was not a Sabæan temple, but a Christian church; the altar stone with the circular disc is the only point of detail that causes me to doubt this conclusion. But whether it was pre-Christian or not is of no great consequence; the two columns before the door represent a typical arrangement that must have existed before the Christian period, and that arrangement is the same as we find in Egypt, where the obelisks stood, one on each side, in front of the principal portico of the temple.

It would, in the present state of our knowledge, be difficult to prove that the Egyptians derived this plan of placing pillars in front of their temples from the Semites; still that is not quite beyond the reach of probability; perhaps the greater probability is that the custom was common to both. Be that as it may, the series of obelisks in Abyssinia show us a line of succession from “the “rude unhewn stones up to the highly finished “and decorated obelisks,” and we may conclude, if no other reasons can be found against it, that at some far back time, when the Egyptian temple was a very primitive structure, there were two rude monoliths in front of the entrance; and that as time went on they were trimmed and hewn until at last they became the plain, simple forms we are now familiar with. Should this be finally accepted, the conclusion is that the obelisk had its origin in the primitive sacrificial altar, and the sepulchral stela is only another form of the same.

WILLIAM SIMPSON.

* * The illustrations in the above review are from sketches by the reviewer.



THE INFLUENCE OF LITERATURE ON ARCHITECTURE.*

By ARTHUR T. BOLTON [A.],

SOANE MEDALLIST 1893, ROYAL INSTITUTE SILVER MEDALLIST 1895.

SECTION I.—Literature, defined as Thought, influences Religious Architecture.

SECTION II.—Social Customs and Laws, moulded or created by Thought, influence Domestic Architecture.

SECTION III.—The pursuit of Progress and a consequent reaction influence Architecture.

INTERLUDE.—Architectural Pantheism.

SECTION IV.—Modern Philosophy by a theory of Utility influences Architecture.

CONCLUSION.—On the idea of Art governed by elementary laws as comprehensive as those of Nature.

Section I.—Literature, defined as Thought, influences Religious Architecture.

Literature is the expression of thought in words shaped by an artistic purpose. The actual moving force of the world lies more in thought than in action. "The native hue of resolution sicklied 'o'er by the pale cast of thought" is less a lament than a recognition, that even impulsive action is biassed by more or less conscious thought. The enunciation of new principles, deduced by thought from past experience, gives rise to the revolutions that change the face of nations, and the suppression of liberty in thinking has been the inevitable aim of all tyrannies. From the study the ideal of the philosopher descends to the market-place, takes a popular colour, and causes agitations in the religious, social, and political fabric of society. Thus to-day few subjects are considered without reference to that theory which at present holds the field—namely, "evolution"; with the result that, in the Church and State policy of our time, development is more considered than logic. Literature equally is affected, for in our romances we are plagued with heredity, while the poets are busy with the development of a new heaven and earth, ushered in by a realistic presentation of existing evils. In the science of war the thought "sea power," unknown a few years ago, revolutionises naval

history, and creates an activity in all the shipyards of the Powers. Thought, being thus pervasive, affects architecture, which is but the monumental register of the history and characteristics of the nation whose civilisation it expresses.

In estimating, however, the influence of literature upon architecture, we must first consider the limits of the possible action of one art upon another. It will profit us not to search the poets for architectural conceptions at once translatable into building; for the aim and province of the poet is the presentation of images of beauty to the mind's eye, and not the setting forth of architectural projects. Lessing's analysis of the limitations of poetry and painting teaches us this; for if the poet leads us on from image to image, ever drawing them by actions uninterrupted by description, the architect, on the other hand, presents us with an unchanging form, cast in beauty's mould.

The influence, then, of literature upon architecture is far more subtle, and those passages which are least detailed may be the most suggestive. Phidias, in acknowledging that Homer taught him how to render the majesty of Zeus, meant that a passage in the poem had led him to see the artistic possibilities of the "ambrosial locks upon the nodding Thunderer's brow," and thus the poet may be a pioneer, leading on the artist to grasp the essence of some phase of beauty, or sublimity, that shall give the appropriate character to a new created work.

For there can be only one expression in any one work of the three greater arts, and it can often only be attained by the use of known symbols. In these arts the gods are the personification of abstract ideas, which, to be recognisable, must always retain the same characteristics. To a sculptor an angry Venus is a complete incongruity, for the image of love must have the charms associated with the abstract idea. To the poet, however, she has her own individual character as well as the more general one. The architect should recognise that expression is closely linked to historical and national associations. Thus the Gothic style has, with us, become so recognised a symbol of religious character that its presence in a church counts for more than any deliberate devotional intention of a designer, in the religious effect produced upon the worshipper. In no country so much as in our own has the force of association so great a hold; we have a style of treatment for each distinct class of building, and the public are unimpressed when these conventions are not observed. Artistic truth may be found under such conditions as well as under the more logical status of an universal style; for the attainment of atmosphere is an end for the artist, and the limited phonetic expression of architecture renders the use of symbols inevitable. In reality the majority of buildings fail from having

* This is the Essay submitted under the motto "Bid me Discourse," to which was awarded the Institute Silver Medal (Essays) 1894-95. See p. 254 for a review, by Mr. Frank Granger [F.], D.Litt., of the Essays placed second, third, and fourth.

no character at all; the phrase "suitability of purpose," which is often used as a term of praise, means nothing more than that the need which exists for such symbols has been gratified. The cant of the studio contains various terms for this quality of expression, and with not a few coarseness or a taint of extravagance is preferred to its absence. With this preliminary limitation to its influence, we proceed to examine what benefits literature can bestow upon architecture.

I am persuaded that those writers who have dealt with beauty in a spirit of analysis have conferred the greatest benefit upon us all. Thus Ruskin, in defining the sublime from Florentine examples, deduces its straightlinedness, its somewhat of overhanging that gives awe, its ruggedness that gives character; and agree, as we may, with the examples declared to possess these qualities, still the principles laid down may serve us, when analysing those buildings which we do admire. Thus, too, Garbett, whether tracing out the law of contrast as the basis of Doric architecture, or demonstrating the causes of the rise and fall of Gothic art, or distinguishing the varied qualities of the Renaissance schools of Rome, of Florence, and of Venice, is always leading us in paths of fruitful inquiry. For the distinction of qualities is essential to the art of designing, seeing that the incompatible elements must be set aside, as Sir Joshua Reynolds shows, when ridiculing the attempts of those who proposed to combine the drawing of Michael Angelo with the colouring of Titian.

Criticism, which as the most apparent literary influence we shall next briefly review, is expected, with us, to be accompanied by performance—an unphilosophical, if practical, idea which has often deprived our critical writers of their due authority. The classic period of the Renaissance produced such critics as Milizia, and Quatremère de Quincy, who, having a standard of Vitruvius and the Roman ruins to stand upon, were able to praise and condemn with authority. But the architects of that epoch themselves best promoted the progress of their school, by such discrimination as is shown by Sir William Chambers, in his critical commentary upon classical architecture, ancient and modern. Gwilt and Leeds, however, were the last of the school, and the rigid character of the former has made him the type of a Purist, now that the whole band of writers has fallen into discredit. The Gothic revival, though ushering in modern eclecticism, began with writings of a similar tone; Parker's horror of foreign Gothic was but an echo of Chambers's disgust at Greek importations. A strict standard of condemnation, on the basis of old work, could not, however, be maintained by a revolutionary school, and there is to-day too great a confusion of practice to render the establishment of the old authority feasible. Pugin's *Contrasts*, with its rousing un-

fairness, is the model most in favour with the outside critics of to-day. The abuse of living architects has even more flavour than the denunciation of modern buildings, but ignorance of the aims and ends which designers have in view renders much of this mode of criticism beside the mark. Under such conditions, it is only natural that workers should regard all critics with hostility or indifference; but so distinguished a writer and architect as Alberti has left us this well-weighed opinion:

No artist despises the censure of the multitude who is capable of satisfying their opinion, and I would have my painter openly ask and freely hear every man's sincere opinion. Nor need the artist fear that the opinion of the detractor or the envious should in the least diminish his due applause, for the painter's merit is conspicuous and glaring, and a piece finely painted an irrefragable testimony of it. Let him consider within himself, then hear the advice of all that please to give it, and when he has heard all submit to the opinions of the best judges.

The artist, as possessing special gifts and devoting himself entirely to his art, may well embody therein facts of nature that may remain unknown, until afterwards pointed out by some critic. This superiority in the artist, however, may be balanced by the wider general knowledge, and a trained analytical faculty in the critic which should enable the latter to discern the general tendency of an artist, or of the art of the day, and in so doing to render an important service to progress. The artist of small reading is often unaware of the source of his own knowledge, much of which may be by transmission from the better informed; and, above all, he is liable to the mistake of assigning undue importance to his own thoughts, being unaware of the recurring commonplaces of the mind.

In the absence of authoritative criticism, students are split up into bands, following each some one leader of the day, and most often regarding all others as of no account. Woe, therefore, to him who in each market-place errs regarding the idol, for their attitude is thus described:—

And sooth to say, it is foolhardy thing
Rashly to witen creatures so divine;
For demigods they be and first did spring
From heaven, through graft in frailness feminine.
And well I wot, that oft I heard it spoken
How one that fairest Helen did revile
Through Judgment of the gods to her ywroken
Lost both his eyes and so remained long while,
Till he recanted had his wicked rhymes
And made amends to her with treble praise.
Beware therefore ye grooms I rede betimes
How rashly blame of Rosalind ye raise.

That literature itself could not produce architecture, or is even necessarily favourable to it, the history of the Jewish nation shows, for an unequalled literary development was unaccompanied, so far as we can judge, by any artistic work of value. The artists and architects were all apparently foreigners; and Renan has pointed out that

the Semitic love of precious materials has unfavourably influenced Christian art. Cities of gold, and precious stones, with visions of mystic compound beasts, borrowed from Assyrian and Egyptian sources, make up the contribution of the Semitic race to ideal art. So that to-day in sanctuaries, alabaster, lapis-lazuli, and gilding appear to have a significance and value, greater than that of design and execution, the Greek standard of perfection. As Alberti quaintly says:—"The Greeks, considering the works of the Assyrians and Egyptians, came to understand that the skill of the workman was more admirable than the wealth of the prince."

The first literature is Religion, which continues as a moving force—it is man's answer to the question of what he is, and where he goes; it is the most complete solution for its day, of the problem of his existence, and those of his surroundings; and has always included Science, that is the accumulation of facts, which each religion must include within its scheme. The changes of religion have been caused by the inadequacy of each theory to cover all the points, and the efforts of great minds have been directed to make their boundaries the same; until the present age, when science is directed towards a separate existence, to an imperium of its own, within the truth, which, knowable or unknowable, must include all the facts and qualities of the whole universe. Religion, thus clarified, or divorced, is the merely personal relation of the unit, spiritually, to a Creator, a matter above and beyond the tests of human facts. The unchecked development, however, of religious literature of this type would have a negative influence on architecture, very different from the positive influence exerted by the creeds of the great world. . . .*

Christianity stepped into the place of the decayed empire by civilising its overthrowers, and by its new conception of truth changed the face of the world.

A fuller light illumined all,

A breeze through all the garden swept.

Its influence on architecture was decisive, but we can only treat it allusively. In the Eastern half the most potent change it underwent was due to the iconoclastic movement, which, as an early outburst of Puritanism, nearly excluded all art from the sanctuary. As, however, this was impossible, we find that painting, allowed on the ground of its capacity for teaching dogma, has

* Here followed an historical sketch to prove from the architectural remains of Egypt, the East, Greece, and Rome the influence in question. This argument is in accordance with the traditional form of the Essays, and is further a type of the proof that would be tendered for any other of the positions taken up, if this were a treatise in place of an essay. Refer to complete copy in the Library. There are no other omissions.—A. T. B.

taken the place of the dispossessed "images." Catholicism, under Papal sway, imposed no such checks, but its elaborateness was not without some protest. The rise of the Cistercians marked a revolt from the decorative character of late Romanesque, and led to a return to the truer principles of architecture. It has been credited as one of the influences that led up to the constructive changes, by which the Gothic style was produced, the attention of architects being turned to the creation of grand effects without the use of ornament.

The early Renaissance in Italy was not uninfused, by a similar desire for a sterner style of architecture for Divine worship, which spirit is thus reflected in Alberti:—

I confess, for my own part, I am very ready to believe that purity and simplicity of colour, as of life, must be most pleasing to the Divine Being; and that it is not proper to have anything in a church that may be liable to draw off men's thoughts from devotion, and fix them upon the pleasure and delight of the senses.

And he then proceeds, as usual, to quote classical authority, as

Cicero, being guided by Plato's opinion, thought it necessary that the people should be admonished to lay aside all sort of delicacy in adorning their temples, taking care only to have them clean and white.

No one can visit Tuscany without seeing work influenced by these ideas; the Church of San Domenico at Fiesole is grand in such simplicity, and Sant' Andrea at Mantua, by Alberti himself, is one of the most imposing of church interiors by reason of its beauty of proportion, the quality of which no subsequent decoration has been able to destroy.

These reformers were, however, far surpassed in zeal by the Puritans, whose aim was the destruction of the long-descended growth of religious symbolism and art.

Puritanism, however, is too extreme to be permanent; its attitude to art is parallel to the famous regret of Milton's Adam, that woman had ever existed, and may be said to be equally futile. That the love of art is bound up in the race's structure may be taken as a truism. Puritanism may have been well said to be a revelation of the bed rock of English character, but it should find its artistic expression in the spirit of Alberti, as quoted above—that is, in the pursuit of monumental grandeur, wherein it would be aided by an equally innate dislike of frippery.

The influence of religious thought expressed in literature, with its action on architecture, has occupied our attention, but there is an important reaction to be noted. Religions have secured permanence, and affection, by the hold which the temples themselves have taken upon mankind; while as records of the faith of the past, they have been appealed to as witnesses of the corruptions of the present.

"Lord, I have loved the habitation of Thine "house, and the place where Thine honour dwell- "eth," writes the Jewish poet; and so quick is the appeal of some stately cathedral, or ancient church, to the religious sense, that, as literary images, they have been much relied upon by writers for the creation of a desired effect in their reader's mind. In *Il Penseroso* Milton associates "the high embowed roof, with antique pillars "massy proof" with recollections of sacred music, in depicting one of the pleasures of melancholy; and in the finest lyrical expression of that passion, the village church and surrounding grave-yard form the appropriate setting.

In another mood, that of aspiration, a third poet marks the spire, "star high and pointing "still to something higher." The historian also, musing over the dissolution of the mediæval system, turns to architecture for the key to its reality, and writes as follows:—

And now it is all gone—like an unsubstantial pageant faded; and between us and the old English their lies a gulf of mystery which the prose of the historian will never adequately bridge. They cannot come to us, and our imagination can but feebly penetrate to them. Only among the aisles of the cathedral, only as we gaze upon their silent figures sleeping on their tombs, some faint conceptions float before us of what these men were when they were alive; and perhaps in the sound of church bells, that peculiar creation of mediæval age, which falls upon the ear like the echo of a vanished world.

The sacredness of a site due to the traditions of antecedent worship has greatly affected the monuments of religion of all epochs. To content ourselves with but one instance, that of St. Peter's at Rome: the first basilica of St. Peter covered the place of martyrdom of the apostle, if not his actual tomb in the Circus of Nero; thus when at the Renaissance a new and magnificent temple, worthy of the centre of Christendom, was to be built, no other site, however superior, could even be considered; and in addition the soul of the architect was vexed by the condition of covering in the whole area of the previous church, which had thus acquired sanctity. To adapt a Greek cross plan to the area of a long Latin basilica, given a fixed centre of the saint's tomb, was too great a task even for Bramante, some of whose attempts remain on record; while the only merit of the later addition to his plan was that of bringing all the ancient sacred area within the church. The sacredness of sites may also be due to a cult, now long forgotten, though the architectural continuity has been maintained, as in the hill churches of Italy and on the mountain sites of the East.

Section II.—Social Customs and Laws, moulded or created by Thought, influence Domestic Architecture.

The Thought of poets and philosophers expressed in literature moulds, or creates, social customs, and laws. Such usages influence architecture, through the modifications that they cause,

in the dwellings of men. The Roman system of patrons and clients gave point to the great public atrium, from which the more private parts of the home were shut off; and the feudal castle is the product of the system of a definite relation of every tenant to his lord, who while entitled to their service was also, finally, liable for their support. The great banqueting hall with its division of above and below the salt, a hall used also as a common sleeping room, existed until the gradual waning of the system was signified in the new fashion of the withdrawing room. From this commences the development of the modern country house, which, in its highest development, is the complete expression of the pursuits and habits of the English gentleman, whose love of a country life and of country pursuits has strongly influenced our architecture. This love of the country is not modern, but is one of the most marked qualities of our race; it gave, according to Fergusson, that character to our cathedrals by which, in grouping, they differ from the French, and is to-day the cause of our pre-eminence in rural architecture. In Painting landscape is the art of modern times, and it is with us that its higher developments have originated. The love of country life finds its full expression in Shakespeare, and modern literature is often judged by the excellence of its scenic setting. Is there no parallel in our architecture for this passage from *Sir Percival*? The heroine Constance shows her home, and the scenery in which it is set, to her guest from London, Sir Percival, a lively, pleasant boy, somewhat younger than herself. It falls to her, hereafter, to relate his life-history, and this particular incident is given as follows:—

"You cannot think," I said, "how I love this place. "I want you to see it as I see it. I have never lived any- "where else. I have hardly seen anything else." We went out on the soft mossy lawn, and turned round so that Percival might see the long, low front of the house. It lay broken into endless variety of long and mullioned window, and ivied buttress, and low projecting tower in brilliant sunshine and deep shadow, and enspiritalised, it seemed to me, by the fleeting clouds that swept over the sky.

There was a low doorway which opened at once upon the chase; you came out upon a cart road formed along a sort of natural terrace, along which stretched a row of ash trees of great size and age. Beyond this the chase sloped away towards the west, with a rapid decline, into a dingle or valley in which the oaks and ashes sheltered from the wind had grown to an enormous size; and beyond the dingle and through the vista of its woods, the valley opened out with an expanse of woodland as far as eye could reach.

I had not chosen the time, I should have preferred a fine evening; but when the door in the wall was opened and we stepped out upon the chase I was content.

The radiant summer sun, alone in the cloudless sky, flooded with light a world of young green foliage, unruffled by touch of storm or age. A flickering haze drawn up from the marshy parkland by the heat quivered over the delicate green of the grass, and of the young oak leaves, and of the larger foliage of the ashes, and protected it

from the killing sunlight that annihilated all other colour in its blaze. From the green forest world below, the haze ascended against the worn, pale blue of the heaven, also killed by the blazing light, blending with the green of earth and the golden light, into an opal veil, as it seemed, of crystal amber, in which the vast expanse of woodland, a world of invisible life and possible activity, lay brooding in a sleep of silence and of rest. Beneath the spreading branches of the trees flitted stealthily the forms of deer, and other creatures, more swift and active, stirred the fluttering leaves.

I stood for a moment dazzled by this glorious sight, then I turned to my companion and looked eagerly into his face—he did not notice me, but stood looking before him with something of the same expression I had noticed before, but, as I thought, with a look of greater insight, as though some perception of a hitherto unknown fact was forcing itself upon his mind. I would not speak; some instinctive power within me kept me silent; but with all the force of an intense desire which sprang up suddenly within my soul I begged him to see! “O Percival, ‘Percival!’ though not a sound was uttered yet the words seemed to form themselves within the murmuring breeze, and throughout the rustling grass and along the spreading branches of the ashes, ‘See, only see!’”

Literature, however, has its debts; it draws, at times, an inspiration from architecture itself, and what use can be made of old work, is shown by this quaint parallel between the rustic, and his house:—

The next cottage was a very marked one, for houses grow to their owners. The low thatched roof had rounded itself and stooped down to fit itself to Job's shoulders; the walls had got short and thick to suit him, and they had a yellowish colour, like his complexion, as if chewing tobacco had stained his cheeks right through. Job had a lot of shut-up rooms in his home—and in his character, which never seemed to be open to daylight. The eaves hung over and beetled like his brows, and his face was a blank like the broad end wall of the cottage which had no window—at least you might think so until you looked up and discovered one little arrow slit, one narrow pane, and woke with a start to the idea that Job was always up there, and listening.

The love of old houses, which is so strongly felt in our time, gives rise to such literary passages as follow:—

At the edge of the park stands an old farmhouse of timber and red tile, built with those gables that our ancestors loved. Their rooms they liked of many shapes, so that each house had its own individuality. To these houses life fitted itself and grew to them—they were not mere walls but became part of existence. A man's house was himself—he could not tear himself away; it was like tearing up the shrieking mandrake by the root—almost death itself;

while the ideal country-house is thus eloquently sketched:—

It is not large nor overburdened with gables, not ornamental, nor what is called striking, but simply an old English home, genuine and true, beautiful because natural and honest, made lovely by its simplicity, like the words of an old ballad. It is no home designed to look well from which not even age has taken its artificiality.

In illustrating the debt of literature we have in the last three passages quoted from the writings of Jefferies, and, being about to return to the question

of the social conditions which may influence architecture, we shall only give but one—a sketch of an old Hall.

In a distant view the Hall could hardly be said to exist. A tall range of trees, covering the slopes above the river, enclosed meadow land as green and mossy as a lawn. A few trees on this expanse grouped, in the distance, with a range stepping down from the bank of trees above. In this descent of trees, all of stately form and rounded outline, a slight squareness at two levels, far apart, alone proclaimed the existence of the hall by this mild assertion of its towers. In the sunset light all the distance was black in foliage and grey in mist, and the ancient walling was but a solid tone of the foliage tint. Approaching nearer, huge buttressed walls of rough unmortared stones were visible, holding up the levels of the terraces above; upon them grew the lichen, moss, and every growth that Nature lavishes upon her own cliffs—seemingly here she recognised in full the kinship of man's art.

The house stood upon, or rather stepped down, the hill-side; of a grey and mossy walling, rough as the river bed below, it seemed less built upon than grown out of its rocky seat. If in this aspect, however, the Hall was of the scene, in another it would have seemed to have less in common with that richness of the grass meadows of the valley, and that surrounding luxuriance of foliage, if the balance had not been restored in the aged riven yews of the terrace, and in the rugged stems of the tall and hoary trees upon the slopes above.

The turret of the keep rose up in square outline against this bank of trees, magnificent alike in form and colour.

From the platform the view ranged over the irregular mansion, grouped round an upper and lower court; over the many bends of the rushing, gleaming river; across the rich grassy meadows that it divided; on to the opposite heights, tree-crowned, and shaded in mist.

Within, as without, it was native work; the soil gave the walls, the local mine the lead roofing, and the broad planks of the floors had needed the destruction of many of its stately trees. Native as was the material, so even more was the workmanship; work lacking the town-made finish, but having the character and honesty of nature's craftsmanship. The outdoor life of the country, the very roughness of the setting, had found an echo in the fabric of the Hall.

But to return. Of all the social influences due to literature which influence domestic architecture, the most potent is the position accorded to the women of any race whose architecture is under consideration. Such position is profoundly affected by the national literature. The conception of the ideal woman by the national poet has often been in advance of the race and age, as in Homer's poems, or in Shakespeare's plays, where women have a purity and dignity that became partially obscured in the immediately succeeding ages.

This is an aspect of the question that is prominent to-day, when imaginative literature is occupied in recasting the relations of the sexes. Nor are poets alone so occupied, for, in all likelihood, they are but following an impulse given by those who are engaged in solving problems raised by the theories of recent science. But even a temporary alteration of the relationships of men and women must have its effect upon architecture applied to social purposes. In houses alone we

may come to a dualism, especially in the country-house, when the bachelor's wing will have its correspondent, which we shall not attempt to label, while gun, billiard, and smoking-rooms will probably not be neutral ground, but, like the secretary's room, and the business room, will be as much required by the lady, as by the lord, of the mansion.

Besides, however, considering the structure of society, as affecting each individual and the architectural expression of his requirements, we must also remember that, as a whole, it exerts a powerful influence on architecture; and is itself, in its final cause, the effect of the thought of the greatest minds in the race, expressed most often in literature. Thus modern democracy does not perhaps sufficiently recognise its indebtedness to the writings of Rousseau and Bentham; and if ever its structure is changed to that of Socialism, the writers of that school, both of yesterday and to-day, will be its real founders.

Now it is remarkable that no writer of the future as seen by a man of to-day, either in the capacity of prophet, or as by one miraculously preserved to a new century, from Lytton to Bellamy, has ever failed to enlarge upon the superiority and beauty of the buildings of the new epoch. This tribute to architecture, as the outward expression of the civilisation of the race, and the proof of its progress, is remarkable, even if the attempted descriptions of the work itself are incapable of realisation. For it is not possible for the mind to project itself in advance in more than general principles; and while a Roman architect might have dreamt of a vaulted hall of surpassing lightness, we will confidently assert that a Gothic cathedral, as it is, was for him an inconceivable structure. Even a writer so romantic as Mr. Rider Haggard becomes merely theatrical in describing the imaginary temples of a vanished race. The tide of knowledge rises only by gradual accretion, and the mind looking into the romantic well sees but the reflection of its own image.

Apart, however, from all dreams of Communistic Utopias, socialistic writers have, even now, exerted an influence on architecture, being very probably the originators of the craftsmanship ideas of the day. Movements come from below, and the worker half-educates himself rather upon the most recent literature than upon that of the past. In the conception of equality, of the dignity of labour, and of the essential independence of the artist, we have ideas which tend to a revolt against the supremacy of the architect.

Individualism in the architect is the keynote of classical architecture, which does not tolerate such variations in the cardinal elements of a design, as may be found in some works of the Gothic period; which latter may have arisen, in some cases, from the insufficient authority of the real architect of the general scheme. A new rise of the individual architect to a recognised position took place

during the Renaissance period, affording to him and to us great opportunities of equally complete success, or failure.

On the other hand, socialistic ideas interpreted in a feudal spirit are not unfavourable to the architect, who then becomes the head of a scheme of peers; but if his centralising control be unduly lessened abuses must occur in the carrying out of any great scheme; as was seen in the politics of the feudal period, or in the execution of such a work as St. Peter's, Rome. In the latter case the progress made was in proportion to the fiery nature of the chief. The combination of a liberty, thus verging on licence, with authority, is as much a problem for the future architect, as for the statesman, who may both have cause to suspect the tyranny of a class, as the only motive power of a possible socialism.

The conception of what an architect is, or should be, has undoubtedly influenced architecture itself. The definitions of an architect in literature have differed at various epochs, as has been the case with his position in relation to other orders of society. The best known and the earliest remaining is that of Vitruvius, who says:

An architect should be ingenious and apt in the acquisition of knowledge. He should be a good writer, a skilful draughtsman, versed in geometry and optics, expert at figures, acquainted with history, informed on the principles of natural and moral philosophy, somewhat of a musician, not ignorant of the sciences both of law and physics, nor of the motions, laws, and relations to each other, of the heavenly bodies.

In the Middle Ages the position of the architect was one of obscurity, and allusions to him in literature become scanty; the directing patron, priest, or bishop is generally credited with the work, and the master workman, who was probably often the working architect, remains in the background. In monasteries, however, architecture was taught; the order of the Cistercians having the credit of the most refined work, and those taught in such schools were architects in fact, whatever their position on the building may have been.

At the end of the Middle Ages we have an interesting reference to architects in Shakespeare, where Lord Bardolph warns his fellow-conspirators to count the cost by an analogy drawn from the procedure of house building:—

. When we mean to build
We first survey the plot, then draw the model . . .
Consent upon a sure foundation,
Question surveyors, know our own estate
How able such a work to undergo . . .
Or else . . . we fortify in paper
Like one that draws the model of a house
Beyond his power to build it; who half through
Gives o'er, and leaves his part-created cost
A naked subject to the weeping clouds.
And waste for churlish winter's tyranny.

Vitruvius's definition was revived when his work became the standard authority of the Renaissance,

since when, the literary conception of an architect has been generally modelled upon his. Alberti, one of the first of the revivalists, a Florentine of good family and a man of wide learning, gives in his book of architecture the following definitions :

Him I call an architect who by a sure and wonderful art and method is able, both with thought and invention, to devise, and with execution to complete, all those works which, by means of the movement of great weights and the conjunction and amassment of bodies, can with the greatest beauty be adapted to the uses of mankind ; and, to be able to do this, he must have a thorough insight into the noblest and most curious sciences. Such must be the architect.

It will be noticed that this definition is, if anything, still more, what we should call scientific, than that of Vitruvius himself ; and the circumstances of the epoch, when great works to vie with those of the ancients were in contemplation, probably biassed his opinion. Since that time, however, the great development of the art of regulating and applying the forces of nature to the service of man has divided off a class of scientific specialists from the general body of architects. In spite of the arguments of such authorities as Viollet-Le-Duc, architecture and engineering are not accepted as convertible terms, and, as far as recent literature has any influence, the tendency is to further strip off those elements which are of a mathematical character. In effect recent essayists would define an architect as an artist, practical enough to give expression to his ideals, through the methods of his own art.

Section III.—The pursuit of Progress and a consequent reaction influence Architecture.

We have been considering the effect of certain progressive ideas of the day, but we have to consider in what does progress in architecture itself consist, and how do revivals of the styles of past ages affect, delay, or reverse any advance ? We have seen that architecture reflects any great social movement ; it follows therefore that, if there is such a thing as social evolution leading the race to a higher plane of existence, such a goal must also be in view for architecture. The architecture of a superior race must on this assumption be better, unless art is but the prerogative of the inferior races and dies out. The latter theory, applied to poetry at the commencement of this century, when Utilitarianism was in the ascendant, was ably refuted by Shelley, and his argument applies equally to our conception of art.

But does architecture advance ? It appears to us that its most marked characteristic is its intense conservatism, and conformity to a law of nature that alien races, which do not modify to their surroundings, die out. Whether we go back to antiquity, and see how, in Egypt, the heresy of the winged solar disc with its revolutionary ideas in art, died out in a generation, or whether we contemplate the chequered fortune of Gothic in

Romanesque districts, or that of Southern Classic in Northern countries, in all cases we find the same result. This is the meaning of transitional styles, which are the crosses that give the only life possible ; for the alien, to exist, must be infused with the national. Accordingly, the term hybrid, given in reproach by the purist to such styles as the François-Premier, or our own Elizabethan, has a better signification than he suspects, for without such epochs neither the French Néo-grec, nor our own Anglo-Classic, could ever have existed.

Nothing has been more sterile than the literature that has urged new styles, or new developments in architecture, either out of recent materials or from novel forms of construction. Such examples as the authors, or their disciples, have rashly given, have soon become objects of ridicule ; and those writers have been wiser who have confined their exhortations to a general demand for progress.

Progress in architecture, if there be such, is the result of the action of many minds, acting in a certain direction for a considerable period, which cannot be shortened by any fervour on their own or the writer's part. We see this in the development of building in iron, which from timid, and clumsy constructions in cast metal, has passed through a wrought-iron phase to the steel of our own day, and now seems about to advance to a greater future in some such metal as aluminium. If such structures as the colossal roofs and sheds erected by us in these materials are ever considered by a future race as art, the internal effect of the cast-iron nave of the Crystal Palace, or of the Palais de l'Industrie at Paris, will, when contrasted with the lighter and more graceful effect of the Galerie des Machines, or its succeeding rivals in the future metal, be found to bear the relation of a Romanesque to a Gothic interior.

It might in that case be as interesting to trace the course of this evolution, as it is to follow that of Gothic vaulting, from the Roman cross vault to the Gothic fan ; and the successors of the shuddering antiquaries of to-day may prize, as links of development, what we call the monstrosities of the nineteenth century. This is on the supposition that the theory of many writers of yesterday is true—that architecture is but appropriate construction ; a premiss that, to-day, is being called in question, when ideas of beauty before all, and obtained by any means, are again reviving.

Beauty doth of itself persuade
The eyes of men without an orator ;

or as Browning expresses it :—

If you get simple beauty and naught else,
You get about the best thing He invents.

Moreover, there is a school which sees in all art the expression of Thought, and without going over to the extremes of the Symbolists and

Mystics, we may seem to see, in the grander works of the architects of the past, traces of an imagination stretching upwards to the expression of ideas, not exactly constructional. If we held the extreme theory of the decorated construction school, we must imagine, for instance, William the Englishman turning his back upon modern architecture, and hailing the designer of the last big bridge as a superior artist. He would say, "My designs were given by convenience, and my detail by the material; but you are more advanced, for detail you have none, and laws of stress have given your design."

Leaving the allied Utilitarian theory for further discussion in the last section, we now proceed to inquire what is the meaning of the revivals that occur in each generation, for it is a mistake to suppose that they are recent phenomena. Revivals or lapses into archaic types have occurred in every age, as when Ptolemy for political reasons endeavoured to re-establish the ancient style of Egypt, building the temples of his own age in close imitation of the old; or as in Greece, when there was a lapse into an earlier style of treatment by the sculptors of a later epoch. Again, in the Romanesque period the aim of the architects was to build as the Romans, and the Middle Ages were haunted by the relics of antiquity. Never, however, had the fever of revivalism so infected the race, as when the generations that had witnessed the culmination of the Gothic system proclaimed the dawn of the Renaissance, as the clearing away of the clouds and darkness of the ages.

Bacon, describing this epoch from the near standpoint of his own time, says that

Luther, finding how hard a task of reformation he had undertaken, and being unassisted by the opinion of his own age, was forced to awake antiquity and make a party for himself, whence ancient authors that had long slumbered in libraries were wakened up and began to be generally read. Thus was brought on the study of the original languages, and hence the style and phrases came to be admired and imitated, and then did Car and Ascham in their lectures and writings almost deify Cicero and Demosthenes.

In this path architecture followed only too closely. Vitruvius became a gospel explained, rather than checked, by the study of the remains of old Rome, which it became the dream of every architect to measure. The first students, as Brunellesco, used their models in a rational way, for the dome of Sta. Maria del Fiore at Florence is no copy of the Pantheon cupola; but the later architects, as Palladio, following the bent of their generation towards a closer approximation to the classic life, endeavoured to revive the very corpse of antiquity itself.

Architecture, then, was only yielding to the general craving to live the old classic life again, for the human mind, seeking the ideal and prevented by an inherent incapacity from projecting itself into the future, seeks in the past those

qualities of which it feels a need. No revived style is more than a masque of the past, and yet no generation has ever enjoyed an architecture that was not more or less traditional, though the intensity of the love of antiquity has varied. When it possesses least force is when some change greater than usual has taken place, and delusive hopes of an entirely new future dazzle for a moment the eyes of men, ending eventually in an unusually strong revulsion to the past.

All who think progress in architecture is of slow growth will see nothing unwholesome in a revival; transitional forms must cloak new methods of construction, until new forms have been invented, and the ransacking of the old storehouse often tumbles out a forgotten treasure.

There is, moreover, a positive educational process to be gone through, and the eye has to be accustomed to new relations and proportions, differing from the accepted, without which a fresh departure is hardly possible. The proportion of a Gothic is widely different from that of a Romanesque nave, and yet both are beautiful in their most characteristic examples. So, perhaps, the wide spanning of support, with great depth of beam, characteristic of modern engineering, may be accepted hereafter, when treated by an artist.

Atmosphere, that essence of art, involves consistency in detail: therefore it is that we forego modern resources and apply the term "artistic" to that which is most imbued with the past; and though we would acknowledge that we cannot be of any past century, yet the salt of antiquity is grateful to our senses.

To attribute an architectural revival to any author in especial, as is sometimes done in the case of Sir Walter Scott and the Gothic revival, or in that of Thackeray and the style known as Queen Anne, appears to us to be a misunderstanding of the influence that any writer can have upon architecture. His share, directly, in such a revival is much smaller than is often assumed; thus, the Gothic revival appears to us as due, in its first growth, to the nation's taste for the antiquities and traditions of its history; and later, when the movement passed beyond the stage of triviality, its motive force was the renewal of life in the Church. Also in a still larger aspect to a revolt against the modern basis of civilisation, which had been developing too much, to some minds, under the influence of the old classic ideals. It was then an attempt to reassert the Mediæval scheme of social order, and to replace the present leaders of thought by a new priesthood. It has been well said that any past period is practically inconceivable, and that Newman's picture of the early Church would probably not have been recognised by the early Christians themselves: just as the characters of Scott's novels are but 18th-century men and women masquerading in Gothic attire, and as the most archæological of revival churches

will not be mistaken by posterity for the product of the Middle Ages. We are fortunately unable to sell our personality, or to prevent its stamp appearing in our works. A perception of the impossibility of a complete return to the Middle Ages was the cause of a division in the ranks of the revivalists, and one school was never tired of asserting that what they desired was no more than a point of departure, which they believed could best be found in some phase of the architecture of that epoch. That this school was less popular and successful, from the revival point of view, was due to an inevitable loss of atmosphere, the very quality for the sake of which most revivals are started.

To repeat that any writer is really responsible for such movements will be seen by the whole argument to be, for us, beside the question. That, moving with, or even partially leading a general tendency always, as we have seen, inclined to look back, he may help such a revival by his works is unquestionable; but a writer might of his own motion preach a revival of any style he liked without any effect whatever. It is, as we have seen, no part of any writer's mission to supply us with architectural conceptions; and the most that he can do is to call attention to the works of a past age by making his characters of that epoch, and, in the pursuit of atmosphere, to make them live and dress in the style of the period he wishes to describe. But in reality the debt is the other way, because the brevity of wit, abhorring long descriptions, compels a writer to raise the image he desires by an actual use of architecture. Thus the heroine of the Gothic age dwells in a frowning chateau with a drawbridge; the hero of a later epoch has a picturesque Tudor pile; that of the seventeenth century a Palladian mansion with a portico; the early nineteenth has a Doric villa, and the up-to-date society Dodo, of the Rhoda Broughton type, inhabits "a house, Jackson's latest"—all examples to show clearly that the aim of the writer is to compel his readers to call up from their memory some building of the desired epoch, with which they may be assumed to be familiar. Dryden may not have been a great poet, but at least he knew the limits of his art, and thus ridicules the trespasser:—

Sometimes an author, fond of his own thought,
Pursues its object till 'tis overwrought.
If he describes a house, he shows the face
And walks you round from place to place.
Here is a vista, there the doors unfold,
Balconies here are baluster'd with gold.
Then counts the rounds and ovals in the halls,
The festoons, friezes, and the astragals.

The poet's house is in "bare ruined choirs where
"late the sweet birds sang," or "bosom'd high
"mid tufted trees," or elsewhere girdled by "dew-
"washed, bird-haunted English lawns."

The "tendency of the age" is a phrase confess-

ing, maybe, a deplorable ignorance; but it has some value if it leads us to see that in some way there is more than one influence at work leading men in any specific direction; and, as we have seen, architecture shares in any such movement, being an outcome and a record of the civilisation of each race.

Interlude.—Architectural Pantheism.

For nought so vile that on the earth doth live,
But to the earth some special good doth give.

This is the plea of the architectural pantheist when in judgment before his one-style rival; he pleads that to him at all times the work of the human race has been worthy of study—perhaps even that nothing is wholly bad, seeing that some spark of life should have passed from its human creator to his unworthy work, and that mayhap some nobler mind will extract from it that which shall fertilise the germ of his own more beautiful creation. Your fanatic is, however, fiercely monotheistic. His creed is simple—the absolute vileness of all but one selected period, sometimes in one country only, and very likely of only one hundred years, out of the many centuries of its history. Such a dogma, current in the literature of the last generation, sounds forced to us, who have passed out of the fiery furnace of the Gothic revival, and from under the sway of its inspired prophet. Then, however, hardly did the stronger enthusiasts allow the merit of good work to the perfected art of Greece; while the complex, germ-containing architecture of Rome was condemned in language modelled on that of a prophecy.

Now, both the refutation of charges of Paganism, and the task of defining the limits of true Church architecture, have ceased to be necessary, so strangely ebbs, and flows, the tide of art movements. But if the permanency of such narrow beliefs and practices is not assured, their recurrence is an inevitable factor in all progress, and they have a driving force. A man thus resolute in a belief of his own infallibility in distinguishing the only good work, and so successful in defining its boundaries, has by so much narrowed his field of study. The late Mr. Street in Italy, and Spain, for instance—a modern Ulysses tied to a thirteenth-century Gothic pillar—resists the siren fascinations of the Renaissance; while our Pantheistic friend is distracted by the hundred forms of that dangerous charmer. The manifold character of the Renaissance has hardly been sufficiently dwelt upon: its phases ranged through all degrees of Gothic influence, from local idioms up to a grander development upon the Roman stage; it passed, by the hands of an all-embracing Church, or crept in the train of some travelling king or noble, on to a universal future, allying itself to each and all, and planting everywhere the seeds of a yet undeveloped possibility.

Consider, as an instance, that phase known as the Jesuit style. In Italy its examples are churches capable of colossal congregations, revived forums for the towns; in France it is marked by crowded masses of fanciful decoration; in Germany by strange vagaries of outline and ornament; in Spain by a stern, too harsh, simplicity, which, traversing the ocean, with wild luxuriance in Mexico, blossomed by a strange mixture of elements, local and European, symbolising the longing of its Jesuit authors to assimilate their surroundings, and to be true to their special mission of being all things to all men.

When Sextus IV. and Fontana projected a new Rome, and overrode the Roman antiquities in favour of the newly systematised classic architecture, they did not hesitate to destroy the very elements from which their formula was deduced; and the protests they encountered sprang from the opposing force of architectural pantheism, which, by the preservation of old examples, renders new developments of monotheism possible; the latter being in full youth ruthless, as it is fabled that the early man destroyed the links of his development.

As a fire, monotheism promotes progress, destroying decayed systems, and by intolerance it clears the ground, for occupation by its own exclusive formula. Soon stereotyped, it is only to be overthrown by the artillery fire of pantheistic eclecticism, which, making a breach in its system, admits the rushing forces of a newer creed. Thus forces balance, and the philosopher is confirmed as a spectator, balancing issues; while his less far-seeing friends, doing battle on one side or other, decide the victory that he would seem the best fitted to adjudge. Departing, they leave their works to a fresh critic to classify, seated in the chair of their contemporary—now, maybe, no longer known, even by his own successor.

Section IV. — Modern Philosophy by a theory of Utility influences Architecture.

The subordination of architecture to the considerations of convenience is analogous to the new philosophy of Bacon. Houses were built to live in, not to look at, is a maxim characteristic of the author of the philosophic method, whereby the mysteries of nature were to be unfolded by simple examination, and deduction, from its facts. Whether or no it results from the influence of his philosophy, it is certain that many believe, and not a few architects practise, upon the faith, that attention to all the requirements of the building, as expressed on plan, will result in beauty in the elevation. Another school holds that while this is impossible, an unembodied conception of the general character required by the elevation, must be present in the mind when forming the plan and sections, and that all three must be shaped together, so that the design as a result is affected

by their unison. During such a period as the Palladian epoch, there can be little doubt that the elevation, or external design, was subsequently fitted with a plan; and, in fact, any plan that is to be treated with a classic dress must be relaid out, when the externals have been settled, so great is the control exercised by its system, upon even the small details of the planning.

No one, however, can survey the architecture of the past, as a whole, without perceiving that there is a class of monuments that have been built mainly as ideals. The Pyramids, granted some astronomical utility has been proved, are still in the main the ideal of an everlasting tomb, a pledge of an immortality; as the Mausoleum was the eloquent expression of a grief that was stayed, only by a lasting and stately memorial of the departed.

Is Chambord no more than the hunting-lodge of a king? Is it not rather the Gothic castle, transformed by the conception of an ideal palace, the condensation of the dream of a royal traveller, haunted by recollections of Italian beauty.

It is Goethe who says that the Villa Rotonda, the most characteristic of Palladio's works, is the last word of temple architecture, and never, surely, was a dwelling-house so sacrificed to the ideal.

And yet are not these architecture?

If the Christian religion is crystallised in its cathedrals, who shall determine the exact value of the religious ideal, as against that of the convenience of the worshipper, or the necessity of the vaulting?

The isolated cathedral covered the hill, bold and stern, a firm outline amid the swirling, fleecy, clouds.

Away upon the hill those ancient towers and gables, with fretted surface full of shadow, shone tender grey against their black and silvery roofs, as a vision seen in dark, but gleaming, clouds.

Isolated as it was, the level suburbs seemed to have floated away, as though time and tendency were streams, and had borne them to the plains, where now great sheds and factories of sombre hue, spread as an indistinguishable mass, that was broken only by the tall shafts of their belching chimneys.

In which reside the doctrines of utility and of decorated construction? In the vast west front of the cathedral, in the noble towers, and in the airy chapter house; those elements which had this basis have lost such origin and meaning, outweighed by added qualities of idealism and design.

Surely it is much to be wished that the process which is to convert, say, the meeting-house, where each seat is convenient, the organ well placed, the heating and acoustics correct, into something equivalent to the beauty in that cathedral, might be hastened; otherwise, as we watch, our fields are swallowed up by the flood of spreading towns, wholly given over to materialistic architecture.

As nowadays faith claims an empire outside of all philosophies based on reason, shall we not also demand for architecture another realm, outside

the sphere of influence of any system, based too exclusively upon theories of constructive utility ?

I trust I have not wasted breath.

I think we are not wholly brain.

One of the characteristics of the day is a revolt against evolution, and even against experimental philosophy itself. It is thus voiced by Jeffries :—

We are going down to nature and taking up the elods with our own hands, and so coming to have a touch of that which is real. As yet we are in the fact stage, by-and-by we shall come to the alchemy, and get the honey for the inner mind and soul. Man's mind is the most important fact we are acquainted with ; let us therefore not be too entirely mechanical and Baconian ; let us let the soul hope, dream, and float on these oceans of accumulated facts, and feel still greater aspirations than it has ever known as yet.

Such aspirations are thus pressed upon a painter by his monk patrons in Browning's poem :—

Your business is not to catch men with show,
With homage to the perishable clay ;
But lift them up, ignore it all,
Make them forget there's such a thing as flesh.
Your business is to paint the souls of men.

And the recalcitrant painter's answer—which we have given elsewhere—that beauty is an end, would at least carry us a step beyond that theory of utilitarianism which is so rampant in our day.

For to us the greatest danger, to the once foremost art of architecture, lies in an increasing public indifference, which, after demanding attention to certain practical points, leaves all the rest to the architect ; affording a fine opportunity to the artist, but requiring from him an exceptional grasp of the tendency of his age and nation ; otherwise his work is but the expression of his own ideas, or those of some clique, and in no sense possesses a national character. Confronted with great opportunities, he may fail to give the expression, and grandeur, suitable to the purpose, and occasion. There are instances of great churches, the gift of private individuals, which seem to have too much of the whim of the donor to enlist that sympathy, which is evoked by the works of a past age, where the lively interest of the multitude has made itself felt. Much of this interest is nowadays bestowed upon the great engineering works by which the growth of the community is affected.

Of forces in England, to-day, one may be described as emotional, mainly proceeding, perhaps, from the Celtic fringe of Great Britain, many of our present leaders in thought and art being of that descent ; and the other as practical and Philistine, springing from that strong scientific cast of mind which distrusts all emotion, and all but despises art. The experimental philosophy with its practical results is what appeals to the English mind ; and agnosticism, as interpreted by its founder, is a kindred belief intended to

keep its followers out of the jungles of speculation.

It is hazardous, however, to build too much on the present tendencies of so mixed a race as the English, which has produced imaginative work of the highest order, in addition to practical results of the severest utilitarian kind ; and by a unique conception of liberty has enabled Thought to flourish in all its branches, each according to its own bent.

Conclusion.—On the idea of Art governed by elementary laws as comprehensive as those of Nature.

We learn from Bacon that all the useful arts are merely derived from a few axioms of mechanics, as thus :—

It may be stated as a fact that the ways and means hitherto discovered, and observed, of effecting any matter, or work, are for the most part of little value, and that all really efficient power depends, and is to be deduced from, the sources of forms, none of which have yet been discovered—

the sources of forms here meaning those elementary laws of nature on which all practical work is based. Thus the most important discovery of the age has been well said to be, not that of steam or electricity, but the axiom that " Force, like matter, is indestructible," and may we not imagine that all art is similarly governed by a few laws ?

The laws of form, proportion, and colour are to be observed in the masterpieces of every style ; and there are many principles common to all ; so that Garbett concludes that all art is summed up in simplicity. Alberti also says :—

So then beauty is somewhat lovely which is proper, and innate, and ornament is somewhat added on ; and it is my opinion that beauty, majesty, gracefulness, and the like charms, consist in those particulars which if you alter or take away, the whole would be made homely and disagreeable.

Endeavouring to find these general laws he turns for help to music, and says :—

I am every day more convinced of the truth of Pythagoras's saying, that Nature is sure to act consistently, and with a constant analogy, in all her operations, from whence I conclude that the same numbers, by the means of which the agreement of sounds affect our ears with delight, are the very same which please our eyes and mind.

As sings a poet of to-day :

And Orphic laws of lute and verse
All the symphonious worlds coerce,
That hour by hour their parts rehearse,
Winds, strings, and reeds,
In this orchestral universe
The Maestro leads.

The late Mr. Watkiss Lloyd in his investigations of the Parthenon, and Baron Geymüller in his studies on Bramante, have similarly endeavoured to place architecture upon some fixed basis of elementary laws, which cannot, however, be a mere mathematical system. The late César Daly

attempted in his *Hautes Études* the same goal by another path. Finding that each style has its origin in some one phase of beauty, he proposes to deduce, from an examination of all the architecture of the past, principles applicable to that phase of beauty possible in science ("l'Esthétique "scientifique") which he sees rapidly growing up around us. Architecture, he thinks, while utilitarian, is also swayed by the past; and that rationalism which merges the architect in the engineer does not satisfy him.

Another writer, Jefferies, complains that of a million books not one gives any adequate impression of Nature's beauty, and this is true of all architecture, which has never yet reached the ideal dream of the true architect. This is the meaning of Raphael's expression that he had other ends in view than those of pleasing the Pope and his age, being desirous to fathom the secrets of architecture; * an idea in accordance with the thought of to-day which represents us as on an island, in an ocean of chaos, from which our present knowledge, used as a tool, is to continually add fragments, extending the narrow refuge on which we stand. The discovery of an elemental law of nature reduces to harmony thousands of apparently conflicting facts of observation, and furnishes the means of advance; and the extraction of a principle of beauty from the architecture of the past should be equally potent.

Such ideas may tend to quackery either in literature or art, and schools of symbolists or mystics arise, who, laying hold on some partial truth, emphasise that in their work to the exclusion of all else. As also incoherents, believing in the existence of such laws, but incapable of demonstrating them, endeavour to arrive at their goal by chance methods, miscalled inspiration. Such schools produce works incapable of being understood, thus lacking that essential of nature, clearness; for Nature is obscure only through our ignorance.

To conclude, it is in such elements or primary aspects that one art influences another; thus Literature influences Architecture, when architects derive from the masterpieces of Thought both ideas and suggestions of treatment, for the artistic shaping of their own creations of Beauty, in concrete form.

* "So in youth, like Moses from the mountain, we have "sights of that House Beautiful of art which we shall "never enter—they are dreams and unsubstantial; visions "of style that repose upon no base of human meaning: "the last heart-throbs of that excited amateur who has to "die in all of us before the artist can be born. . . . But "art, of whatever nature, is a kind mistress; and though "these dreams of youth fall by their own baselessness, "others succeed, graver and more substantial; the symptoms change, the amiable malady endures; and still at "an equal distance, the House Beautiful shines upon its "hill-top."—A. T. B.



MINUTES. XVI.

At the Sixteenth General Meeting (Ordinary) of the Session, held on Monday, 24th June 1895, at 8 p.m., Mr. F. C. Penrose, F.R.S., *President*, in the Chair, with 35 Fellows (including 13 members of the Council), 33 Associates (including 2 members of the Council), and 24 visitors, the Minutes of the Meeting held 10th June 1895 [p. 550] were taken as read and signed as correct.

The following members attending for the first time since their election were formally admitted and signed the respective Registers—namely, Francis Thomas Dollman, Arthur Henry Reid (Johannesburg, S.A.R.), Herbert Frederiek Tomalin (Colombo), and William Henman (Birmingham), *Fellows*; and Frederiek Brice Hobbs (Liverpool), *Associate*.

The President delivered an Address on the presentation of the Royal Gold Medal, the gift of Her Majesty the Queen, and handed the same to Mr. James Brooks [F.], who replied in acknowledgment of the honour.

The further business on the notice-paper—namely, to consider a recommendation from the Council *re* the establishment of a new class of Subscribing Members to be called Craftsmen—for which a Special General Meeting had been convened for the same evening—having been adjourned to Monday, 8th July 1895, the proceedings terminated, and the Meeting separated at 9 p.m.

The Leicester and Leicestershire Society.

The Annual General Meeting of this Society was held on the 20th March, when the officers and Council were re-elected as follows for the year 1895-96:—President, Mr. John Goodaere [F.]; Council, Messrs. A. H. Paget [F.], A. E. Sawday [F.], T. H. Fosbrooke, and C. Baker; Hon. Treasurer, Mr. Stockdale Harrison [F.]; Hon. Secretary, Mr. S. Perkins Piek [A.].

The Bristol Society.

The Annual General Meeting of this Society was held on the 6th May, when the officers and Council for the year 1895-96 were elected as follows:—President, Mr. Henry Crisp [F.]; Vice-Presidents, Messrs. W. B. Gingell and T. S. Pope; Council, Messrs. E. W. Barnes [F.], F. Blich Bond [A.], W. V. Gough, W. S. Paul [A.], P. W. Wills, and J. Wood; Hon. Secretary and Treasurer, Mr. W. L. Bernard [F.].

The Liverpool Society.

The Annual General Meeting of this Society was held on the 6th May, when the officers and Council for 1895-96 were elected as follows:—President, Mr. A. Culshaw [F.]; Vice-Presidents, Messrs. H. W. Keef and J. Woolfall; Hon. Secretary, Mr. H. L. Beekwith; Hon. Treasurer, Mr. J. Dod; Hon. Librarian, Mr. J. W. Blakey [A.]; Council, Messrs. T. Cook [F.], T. Harnett Harrison [F.], Henry Hartley [F.], H. W. Keef, T. Mellard Reade [F.], Professor Simpson, J. Woolfall, J. W. Blakey [A.], and T. W. Haigh.

The Devon and Exeter Society.

The Annual General Meeting of this Society was held on the 6th June, when the officers and Council for 1895-96 were elected as follows:—President, Mr. Arnold Thorne [F.]; Vice-President, Mr. James Crocker [F.]; Council, Messrs. Edward Appleton [F.], M.Inst.C.E.; James Jerman [F.], Charles Cole, Frederiek James Commin, John Morgan

Pinn, and Edward George Warven; Hon. Treasurer, Charles James Tait [A.]; Hon. Secretary, not yet appointed; Assistant Secretary and Librarian, Edward E. H. Ballan.

PROCEEDINGS OF ALLIED SOCIETIES.

THE DEVON AND EXETER SOCIETY.

Annual Meeting: Mr. Jerman's Address.

At the Annual Meeting of the Devon and Exeter Architectural Society, held on Thursday, 6th June, the retiring President (Mr. James Jerman [F.]), in formally presenting the Annual Report, said:—

GENTLEMEN,—The Annual Report, as distributed to the members, does not record a long list of Papers read or a large number of Visits made. Circumstances have diverted the attention of the Society in other directions. We may hope in the near future to return to these methods, and formulate a definite policy in the shape of classes for systematic study for the benefit of our students. The work of the year has been rather that of development. A most enjoyable as well as intensely interesting meeting was held at Plymouth, and our warmest thanks are due to our professional brethren in that important neighbourhood for the arrangements made; especially are we indebted to Mr. Hine, the veteran architect of that place. We felt in meeting the architects of the district that a real advance was made in promoting the extension of the work of this Allied Society. Although the General Meetings have not been numerous, it is my duty to inform this meeting that the Society's interest has been well cared for by the indefatigable exertions of our Hon. Secretary in keeping the Council members well occupied on topics of importance to the profession.

I need only refer here especially to the production of the revised rules, and other work in connection with the carrying out of the programme laid down by the Royal Institute of British Architects for extending the work and interest of the affiliated branches. The discussion on the revised Form of Building Contract also entailed work of unusual importance to the building world. The subject had been long under anxious consideration, and your Council were glad to be able to concur in the suggestions of the Royal Institute. The labours of the Council have been made pleasant by the thoroughly united and cordial manner in which the business has been carried on, and as members of the Council I am sure we shall all agree that the success of our organisation and the good feeling displayed have been brought about in no small measure by the tact and judgment of our Hon. Secretary, Mr. Warven. His exertions for nearly five years have borne excellent fruits, and our warmest thanks are due to him for the very substantial work he has done for the Society over a long and critical period. One point of more than ordinary interest to us is the establishment of a central place for the Society's work, for the reception of our books and collections, and for meetings. It is felt that, with ordinary interest, much might be done by this movement to promote the establishment of a library of purely technical works for educational purposes. There is still much to be done in this direction, and your Council trust that at no distant period measures will be taken for promoting and co-ordinating the studies of those preparing for the three grades of examination in force at the Royal Institute. It is hoped that the technical classes now at work in the larger centres of the district, supplemented by special efforts on the part of qualified members of the profession, will afford all the requisite facilities for preparation. Probably it will be necessary before long to appoint a representative committee over the whole district to confer on the best methods of utilising the valuable educational advantages in the various technical colleges and classes already doing such good work.

With the issue of the revised rules and the firm establishment of the Society as representative of a district covering a large geographical area, we feel that the

extended scheme of the Royal Institute for promoting professional *esprit de corps* and uniformity of practice, by means of Allied Societies, will receive proper consideration at the hands of all loyal and reputable practitioners. We may thus hope to follow the best traditions of those masters of our art who have gone before, and each in his sphere contribute to the well-being and good reputation of an honourable profession. Even in these days of utilitarianism we can read with profit the remarks made by our great teacher Vitruvius, as recorded in the Preface to his 6th book, wherein he treats of the requisite qualities of an architect; and the observations made by this distinguished man, who flourished just 2,000 years since, apply equally to our own days. After this long lapse of time the true principles of our art remain, and what he inculcated in the days of his patron, the great Emperor Augustus, should prevail in the days of the greater Empress Victoria, and the same high principles stand firm. He implores architects to have no cause to blush by pursuing the profession solely for the purpose of profit, guided by no other feeling than interest, and urges them to follow it from motives of honour.

THE DUNDEE INSTITUTE.

Prize Competitions for Students.

With a view to the fuller development of the educational work in progress under the auspices of the Dundee Institute of Architecture, Science, and Art, the Council of that Institute have arranged a series of competitions, which are open to architects' pupils and others residing in the counties of Forfar, Perth, and Fife. The following are the subjects set for the Session 1895-96:—

No. 1. Best freehand sketchbook of architectural subjects from existing buildings, not less than six pages, in pencil only. Size of page not larger than 10" x 7"—not copied from any drawing.

No. 2. Best measured drawing or drawings of any architectural subject, containing plan, elevation, and section to $\frac{1}{2}$ -inch scale, and detail of a part to $\frac{1}{16}$ full size. Measurement books to be lodged. Size 21" x 14", with 4-inch margins or mounts.

No. 3. Best full-size original design for a frieze, in colour. Size of drawing, 26" x 13", on imperial mounts.

No. 4. Best water or oil colour painting, from nature. Oil colours to be half imperial. Water colours to be 14" x 9", and mounted.

No. 5. Best sketch, in any medium, from an antique subject in the Dundee Art Museum of casts. Size of work, imperial, with 4-inch margins or mounts.

No. 6. Best design of a carved mantelpiece, with overmantel, in any style, elevation and section to scale of 1 inch to 1 foot—shaded or coloured.

Competition No. 2. is limited to architects' pupils or apprentices, in Forfar, Perth, and Fife. The others are open to anyone, under 21 years of age on 31st January next, residing in the counties above mentioned.

The following conditions are applicable to all the competitions:—The competitions are not confined to Members or Associates of the Dundee Institute or their assistants or pupils. The subject submitted must be specially prepared for the competitions. The prize for each competition will be of the value of £2. 2s., and in such form as the successful competitor may prefer. The Dundee Institute reserves the right to exhibit the works submitted in competition during two months after the prizes are awarded, and may modify or withhold the prize for any subject, and increase the number or value of prizes if the works should be specially meritorious. No former prize-winner will be eligible to compete in the same subject. The adjudication of the prizes will be done by vote of not less than three referees appointed by the Council. Any work which, in the opinion of the Council, does not conform to the letter or spirit of the conditions may be disqualified. All the works submitted must be

under motto, and accompanied by a sealed envelope bearing the same motto, and containing the name and address of the competitor, and must be delivered free to the Hon. Secretary at the Institute Rooms on or before 31st January 1896. The unsuccessful works, except such as may be retained for exhibition, will be returned to the authors after 28th February 1896. The Council will take all proper care of the works submitted, but will not be responsible for any accident or damage to them.

Further information may be had from the Hon. Secretary, Mr. J. J. Henderson, 8, Bank Street, Dundee.

LEGAL.

House-drain - Combined Drain—Sewer.

VESTRY OF ST. LEONARD'S SHOREDITCH *v.* HYDE [p. 538].*

At the Worship Street Police Court on 2nd May Mr. Bushby gave his decision in the case of *The Vestry of St. Leonard's Shoreditch v. Hyde*, which had been before him on the 19th and 26th April. The defendant, Mrs. Hyde, was summoned by the vestry for having neglected to comply with certain requirements of the vestry as to the drainage of a house in Paul Street, Finsbury, her property. Counsel for the defendant had raised the question whether, under the Metropolis Management Act 1862, the drains complained of were not repairable by the vestry, as portions of the common sewers. Mr. Bushby, in giving judgment, said that to be a drain within the meaning of the Act one of three conditions must be fulfilled by it: (1) it must be a drain for the use of one house only, or (2) a drain for several houses within the same curtilage, or (3) a drain constructed under the order or sanction of the vestry. If it did not fulfil either of these conditions, the drain was a sewer, and, as such, repairable by the vestry. With respect to the observation of the vestry clerk as to the serious consequences of miles upon miles of pipes being thrown upon the rates, Mr. Bushby said that it was not for him, as magistrate, to dogmatise upon the intentions of Parliament, but it was for him to point out that if the drains were not to be left to private management they became sewers within the meaning of the Act, and were to be controlled by the vestry. He dismissed the summons, and ordered the vestry to pay three guineas costs. The vestry clerk asked for a case for argument before the High Court, and Mr. Bushby consented to state one on the legal point that the pipes in question were sewers and not drains.

KERSHAW *v.* TAYLOR.

On the 17th June Mr. Justice Wright and Mr. Justice Kennedy, sitting as a Divisional Court, had before them the case of *Kershaw v. Taylor*. This was a case stated by a metropolitan police magistrate, who had dismissed a summons under the Public Health (London) Act 1891, against the respondent for permitting a nuisance—viz. a foul and defective combined drain, and house drains connected therewith. The appellant, a sanitary inspector, proceeded by direction of the Wandsworth Board of Works, the sanitary authority for Streatham. The respondent was owner of a house known as "Avon." In August 1885 the respondent's predecessor in title gave, as building owner, written notice to the Board of his intention to build six semi-detached houses, with a plan showing the system of drainage proposed—i.e. that each pair of houses should possess a combined system of drainage. In August 1887 the Board by resolution decided not to object to the plan, subject to the drainage works being executed to the satisfaction of the surveyor. The six houses were completed, including a semi-detached pair called "Clyde" and "Avon," and another semi-detached

pair called "Wye" and "Severn" respectively. In October 1894 a nuisance, owing to defective drainage, was discovered at "Avon," and the appellant served notice on the respondent to abate it. The respondent caused the ground to be opened, and for the first time ascertained that his premises "Avon," together with "Clyde," "Wye," and "Severn," were all drained by the drain belonging to "Avon." He refused to proceed with the work of repairing the drain beyond the point where it received the drainage of "Wye" and "Severn," contending that from that point the drain was a sewer vested in the Board which he was not liable to repair. The appellant contended that the premises "Clyde," "Avon," "Wye," and "Severn" were drained by a combined operation within the meaning of the Metropolis Management Act 1855, and the Amendment Act 1862, under an order or direction of the Board, and that the resolution of August 1887 was in point of law an order or direction to that effect, so that the respondent could not be heard to say that the drain was a sewer and repairable by the Board. The respondent contended that there was no order or direction of the Board for draining the premises by combined operation within the Acts, and that the drain was a sewer from the point where it received the drainage of the premises known as "Wye." The learned magistrate was of opinion that the resolution of the Board of August 1887 was not an approval of the existing system of drainage by reason of the variance between that system and the plan attached to the resolution; that in law the existing system was a sewer from the point where it received the drainage of the premises known as "Wye." The question was whether he was right in his decision.

Mr. Channell, Q.C., and Mr. J. C. Earle appeared for the appellants, and Mr. Reginald Bray for the respondent.

The Court held that the drain in question was actually a sewer, and that the appeal must be dismissed. Their Lordships, however, gave leave to appeal.

TRAVIS *v.* UTLEY.

In connection with the decisions above noted may usefully be reported the leading case on the point—namely, *Travis v. Utley*—to which allusion was made on page 538. The Court of Appeal will have an opportunity of reviewing this decision when the above reported case of *Kershaw v. Taylor* comes before them. The case was heard in a Divisional Court (Mr. Justice Wills and Mr. Justice Wright), on 27th November and 4th December 1893, on a case stated by Justices, who had dismissed a complaint preferred by the appellant, the sanitary inspector of Halifax, against the respondent, that a drain upon certain premises owned by the appellant, situate at Nos. 105, 107, Fern Street, was in such a state as to be a nuisance or injurious to health. The respondent contended that the basement-drain complained of was "a sewer" as defined by section 4 of the Public Health Act 1875, and, in accordance with section 13 of the same Act, vested in the local authority; and, by reason of section 15, it was their duty to repair the drain and remove the nuisance, and not the duty of either the owner or occupier. Section 4 defines "drain" as follows:—"Any drain of and used for the drainage of one building 'only or premises within the same curtilage, and made 'merely for the purpose of communicating therefrom 'with . . . a sewer into which the drainage of two or 'more buildings or premises occupied by different persons 'is conveyed." The next clause defines "sewer" as including "sewers and drains of every description except 'drains to which the word 'drain' interpreted as aforesaid 'applies. . . ." The facts of the case and the drift of the arguments are sufficiently disclosed in the judgment of Mr. Justice Wills.

Mr. Forbes, Q.C., and Mr. Macmorran appeared for the appellant; and Mr. Tindal Atkinson, Q.C., and Mr. R. Cunningham Glen for the respondent.

* This and the following cases are compiled from reports in the *L. or Journal*.

The Court took time to consider its judgment, which was delivered on 4th December 1893 as follows:—

Mr. JUSTICE WILLS.—This is a point of some importance. The respondent, an owner of property, presented as long ago as 1868 plans to the Corporation of Halifax of a row of houses he proposed to build. For the purposes of drainage he bracketed every three houses in the row together, so that the first of the three drained into a pipe which went on to the second, carried off the refuse of that house, and so on to the third, which it also drained. From the third house the pipe was carried on and connected with the public sewer, and the sewage of the three houses was thus conducted into the drainage system of the town. At the time these houses were built and their drainage thus arranged the Public Health Act 1848 (11 & 12 Vict. c. 63) was in force; since then the Act of 1875 has come into operation. Now the joints of the basement-pipe in house No. 105, which received the sewage refuse from the other two houses, got out of order and caused a nuisance injurious to health. The local authority gave the respondent notice to abate the nuisance, and subsequently summoned him under section 91 of the Act of 1875. They were met by the answer that this basement-drain was a sewer within the meaning of section 4 of that Act, and vested in them, and that it was their duty under section 15 to cleanse and maintain it. There is no real difference between the definitions of "drain" and "sewer" in the Public Health Act of 1848 and the later Act of 1875; and if the present local authority are in a difficulty with regard to this particular drain, it is because their predecessors when they passed the plans of the houses in 1868 did not consider any difficulty was likely to arise. All we have, however, at present to determine is whether this drain or pipe which carries off the refuse of the three houses is or is not a sewer. In my judgment, it is perfectly clear that under the Act of 1875 sewers include any drains which receive the drainage of more than one house. I cannot see that we are bound to draw a distinction between that part of a drain which drains house A and the other parts which respectively drain houses B and C. Nor can I see anything in the section calculated to put this basement-drain outside its scope so that we are prevented giving effect to the interpreting words it contains. The difficulty here arises, not from anything repugnant in the section, but merely from the application of the words to a set of circumstances not entirely within our knowledge. In my opinion, we must adopt the plain language of the section, and hold that the basement-pipe or drain is a sewer from one end to the other, and that the sanitary authority are liable for its maintenance. The authority have brought the difficulty on themselves. They could have referred to the plans which were submitted to them or their predecessors in office, but they seem to have let the fact that there ever were any such plans drop out of sight.

Mr. JUSTICE WRIGHT.—I am of the same opinion. The plain necessity for our holding that this drain is a sewer which vests in the local authority rests upon the circumstance that the Public Health Act 1875 does empower the local authority to enter private property and put the sanitary arrangements in order. It may have been thought, and perhaps it was, that in the case of one house there would be a difficulty if the drain from it into the public sewer should vest in the local authority. But there is nothing in the words of the clause defining "drain" which avoids the difficulty. It might have been said that the provision as to the drain from a single house being a sewer would not apply because it was a part of the house. But take the case of a hundred houses, with a drain running their whole length and carrying off the refuse of all of them: it could not be contended that the portion in each house was its separate drain, and formed part of the house, and therefore could not vest in the local authority. Then it might be said that such a drain was not a sewer

because it ran under the houses and not down the street parallel with them; but it is well known that many main sewers run under private houses. I am of opinion that this appeal must be dismissed.

New Building—Galvanised Iron.

BADLEY v. THE CUCKFIELD UNION RURAL DISTRICT COUNCIL.

This was a Special Case, stated by consent of the parties for the opinion of the High Court, which came on for hearing on the 20th May before Lord Chief Justice Russell and Mr. Justice Charles, sitting as a Divisional Court.

The defendants, as the local sanitary authority, sought to remove a new building of galvanised iron which the plaintiff was in process of erecting as a sanatorium connected with a boarding-school, and the plaintiff had brought an action to restrain them from removing it.

Under the by-laws adopted by the defendants and approved by the Local Government Board in 1883, and which are in a form generally adopted by local authorities, by-law 11 lays down that "every person who shall erect a "new building shall cause such building to be enclosed "with walls constructed of good brick, stone, or other hard "and incombustible materials, properly bonded and solidly "put together (a) with good mortar compounded of good "lime and clean sharp sand, or other suitable material; "or (b) with good cement; or (c) with good cement mixed "with clean sharp sand."

The plaintiff, on 21st January 1895, submitted to the defendants' surveyor a plan of the proposed building, which, it was stated, was to be put on brick foundations with concrete floors, concrete under all wood floors, galvanised iron outside, and lined with wood inside, and iron roof. The defendants signified their disapproval of the plan, as being contrary to the above by-law. Notwithstanding their disapproval, the plaintiff commenced to put up the sanatorium with sheets of corrugated iron $\frac{1}{8}$ inch in thickness, with a layer of felt inside $\frac{3}{16}$ inch in thickness, fixed to the outside of a framework of wooden upright and horizontal posts and rails, the sheets being fixed to each other where they joined by rivets or other metal fastenings. To the inside of the framework was fixed a lining of matchboarding $\frac{3}{8}$ inch in thickness, and separated from the felt lining by a hollow space of $4\frac{1}{2}$ inches, being the thickness of the posts and rails. Notice was served on the plaintiff to pull down the work, and on his failing to comply therewith the defendants themselves took steps to remove it, whereupon the plaintiff brought an action to restrain them. It was ultimately arranged, however, to state the present Special Case for the opinion of the High Court, the points for decision being—first, whether the defendants' by-laws prohibited the erection of the proposed building; and secondly, if so, whether to that extent the by-laws were unreasonable.

Mr. S. A. T. Rowlatt, for the plaintiff, contended that neither the by-law above quoted, nor any other of the by-laws, applied to other walls than those of brick or cement, and were inapplicable to corrugated-iron buildings.

Mr. A. Glen, for the defendants, submitted that the building was not really an iron building, and that, being lined with matchwood, it was highly combustible. Such a building was absolutely prohibited by the by-laws.

The Lord Chief Justice gave judgment on the 22nd May, holding that the words "or of other hard and incombustible materials" of the by-law must be read separately from the immediate context relating to walls "bonded and "solidly put together with mortar," &c., and were clearly only applicable to brick buildings; that they would cover iron erections such as the one proposed; and that the walls in the present instance were not composed "of hard and "incombustible materials," inasmuch as the galvanised-iron sheets formed a mere skin to the mural structure. The by-law therefore applied, and the defendants were justified in seeking to remove a building contravening

such by-law under the powers given by sections 157 and 158 of the Public Health Act 1875.

Continuing to Build after Notice—Penalties.

THE LONDON COUNTY COUNCIL *v.* WORLEY.

This case arose out of the erection of a building at the corner of Kensington Court in contravention of section 85 of the Metropolis Management Act 1862, now superseded by section 49 of the London Building Act 1894. The ease has been three times in the High Court; first as *The Kensington Vestry v. Worley* (1892), with reference to the building line; secondly, as *The London County Council v. Lawrence* (1893),* as to the frontage of the building on a side street; and, thirdly, as *The London County Council v. Worley* (1894),† with reference to liability for penalties as for a continuing offence. The magistrate on the ease being remitted to him imposed only nominal penalties. But a fresh summons was taken out by the County Council for further penalties, and heard before Mr. Rose on 14th June at the West London Police Court. The County Council asked for a penalty of 40s. a day from 22nd December to 30th May, the building still remaining.

Mr. Dickens, Q.C., for the defendant, asked the magistrate not to impose the full penalties, considering that no substantial damage was done by the building, and no public object gained in taking further proceedings.

Mr. Horace Avory, in reply, said the street was only 45 feet in width. If the full penalties were not imposed, it would be worth the while of persons to break the statute. He referred to the judgment of Mr. Justice Kennedy in *The London County Council v. Worley*, his Lordship being of opinion that the continuing penalties were in substitution for an order of demolition, and said that it must not be held that there was no substantial damage, as there were the inhabitants opposite and the complaint of the Kensington Vestry.

The magistrate imposed a fine of 3s. per day, with £5 costs.

Light and Air.

CHASTEY *v.* ACKLAND.

This case, which was an appeal from Mr. Justice Cave, came before the Court of Appeal (Lord Justice Lindley, Lord Justice Lopes, and Lord Justice Kay) on 17th June.

The action was originally brought in the Chancery Division for an injunction to restrain the defendant from permitting certain new buildings to remain erected so as to interfere with the plaintiffs' ancient lights and the free access of air to the plaintiffs' premises. The plaintiffs' house was one of a row of houses running north and south which had similar courtyards behind them of a uniform width of 28 feet, the yards together forming a space of considerable length. The back windows of the plaintiffs' house looked into the yard belonging to it. In those yards opposite to the plaintiffs' house was a urinal belonging to a drill-hall on the opposite side. On the same side as the plaintiffs' house, and three houses distant therefrom, was the defendant's house. It was situated at the extreme north end of the row, and in connection with this house was a low building belonging to the defendant which closed his yard at the northern end. This building the defendant raised 16 feet, and he also erected a new building in his courtyard. The plaintiffs complained of these erections on the ground that they had diminished the light and air coming laterally to their back windows. The action was transferred to the Queen's Bench Division, and tried before Mr. Justice Cave without a jury at the Exeter Assizes. The Judge awarded £10 to the plaintiffs as damages for the obstruction of their ancient lights, but he found that the interruption to the air was serious, and occasioned a nuisance by making the air in the plaintiffs' yard more stagnant, and, taking into consideration the interference with the light and with the air, he granted a

mandatory injunction.—The defendant appealed against this injunction.

Mr. Cozens-Hardy, Q.C., and Mr. J. A. Foote were for the appellant; and Mr. Warrington, Q.C., Mr. H. E. Duke, and Mr. H. B. Edge for the respondents.

Their Lordships allowed the appeal, holding first that the plaintiffs were not entitled to an injunction on the ground of nuisance, because the emanations from the urinal were not caused by the defendant, and a mere diminution in the quantity of air, apart from lapse of time, was not a nuisance at law. Secondly, that the plaintiffs were not entitled to the passage of undefined air coming from the defendant's house past the plaintiffs' windows either under the Prescription Act or by immemorial user or lost grant. The undefined passage of air was too vague to form the subject-matter of a grant.

The judgment for the £10 stood for the plaintiffs, who got their costs of that issue; and the defendant had the costs of the other issue, together with the costs of the appeal.

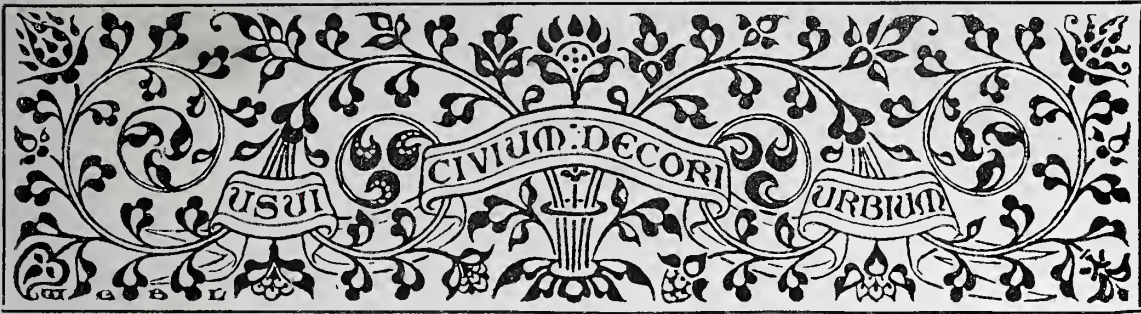
Erratum.—In the report of the case of *Mathews v. Salt* [p. 524] Mr. J. Douglass Mathews [F.] was described as "District Surveyor of Clerkenwell" instead of "acting" District Surveyor during the absence, through ill-health, of Mr. Ernest Carritt [J.].

CONFERENCE ON APPRENTICESHIP [p. 557].

The Conference which met on Tuesday the 25th June at Drapers' Hall to consider a scheme for the advancement of apprenticeship was well attended. Sir John Lubbock, M.P., presided. Mr. J. S. Ballin (chairman of the provisional committee) said that it was proposed to establish an institution which would, among other things, organise the apprenticeship of boys and girls on their leaving school to suitable handicrafts and trades, preference being given to those in which the greatest skill was required. Loans and grants of money for the payment of premiums and expenses of apprenticeship would be made, as well as for the purchase of tools where necessary. It was calculated that the premiums would average about £15 for every boy, and £5 for every girl. It was intended, except in exceptional cases, that the loans should be repaid by the apprentice by small weekly or other periodical instalments out of the wages. The institution would exercise such supervision as would secure the apprentice being taught his craft thoroughly. Mr. Sawyer (clerk to the Drapers' Company) moved: "That the system of apprenticeship is the best means of education in handicrafts, and the employment of that system tends largely to raise the *status* of the worker, to increase his or her earning capacity, and to elevate the standard of the trade or craft." Dr. Garnett seconded the resolution, which was supported by Sir H. Trueman Wood and Mr. Cole, and carried unanimously. Mr. Rokeby Price proposed: "That as large numbers of parents are unable to acquire for their children the benefits of apprenticeship, through want of means to pay premiums and other causes, they should be assisted and encouraged to apprentice their children, and that a council and executive committee be appointed to form and carry out a scheme to establish an apprentices' institution, as formulated by Mr. Ballin, the council to consist of the following gentlemen (the last eight to act as the executive committee):—The Lord Mayor, Sir John Lubbock, M.P., Mr. S. B. Boulton, Mr. G. N. Hooper, Mr. W. C. Steadman, Alderman H. R. Taylor, Mr. F. Rogers, Mr. E. C. Gibbs, Mr. J. T. Morrison, Mr. Kenrie B. Murray, Mr. F. Oldman, Mr. W. M. Sheriff, Mr. Rokeby Price, Mr. J. D. Crace, Sir H. Trueman Wood, Mr. Quintin Hogg, Mr. Sydney Webb, Dr. Garnett, Mr. J. S. Ballin, Mr. G. Von Chauvin, Mr. T. Catmut, Mr. L. B. Moyley, and Mr. F. W. Pixley." Mr. Steadman seconded the resolution, which was agreed to unanimously.

* JOURNAL, Vol. I., Third Series, p. 64.

† *Ibid.*, p. 630.



THE EXAMINATIONS: SESSION 1895-96.

FORTY years ago, when a promising youth of fifteen summers expressed, in the innocence of his heart, a wish to be an architect, his parents or guardians were often sadly perplexed with the unexpected announcement; and though, perhaps, they would not betray their ignorance by asking, as the late Sir Henry Cole did, "What is an architect?" they consulted their morning newspaper with excusable diffidence, and did not always find what they wanted, nor, indeed, what was always good for a "young man with a taste for drawing," under the accustomed advertisement "To Parents and Guardians." It was, however, absolutely necessary, they found, to get the young man into an architect's office, and in most cases a premium was paid for him, varying from £100 to £500, as the position of the architect might dictate. But the premium paid, and the young man duly and legally bound by deed of almost mediæval phraseology, the said parents had no means of judging for themselves whether the education to be received by their son was systematic or the absolute reverse—whether he would be taught, or be expected to pick up his teaching—and whether, if no system of teaching, or, indeed, no teaching whatever existed, there was any goal, near or remote, to which the unfortunate neophyte might direct his steps. Men of fifty-five who are now architects will have little difficulty in answering these queries—aye, and there are men of forty who will be able to state that the answer given by their seniors applies with equal force to their own time and its youthful experiences. Indeed, the President of the Institute, Mr. Penrose, who some fifty years ago was measuring the Parthenon, embodied whole chapters of such experiences in his pregnant remark, made to Students last January [p. 162], that the only book in the office in which he was a pupil was Peter Nicholson's *Dictionary*.

And is it very different now? And, if different, is it better than in the forties, the fifties, and even the sixties? Time, of course, will show; but meanwhile it may be confidently asserted that the parents or guardians of any promising youth who to-day conceives the idea that nature intended him to be an architect possess the means of ascertaining at a glance the course or curriculum which some hundreds of young men have already followed with considerable success, and the goal to which they have advantageously directed their steps. Neither system nor goal may be of the least use or benefit to intending architects—and this has been said and is still maintained by a few—but at least both system and goal practically exist, which was not the case even a quarter of a century ago; nay, more, they flourish and bear fruit, as the registers of the Institute during the last thirteen years suffice to prove.

Assume that a young man of the present time, having had what in this country is called a good education, honestly believes that his tastes, his capacities, his worldly position, fit him for a professional career such as that which the architect of to-day follows. His parents or guardians have, ready to their hand, a complete outline of education to be duly tested by examination. They may obtain full particulars of the scheme at the Institute in London, or

at any of the Allied Centres in the United Kingdom. If in Ireland, application may be made to the Institute of the Architects of Ireland in Dublin; if in Scotland, to the Glasgow Institute or the Dundee Institute; if in North Wales, to the Liverpool Society; and if in South Wales, to the Cardiff Architects' Society. Similar applications may be made to the Societies of Sheffield, Leicester, Manchester, Newcastle, Bristol, Nottingham, Birmingham, Leeds, Exeter, and York, each of which is the centre of a district, and able, if the opportunity offered, to carry out a local scheme of education, tested by examination, for architectural students. Assume, therefore, that a young man, either before or at the moment of entering an architect's office as an articulated pupil, applies to be admitted to the first of the three examinations qualifying for candidature as Associate R.I.B.A., namely, the Preliminary, which embraces—(1) Writing from dictation; (2) Short English Composition; (3) Arithmetic, Algebra, and the elements of Plane Geometry; (4) Geography and History; (5) either Latin, Italian, French, or German, at the applicant's choice; (6) either Geometrical Drawing or the Elements of Perspective, at the applicant's choice; (7) Elementary Mechanics and Physics; and (8) Freehand Drawing from the Round: the applicant has to show, with pen and pencil, during two days (a Tuesday and a Wednesday from 10 a.m. until 5.30 p.m.), that he is conversant with all the eight subjects above named. But if he has passed certain Examinations, such, for instance, as the Matriculation Examination at any University in the British Empire, or the Senior Local Examination conducted under the authority of any such University, he may be exempted from sitting for the first, second, third, fourth, fifth, and seventh subjects, though the Certificates he must submit in support of his claim exempt an applicant only in the subjects they cover. He may be further exempted from sitting for the sixth and eighth subjects if the drawings which he has to send in for the purpose are deemed satisfactory. But say that he passes, either by sitting for the Examination or by exemption after due inquiry. He is then registered in the Books of the Institute as a "Probationer," entitling him to many privileges, not the least of which is the use of the Library of the Institute if he be a resident in London; and if he reside in any other part of the United Kingdom, he has at least the Loan Collection of books at his service.

In the deed by which the young man has been articulated to an architect, say for three years, his parents have taken care to insert a proviso [see *Forms of Articles of Pupilage* in the *KALENDAR*] that "with the object of enabling the pupil to qualify himself for passing the "Examinations for Studentship and Associateship R.I.B.A., he (the principal) shall and will "allow the pupil such absence as he (the Principal) shall deem reasonable for the purpose of "attending lectures, classes of instruction, and the said Examinations." And the Principal might be induced to go further, and covenant to allow the pupil to prepare in the office and during office hours the "Testimonies of Study" which the latter has to submit within a minimum period of two years for admission to the second of the three examinations qualifying for candidature as Associate—namely, the Intermediate. These so-called "Testimonies"* consist of drawings and a written description, illustrated by sketches, that is to say:—

Art Section.—1 and 2. Two sheets, giving examples (one on each sheet) of any two of the Orders of Architecture here named—the Doric, the Ionic, or the Corinthian—fully figured, drawn in outline with the ornament and enrichments filled in; each sheet to contain two columns of one Order with entablature complete, drawn to scale (the columns being not less than 10 inches high on the paper), and details one-eighth full size.

* Probationers R.I.B.A. who are Architectural Students of the Royal Academy are permitted, in lieu of the Testimonies of Study Nos. 1 to 7 here specified, to submit for the approval of the Board of Examiners their work done in and for the Royal Academy School, provided that the drawings so submitted comprise studies applicable to paragraphs Nos. 4, 5, and 6, whether prepared for the Royal Academy or otherwise.

3. One sheet of details of Classic Ornament in outline.

4 and 5. Two sheets, containing examples (one on each sheet) of any two of the Periods here named—the Early English, the Decorated, or the Perpendicular—such as a door, a window, or an arcade, in plan, elevation, and section.

6. One sheet of details of Mouldings and Ornament relating to such examples, to Scale.

7. One sheet of ornament—freehand drawing from the round, in outline.

A concise description, giving such particulars as may be accessible, of the building or buildings from which the several subjects are taken, with the dates of erection and other details, illustrated by sketches of plan, general elevation, &c., and written on foolscap paper, on one side only—the whole to be the work of the Probationer's own hand.

Science Section.—8. One sheet containing diagram of timber-framed Roof Truss, not less than 30 feet span, with the nature of the strain on the several parts marked thereon, the ironwork and the junctions of the timbers drawn to a scale of one inch and a half to the foot, in isometrical projection, and dissociated.

9. One sheet showing in similar manner (see above) at least two varieties of each of the following Floors—viz. framed timber, combined iron and timber, and fire-resisting.

10 and 11. Two sheets of details of Joiner's Work in doors, windows, and fittings, shown in plan, elevation, and section, to the scale of one inch to the foot; with details, to a larger scale, of mouldings and framing.

If these "Testimonies" are approved by the Board of Examiners, the Probationer is admitted, and he has to pass a Written and Graphic Examination, on some Tuesday in November or June (from 10 a.m. until 5.30 p.m.), in (1) The Orders of Greek and Roman Architecture, (2) The Several Varieties of Classic Ornament, (3) English Architecture from the Conquest to A.D. 1500, and (4) The Characteristic Mouldings and Ornament of each period. On the subsequent Wednesday (from 10 a.m. until 5.30 p.m.) he has to pass a Written and Graphic Examination in (5) The Nature of Ordinary Building Materials, (6) The Calculation of Strengths of Materials and Resistances from Data and Formulas given, (7) The Elementary Principles of Construction, (8) Elementary Physics as applicable to Building, (9) Mensuration, Land Surveying, and Levelling, and (10) Plane Geometry applied to actual work. On the subsequent Thursday the Probationer is orally examined on the Written and Graphic work he has executed during the two previous days, and on the Testimonies of Study he submitted prior to admission to this Intermediate Examination, the successful passing of which entitles him to registration as "Student R.I.B.A." His name then appears in the List of Students published in the Annual KALENDAR of the Institute, whereby he enjoys, to all intents and purposes, the privileges of a member of the Body Corporate, except, of course, voting in General Meeting and otherwise, and of receiving the JOURNAL and other publications free.

The third and last of the examinations qualifying for candidature as Associate is called the Final, and before a Student R.I.B.A. can be admitted to it, he must submit for approval, say, within a minimum period of two years, further Testimonies of Study, defined as follows:—

Art Section.—A subject of Classic Architecture, shaded in sepia, Indian ink, or hatching, according to the rules of sciography.

A study in perspective of Classic, Mediæval, or Renaissance Architecture, in outline or shaded.

Two studies of Ornament from the round, shaded, or hatched—one Classic or Renaissance; the other Mediæval.

A design for a Building of moderate dimensions, such as a detached villa, parsonage, school, local institution, or cottage hospital, to be fully drawn out as working drawings to a scale of not less than one-eighth of an inch to the foot, in plans, elevations, and sections, duly figured and showing construction, water-supply, drainage, ventilation, &c., with sheets of details of the construction and ornament, and a perspective view.

Drawings of some Historical Building, or part of a Building, made from actual measurement, with the jointing of the masonry, &c., correctly shown, and the construction; the whole in plan, elevation,

and section, carefully figured, with details at least one quarter full size. The original sketches measured and plotted on the spot are to be appended.

Any sketch-books, evidences of study of buildings and of travel, the candidate may desire to submit, not exceeding three in number.

Science Section.—Two or more sheets of drawings showing the construction of Roofs, Floors, Arches, Retaining Walls, &c., with all the calculations for strength of the various parts fully worked out and appended thereto.

Two sheets of diagrams of Constructive Masonry—arches, vaults, or groined vaults, with the projections of the arch and vault-stones. These may, if the candidate think fit, be supplemented by complete drawings of a groined vault of any period between A.D. 1100 and 1550, from actual measurements, in plans and sections, with details of mouldings, ribs, and surfaces, accompanied by a full description of the construction, and a short historical account of the building from which taken.

Satisfactory evidence, with sketches, of having followed the carrying-out of building works, and notes of the progress and conduct of such works.

If his "Testimonies" are approved by the Board of Examiners, the Student, who must have attained the age of at least 21 years, is admitted to the Final Examination, which is an affair of six days (annually in November–December and in June–July), five of which are devoted to the Written and Graphic, and one to the Oral portions. The programme is as follows:—

FRIDAY.—1. Design of a building of moderate dimensions, or a portion of a more important edifice, to be made from particulars given, with details of construction and ornament. The drawings on this day to comprise plans, elevation, and section, to a scale of $\frac{1}{8}$ inch to the foot.

SATURDAY.—1. Design continued, comprising on this day the constructional and artistic details of the Design drawn on Friday.

MONDAY.—2. The History of Architecture, to be illustrated by sketches. The leading characteristics, history, and development of the principal styles of Architecture. Particulars of celebrated buildings and their Architects.

The special characteristics and history of any one period selected by the *Student*, which may be—

- (i.) Architecture of Italy or France from the tenth to the end of the fourteenth century.
- (ii.) Architecture of Italy or France between 1400 and 1800 A.D.
- (iii.) Architecture of England between 1100 and 1550 A.D.
- (iv.) Architecture of England between 1550 and 1800 A.D.

3. Architectural features, Mouldings and Ornament—

- (i.) Characteristic of architectural styles generally.
- (ii.) Characteristic of the special style selected by the Student.

TUESDAY.—4. The principles of Hygiene in relation to Architecture. Materials and construction with regard to health, drainage, water-supply, ventilation, lighting and heating.

5. Materials. The nature and properties of Building Materials: their decay, preservation, and quality, and their application in building.

6. Strength of Materials. The principles of stresses and strains; formulas for their calculation, and their graphic determination.

WEDNESDAY.—7. Construction. The principles of Construction and their application in practice to foundations, walls, retaining walls, arches, vaults, girders, floors, roofs, &c.; and constructive details in all trades. Shoring, underpinning, and dealing with ruinous and dangerous structures.

8. Specifications and Estimating. A specification of the work in two or more trades. The manner of specifying for the other trades. The measurement and valuation of the cost of Buildings and Materials.

9. Professional Practice. The Conditions for Building Contracts. The relative position, duties, and responsibilities of client, architect, and builder. The Legislative enactments relative to Building.

THURSDAY.—Oral Examination on the Testimonies of Studies submitted by the Student and on the Written and Graphic work executed by him during the Examination.

The Student who successfully passes this last educational ordeal becomes qualified for the Associateship of the Institute, and eligible for the award of the Ashpitel Prize, which is annually presented to the candidate who has most highly distinguished himself in the Final Examinations held during the year in which he has passed.

At the present hour the number of persons engaged in these several grades of preparation for the practice of architecture may be roundly counted as from 900 to 1,000. There are, on the books of the Institute, 736 Probationers; 142 Students, some of whom have qualified for candidature as Associate, but have not yet applied; while 25 Associates who have passed through the three courses of study and examination, with 6 others who in the first instance passed as Probationers; and it must not be forgotten that these Progressive Examinations only came into force, actually and officially, on the 1st January 1895. The entire ranks of the Associates now number 925, of whom 580 have been admitted after examination; and these are exclusive of many who, from change of profession, resignation, or death, have dropped out of the ranks. The number of those already so qualified, but who have not applied for admission as Associates (and who have not passed through the grades of Probationer and Student), reaches a considerable figure.

It remains only to anticipate a criticism on the satisfactory statement it has been possible to prepare for the information not only of the Institute, but of the public. The Institute merely examines, it does not teach! The Institute has founded an educational polity, but it does not assist the aspirant, the Probationer, and the Student to obtain the Course of Study relating to each grade, and on the details of which it only offers a means of examination. *Soit!* and, to put the matter brutally, the Institute does not care, provided an aspirant, a Probationer, or a Student is able to execute the work required of him at the Examinations, how he has obtained such information. It is sufficient for the Institute that he has got the minimum knowledge asked for on the lines and under the heads of the respective examination-programmes laid down for his guidance. Courses of study, based on these programmes, are already organised, and are being organised, all over England and in parts of Scotland; and no teaching body is more earnest in this particular than the Architectural Association (London). A diligent perusal of the *KALENDAR*, in the section devoted to the Allied Societies, will suffice to show what are the "Local Educational Facilities" at each of the District Centres in the United Kingdom this year of grace; and those who can carry their minds back for a quarter of a century, or even for fifteen years, will probably admit that the development of such local facilities is not the least remarkable result of the Obligatory Examination which first came into force in 1882.

So far, the subject has been the three Examinations qualifying for the Associateship, which must necessarily be confined to persons just beginning life. There are, however, many others who have served articles and begun the practice of their profession as assistants and as masters who are not members of the Institute. For them, a loophole of admission is provided in the Special Examination held twice a year, which is open to architects in practice not less than 25 years of age, and to chief assistants over 30 years of age, who can be exempted (by special resolution of the Council) from passing the Preliminary and Intermediate Examinations and from submitting "Testimonies of Study." They are admitted—and the privilege will be allowed to continue for a short period—to a Qualifying Examination, viz. the "Final" just described, which is conducted with especial regard to the requirements of such architects, their professional works and position being duly taken into account by the Board of Examiners.



9, CONDUIT STREET, LONDON, W., 25 July 1895.

CHRONICLE.

PROPOSED NEW BRIDGE AT VAUXHALL.

Deputation to the London County Council.

On the 17th inst. a deputation consisting of several members of the Art Standing Committee—namely, Mr. Alfred Waterhouse [F.], R.A., Sir Arthur Blomfield [F.], A.R.A., Mr. J. M. Brydon [F.], Mr. W. D. Caröe [F.], M.A., Mr. W. H. Romaine-Walker [A.], and Mr. E. W. Mountford [F.], Hon. Secretary of the Committee—attended at Spring Gardens to confer with the Bridges Committee of the London County Council on the subject of the new bridge at Vauxhall.

The deputation was courteously received by the Bridges Committee, before whom were laid the drawings showing the design prepared by the Art Committee for the proposed new bridge, which had been submitted to and approved by the Council of the Institute. Mr. Waterhouse explained at some length the views of the Art Committee with respect to the bridge, saying that it was their desire to interfere as little as possible with the design for the ironwork prepared by the engineer of the County Council. The Committee had increased the width of the stone piers from 12 feet 6 inches to 17 feet, arguing that such a width was necessary in order to give the bridge the monumental appearance so important a structure deserved. The piers had been so designed that none of the horizontal features of the ironwork were continued across them. The footpath had been corbelled out from the bridge, partly with a view to the probable reduction of cost, but more especially to obtain a sufficient degree of shadow upon the ironwork beneath, and to obviate the necessity for a cornice. On the bridge side of the piers refuges had been formed, elliptical and very shallow on plan, each provided with a stone seat divided into compartments by stone arms. It was proposed to reproduce in a somewhat more solid shape the characteristic design of the balustrade over the existing bridge, with lamp standards intended to form an integral part of the balustrade. It was suggested that above the water-line Portland stone might be substituted for the usual granite,

as being less in cost and more pleasing in appearance.

Following Mr. Waterhouse's remarks a general discussion took place between the members of the Bridges Committee and the deputation. The Chairman of the Bridges Committee expressed a fear that the Thames Conservators would not allow the proposed increase of width in the piers of the bridge. Finally, Mr. Waterhouse was requested to put the views of the deputation into writing and to forward them to the County Council. On retiring, the members of the deputation were cordially thanked by the Bridges Committee for the trouble they had taken, and for the public spirit they had displayed in the matter.

The new Form of Agreement and Schedule of Conditions for Building Contracts.

At the Special General Meeting of the 8th inst. Mr. Frederick Todd [F.], one of the Hon. Auditors for 1895-96, inquired whether the proposed issue of the Form of Agreement and Schedule of Conditions for Building Contracts would occasion any expenditure on the part of the Institute. If such were the case, and they were to be saddled with the costs, he would call attention to the fact that, according to the last account, the expense already incurred amounted to £189. 18s., of which sum £50 had gone for printing. The Institute could ill afford additional outlay, and he submitted that the matter should be seriously considered before further expenditure was sanctioned—at any rate for the present. But the President ruled that as no notice had been given of the question, and as the Meeting for that evening had been convened for a specific purpose, the speaker was out of order. Attention was, however, called to the resolutions entered on the Minutes of the Meeting of the 13th May [p. 522], which approved and authorised the issue of the new Form of Contract, and withdrew the sanction of the Institute to the further issue of the old "Heads of Conditions." As a matter of fact, the new Form of Agreement and Schedule of Conditions for Building Contracts is unlikely to be a loss. Steps were early taken to secure and preserve the property of the Institute in the copyright, and, judging by the number of copies sold annually of the "Heads of Conditions," in which the copyright was not strictly preserved, the new document, at the increased price of One Shilling, may be anticipated to ultimately reimburse its cost and prove a small source of revenue to the Institute.

A copy of the new Form is issued with the present number of the JOURNAL to every member of the Institute.

The Grant to the Architectural Association.

At the same Meeting Mr. Woodward, Hon. Associate-Auditor for 1895-96, asked, though he did not press for an answer, whether the Council

had the power to give £100 to the Architectural Association for this, the fourth year on which such a grant had been made, adding that the Institute had only sanctioned a grant of £100 per annum for three years. Mr. Woodward was not answered, nor was he strictly accurate in his observations on this subject. Anyone desirous of knowing what was originally decided and has since been done may be well advised to consult *The R.I.B.A. Journal*, N.S., Vol. VIII. p. 147 (28th January 1892). As a matter of fact, the Institute, in General Meeting on the 8th June 1891 decided to afford pecuniary assistance towards the establishment and carrying out of the A.A. scheme of education, and there and then instructed the Council to "consider and decide as speedily as possible in what manner and to what extent "such pecuniary assistance" should be given, so as to render it most beneficial in its results. The Council immediately appointed a Special Committee to consider the matter, and the Committee's suggestions were referred to the Finance Committee for consideration and report, the result being that the Council decided to grant a sum of £300, to be paid in three annual instalments, in support of the A.A. educational scheme. This decision was communicated to the Institute on the 25th January 1892, and the first instalment was paid to the Association a few days afterwards. The two other instalments were paid on the 31st January 1893 and 1894 respectively. Early in March of the current year a letter was received from the Committee of the Association expressing a hope that the Council would continue the annual grant which had been made on behalf of the Institute during the past three years, and stating that the assistance thus afforded had been of the greatest value in enabling the Association to carry on its educational work in a far more efficient manner than would have been possible without it. The letter was referred to the Finance Committee, whose Resolution on the subject was as follows:—"That it be recommended to the Council to make a grant of £100 this year to the Architectural Association, but to add thereto an intimation that it may not be possible to continue it in 1896 and subsequent years." The recommendation was approved and adopted on the 25th March, and a sum of £100 was included in the Estimate of Expenditure for 1895, which formed part of the Council Report issued to members last April, which Report was approved and adopted *nem. con.* by the Sixteenth Annual General Meeting held in May. In due course, on the 24th June 1895, a cheque for £100 was signed and ordered to be issued to the Association.

The Examinations (Architecture), 1895-96.

A Preliminary Examination to qualify for Registration as Probationer, and an Intermediate Examination of Probationers wishing to become

Students R.I.B.A., will be held on the 12th and 13th November 1895—the oral examination of Probationers taking place on the 14th November. A Final Examination, qualifying for candidature as Associate, will be held from the 22nd to the 30th November 1895 inclusive. The admission fees to these examinations are:—Preliminary, one guinea; Intermediate, two guineas; Final, three guineas, such fee being placed to the Student's credit as his entrance fee should he be elected an Associate within eighteen months from the date of passing the Final Examination.

In 1896, or at least that part of it included in the Institute Session 1895-96, the Preliminary and Intermediate Examinations will take place on the 16th and 17th June, and the Oral Examination for the Intermediate on the 18th June. The Final Examination is fixed to take place from the 26th June to the 4th July inclusive, the last three days being devoted to the Oral portions of it. The admission fees to these examinations will be:—Preliminary, two guineas; Intermediate, three guineas; Final, four guineas, three of which will be placed to the Student's credit as his entrance fee should he be elected an Associate within eighteen months from the date of passing the Final Examination.

A brief sketch of these examinations will be found on preceding pages, and programmes with forms of application may now be obtained at the office of the Institute.

The British School at Athens [p. 534].

At the General Meeting of the 10th ult. it may be remembered that the President invited attention to the excellent work done by the British School at Athens, and to its present hampered condition from want of funds; urging its claims to an annual grant from the Government in order to place it on an equal footing with the French, German, and American Schools, which are liberally supported by their respective Governments. A resolution was thereupon passed authorising the Council, on behalf of the Institute, to join in the appeal which was being addressed to the Prime Minister from various quarters with a view to getting the claims of the School publicly recognised. As a result of the meeting held in support of its interests at St. James's Palace on the 9th inst., when H.R.H. the Prince of Wales presided, the School may now reasonably hope to be supported in a manner commensurate with its importance and its name. A full report of the proceedings at this meeting will be found in "*The Times* Cuttings Book" in the Library. For present purposes it is sufficient to give a description of the School and its work, mainly derived from the admirable address delivered on the occasion by the Prince of Wales.

The School was founded twelve years ago for the study of Greek archæology, literature, and

art, in accordance with a scheme propounded by Professor Jebb in a Paper published by him early in 1883. A plot of ground for the erection of a building was generously granted by the Greek Government on the slopes of Lycabettus. With the funds subscribed at a meeting held at Marlborough House under the presidency of the Prince of Wales, a house, designed by the first Director, Mr. Penrose, was erected. In the library and reading-room of this building meetings are held in which problems of classical learning are discussed; the students are guided in their studies by the Director; and the School serves as a rallying-place, not only for special students of classical subjects, painters, and architects, but for the numerous British travellers attracted to the spot by its classic associations. The advantage to travellers of being able to consult a good library and obtain the advice and guidance of the Director of the School cannot be overestimated. Advanced students from the Home Universities have continued and completed their studies there with the greatest profit, and many of them have produced original work which has commanded the approval and respect of foreign scholars.

The excavations in Cyprus, in which the School has borne part, have yielded inscriptions and works of art of various styles and periods, especially in pottery and terra-cotta. The exploration of Megalopolis was an undertaking by which the School has obtained results of great importance and interest. Other sites in Greece have been explored, and lately ground has been broken at Alexandria. Valuable contributions have been made to the study of ancient topography, especially in Cyprus and Arcadia. Light has been thrown on many problems in the development of ancient art. One student of the School has performed the difficult task of cleaning and sorting the fragments of bronze found in the course of the excavations on the Acropolis. These bronzes have yielded inscriptions, reliefs, and decorative designs, many in a previously unknown style, and all of great moment for the history of Greek art. Another student has discovered new fragments of one of the most beautiful pieces of relief sculpture in existence—the balustrade which once crowned the bastion on which stood the Temple of Wingless Victory. Nor has the work of the School been confined to the classical period of Greece. Entering upon what was practically a new field, two of its students have thoroughly studied and illustrated the remains of Byzantine art in the churches scattered throughout the land from Attica to Ambracia, from the Peloponnesus to Salonica. The School, indeed, represents the permanent place of our country in a field of research which other nations also are cultivating in generous emulation; and in which, for a long period, Frenchmen, under the guidance of the Institut de France, were sole and supreme.

Sir Frederic Leighton, P.R.A., in moving a resolution pledging the meeting to use every effort to place the School upon a sound financial basis, said that, though the slavish reproduction of ancient models might be pernicious, the study of the supreme masters of the past was precious to us, and in none were strength, and sweetness, and subtlety—what was simple and what was sublime—combined in such admirable proportions as in the works of the Greeks.

Mr. Edwin Egerton, British Minister at Athens, bore witness as a resident at Athens to the usefulness of the School, and to the good work unobtrusively carried out by the Director and students; but, unfortunately, from want of means, it could do little in the way of exploration, and in this respect it was not flattering to our national pride to mark the contrast with the activity of the foreign Schools. The French School had a regular income of £3,120 a year, apart from special grants. Lately the French Chamber had voted extra grants of £20,000, £3,000, and £6,000 successively, making a total of £29,000. M. Homolle was in hopes that art-studentships might be founded in connection with the French School. The income of the German School was roughly £2,100, besides various special grants. Imperial funds had subsidised on a large scale the excavation of Troy last year. The Germans had lately undertaken with State subsidy extensive work at Ephesus, as they had formerly done at Pergamus and Magnesia. On the work at Olympia they had spent £40,000 with magnificent results. The income of the American School reached £2,000 per annum.

From the financial statement of the British School, it appears that last year the income barely reached £500, and in order to make up the salary of the Director to £500 the Committee were obliged to withhold the two studentships of £50 each, which in past years had been given, one to Oxford and one to Cambridge. To equip the School efficiently for educational purposes requires an income of £1,050 per annum. It has been entirely beyond their power to enter into competition with the other Schools. The sum required to bring England even approximately into line cannot be estimated, but ample employment could be found for an income of at least £1,500 a year, or a capital sum of £30,000.

The Prince of Wales said that before leaving office Sir William Harcourt, as Chancellor of the Exchequer, had taken steps to use some portion of the public funds devoted to the encouragement of scientific investigation for the support of the School, and he understood the present Ministry were willing to confirm the action of their predecessors. Several of the Oxford and Cambridge Colleges had voted grants, and the Public Schools were moving in the matter; and he trusted the generosity of private individuals would not be appealed to in vain.

The Prince of Wales in the course of his address referred in eulogistic terms to the services rendered to the School by its Hon. Architect and first Director, Mr. Penrose.

Recent Explorations at Jerusalem.

The issue, this month, of the Palestine Exploration Fund *Quarterly Statement* has suggested to Mr. William Simpson [*H.A.*] the following interesting description of work recently carried out under the auspices of the Fund:—

A Firman to carry on explorations at Jerusalem was at last, after long delays, procured for the Palestine Exploration Fund from the Sultan, and last season Dr. F. J. Bliss commenced work. Dr. Bliss had previously explored for the Fund—and that, too, in a very able manner—a mound in Judea known as Tel el Hesi, which is now supposed to have been the site of the ancient Lachish.* For some years past a considerable amount of building has been going on outside the walls of Jerusalem, and the railway which now connects the city with Jaffa may give an impulse to traffic. As this may lead still more to the covering of the ground with houses, it became desirable to have some points connected with the topography of the Holy City cleared up. The present wall of the city on the south is known to be a long way within that of the old wall, and as it is an important point in relation to our topographical knowledge to know the line of the old one, Dr. Bliss was directed to trace it out. Some years ago Mr. Maudslay had uncovered a bit of this wall at the English Burial-ground, near the Cenaculum, and Dr. Bliss began his operations there. Last season he traced the wall eastward from the burial-ground, and found portions of it still existing, with the rock scarped in some places to a considerable depth beneath. None of the stones are of the large dimensions of those in the Haram wall, but most of them are draughted. On the east of the burial-ground the plan of the wall shows a curious projection in it, as if an outlying tower connected with the wall had stood here. The remains of a gate exist at this point; an aqueduct, drains, and cisterns have also been come upon. This season, owing to crops being on the ground, and difficulties in arranging with the proprietors, Dr. Bliss, inferring the line of the wall from his previous excavations, came on it again near the Pool of Siloam. The work already accomplished at this point seems to show that the wall here turns to the northward, inclosing the Pool of Siloam, from which it may be supposed to run along the western side of the Valley of Jehoshaphat and end by a junction with the wall discovered over a quarter of a century ago by Captain (now Sir Charles) Warren, thus enclosing Ophel on the

east, and joining the Haram wall at its south-east corner. At the corner where the wall turns from the Hinnom Valley and runs up towards the Pool of Siloam the remains of an old gateway have been discovered. Two door-sills, at least, one above the other, have been found *in situ*, showing a rise at some points in the level of the roadway. The date of this portion of the wall has been already made fairly certain by Sir Charles Wilson, who points out that according to Josephus (*Wars*, v. 9, § 4) Siloam was outside the walls; while Antoninus, whose book is published in the *Palestine Pilgrim's Texts*, who wrote in 570 A.D., states that "the fountain of Siloa is at the present day within the walls of the city, because the Empress Eudocia herself added these walls to the city."* The death of this Empress is given about 455 or 460, from which the date of the wall may be pretty nearly guessed. The restoration of the walls by Eudocia is also alluded to by Evagrius in his *Ecclesiastical History*.† To confirm this it will now be necessary to seek for the inner wall above the Pool of Siloam, which, according to Josephus, existed before the one which has just been brought to light. As this exploring operation is of a very important character, and ought to be carried on with every care and attention to details, the Fund early this year thought it necessary to send out an assistant to Dr. Bliss. A selection was made of Mr. Archibald C. Dickie [*A.*], partly because of his architectural knowledge, which would be valuable, but mainly because of his ability in making drawings of whatever might chance to be discovered. In this the results have already justified the appointment, as the pages of the *Quarterly Statement*—the regular publication of the doings of the Fund—bear evidence. The great heat of this summer has, unfortunately, quite prostrated Dr. Bliss for a time, and Mr. Dickie has had to carry on the explorations alone. The last Report of what has been done, and which appears in the July issue of the *Quarterly Statement*, is by Mr. Dickie, and is accompanied with map, plans, and drawings of the masonry, including those of the gate. As it is highly essential for a correct knowledge of the topography of the Holy City that this ancient wall should be fully explored, it may be stated that the means at the command of the Palestine Exploration Fund are far from being ample. It will be a pity if the work has to be stopped, or even limited in any way.

Plans and Models of Dairies Competition.

A feature of interest to architects in connection with this year's Dairy Show at the Agricultural Hall, Islington, is the series of competitions in Plans and Models of Dairies which has been arranged by the Council of the British Dairy

* Josh. x. 3, 5; 2 Kings xviii. 14, 17.

* Antoninus Martyr, p. 21.

† i. p. 22.

Farmers' Association, under whose auspices the Show is held. The sum of £400 has been generously placed at the disposal of the Association for prizes by Sir James Blyth, Bart. Mr. W. D. Caröe [F.] will act as one of the Committee of Judges, whose names are to be shortly announced. The Show will be held from the 8th to the 11th October inclusive, and prizes for plans and models in the various classes will be awarded as follows:—

Class 81.—Plan for a Dairy, adapted for the manufacture of both Butter and Cheese, and capable of dealing with the milk of not more than 25 Cows:—First Prize £25, Second Prize £15, Third Prize £10.

Class 82.—Plan for a Dairy, adapted for the manufacture of both Butter and Cheese, and capable of dealing with the milk of not more than 50 Cows:—First Prize £25, Second Prize £15, Third Prize £10.

Class 83.—Model of a Permanent Dairy, adapted for the manufacture of both Butter and Cheese, and capable of dealing with the milk of not more than 10 Cows:—First Prize £60, Second Prize £30, Third Prize £10.

Class 84.—Model of a Permanent Dairy, adapted for the manufacture of both Butter and Cheese, and capable of dealing with the milk of from 10 to 50 Cows:—First Prize £60, Second Prize £30, Third Prize £10.

Class 85.—Model of a Portable Dairy, adapted for the manufacture of Butter, capable of being readily moved from place to place, to deal with the milk of not more than 20 cows:—First Prize £60, Second Prize £30, Third Prize £10.

The Council of the Association issue the following instructions to competitors:—

1.—The Judges will be instructed to award the Prizes only for those Plans or Models which are considered of sufficient merit, and which comply with the conditions and instructions.

2.—Plans and Models must not bear any motto, device, or distinguishing mark, but must be accompanied by a sealed envelope containing the name and address of the Competitor, which will not be opened until after the awards are made. The Plans and Models will be numbered by the Committee in the order of receipt.

3.—Plans must be drawn to a scale of $\frac{1}{4}$ inch to a foot, and be accompanied by details to a scale of 1 inch to a foot. Models must be made to a scale of 2 inches to a foot, and be accompanied by a plan of the floor or floors.

4.—All Plans and Models must be accompanied by a brief descriptive specification, having special reference to materials and construction. The variety or varieties of Cheese intended to be made in the Permanent Dairies must be stated; and, in the case of Models of Dairies, specimens of the proposed walling and roofing must be submitted, each specimen not to exceed 2 feet square. The plans in Classes 81 and 82 must be on *Imperial* paper, mounted on cardboard, and none are to be framed or glazed.

5.—Prize Winners must, before removing their exhibits, give a written undertaking, in the prescribed form, that the same shall, if and when required, be forthcoming for the purpose of exhibition at the Dairy Conference and the Dairy Show of 1896, held under the auspices of the British Dairy Farmers' Association, who reserve the right of illustrating the Prize Plans and Models in the *Journal* of the Association or otherwise.

6.—The Judges will pay special regard to the following points:—(a) Equable temperature; (b) perfect ventilation; (c) good drainage; (d) modern sanitation; (e) facilities for expeditious working; (f) cleanliness; (g) durability; (h) cheapness in construction—this point being of primary importance.

7.—Entries must be made on the official form, and sent, with a fee of 10s. for each entry, in time to reach the Secretary, Mr. William C. Young, at 12 Hanover Square,

London, W., not later than Monday, 9th September. The Plans must be delivered, carriage paid, at 12 Hanover Square, London, W., by Saturday, September 28; and the Models must be delivered, carriage paid, at the Royal Agricultural Hall, Islington, London, N., not later than 4 P.M. on Saturday, 5th October, where they will be exhibited during the Dairy Show (October 8, 9, 10, and 11).

8.—The General Rules of the Dairy Show will apply to this Competition.

The late Thomas Chatfeild Clarke [F.].

Mr. Chatfeild Clarke, whose death occurred on the 28th ult., was born at Newport, in the Isle of Wight, in the year 1829. He was educated at home by a private tutor, and afterwards came to London, and was articled to the late Mr. Richard Tress, an architect and surveyor in the City. He commenced practice on his own account in 1855. Among the more important buildings carried out by him may be mentioned the London and Lancashire Life Insurance Company Head Offices, the Royal Bank of Scotland, the *Daily News* Offices, the Bishopsgate School for Girls, several blocks on the Duke of Westminster's estate, the schools of the Mercers' Company at Barnard's Inn, the Church of St. James, Gunnersbury; Essex and Unity Churches, and several chapels. As a school architect Mr. Clarke was well known. In addition to those already mentioned, he built the Mary Datchelor School, now taken over by the Clothworkers' Company; the new Science wing of the Cowper Street Schools, and most of the schools of the Hornsey School Board. He was the architect of several large blocks of offices in all parts of the City, and of wharves and warehouses in the East End. He was largely instrumental in the erection of model dwellings for the poor. He was for many years Surveyor to the Fishmongers' Company, to the Cordwainers' Company, and to Dr. Williams's Charity Estate. Mr. Chatfeild Clarke became an Associate of the Institute in 1855 and a Fellow in 1862, and was one of the few remaining Life Members. He served on the Council from 1872 to 1874. He was one of the founders of the Surveyors' Institution, which first started in 1868, acting as Vice-President in 1888, and President in 1894; and he was appointed their first representative on the new Tribunal of Appeal created by the London Building Act 1894.

The late August Reichensperger [*Hon. Corr. M.*].

Dr. Reichensperger, who died at Cologne on the 16th inst., had been an Hon. Corresponding Member of the Institute since 1865. He was born at Coblenz on the 22nd March 1808, and after studying law at Bonn, Heidelberg, and Berlin he held various legal appointments until his retirement in 1875. He entered the Frankfort Parliament in 1848, and two years later was elected a member of the Lower House of the Prussian Diet, where, in conjunction with his brother, he formed and led the party known as the "Centre." In

1871 he received a mandate for the Imperial Diet, which he held until 1884. Reichensperger was possessed of great artistic abilities, and was devotedly attached to the Gothic style of architecture. The restoration of Cologne Cathedral was due in no small measure to his exertions, and at an early period of his career he was appointed one of the judges in the competition for a cathedral at Lille, in France. He was a warm admirer of the Institute, of which and its work he gave a long and appreciative description in the *Zeitschrift für christliche Kunst* a few years ago. Several pamphlets of his on architectural and æsthetical subjects are in the Library.

Re-appointment of a Competitions Committee.

In view of the difficulties and misunderstandings which continue to arise in the matter of Architectural Competitions, the Council have appointed a Special Committee consisting of the Past Presidents, Messrs. Charles Barry, F.S.A., Alfred Waterhouse, R.A., and J. Macvicar Anderson; of the Past Vice-Presidents, Mr. Henry Currey and Sir Arthur Blomfield, A.R.A.; of the Presidents for the time being of the Architectural Association (London), the Birmingham Association, the Liverpool Society, and the Manchester Society; with Messrs. James Brooks, Cole A. Adams, Edward W. Mountford, and Rowland Plumbe, *Fellows*; and Mr. G. Richards Julian, *Associate*. All these gentlemen have consented to act, and the Committee will be called together at an early opportunity.

The Schedule of Practice and Charges.

The Council desire to make known that the Practice Standing Committee of the Institute propose to undertake the re-consideration of the Schedule of Professional Practice and Charges of Architects, with a view to its revision if thought advisable; and that the Committee are prepared to receive from members of the Institute generally any suggestions for alterations or modifications of the several clauses, to which they will give careful attention. Such suggestions should be addressed to the Hon. Secretaries of the Practice Standing Committee at the Office of the Institute.

"The Building of Towns."

Monsieur Charles Buls [*Hon. Corr. M.*], the Burgomaster of Brussels, has recently translated into French a report, presented by Herr Stübben to the International Congress of Engineers held at Chicago in 1893, containing Rules, practical and æsthetic, to be followed in the elaboration of plans of cities and towns. Herr Stübben, who, it may be remembered, is the Vice-President of the Architects' and Engineers' *Verein* for Rhenish Prussia and Westphalia, headed an excursion of German architects and engineers to England last May; and he has since sent to the Institute Library two excellent Papers: one on the Sanitation of Italian Cities, and the other on the Building of Towns in

the past and at present; both of which are reviewed, on a subsequent page, with taste, judgment, and knowledge by Miss Ethel Charles, a Probationer of the Institute. No one is better able, from the vast opportunities of inquiry he has enjoyed, to treat of the management and building of towns than Herr Stübben, and the French translation of his original report to the Chicago Congress, by M. Buls, facilitates the preparation of a review of it which will appear in due course.

REVIEWS. XXIX.

(81.)

ARCHITECTURE FOR THE PUBLIC.

Architecture for General Readers: a Short Treatise on the Principles and Motives of Architectural Design. With a Historical Sketch. By H. Heathcote Statham, F.R.I.B.A., Editor of "The Builder." With Illustrations drawn by the Author. 8o. Lond. 1895. Price 12s. [Messrs. Chapman & Hall, 11 Henrietta Street, Covent Garden.]

The object of Mr. Statham's book, as described in his own language, is "to supply, in a condensed form, such an outline of the principles, the practice, and the historical development of the art of Architecture as may be acceptable to those who, taking an intelligent interest in the subject, have not time or inclination to study more technical and detailed treatises." The aim that the writer thus set before himself he has carried out in a volume characterised by lucid exposition, and by a practical common-sense method of dealing with architectural problems, which should make it widely appreciated by the general readers for whom it is primarily intended. At the same time, the book is by no means a mere "popular" treatise, but deals with architecture in the spirit of an architect, and it contains many discussions into which professional readers will throw themselves with interest. The following is a characteristic passage from the chapter on "Architecture in relation to Cities and Landscape," in which we may note that the author shows a correct judgment in his constant references to the compositions of Turner. He is speaking of Gothic in town and country (p. 185):—

Gothic architecture of the later period is the architecture of town rather than of country; its multitudinous detail, which in a city supplies an element of richness and variety of detail, in the country only seems attempting to compete with the infinite detail of nature; and its varied skyline does not present sufficient contrast with the equally varied skyline or silhouette presented by trees. The early Cistercian monastery churches, nearly always placed in wooded valleys, were of a broad and simple style of architecture with little decorative detail, and their expression of repose, and the broad simplicity of their architectural design, harmonise admirably with their situation. Such Gothic as Henry VII.'s Chapel, on the other hand, is essentially city architecture. So also are the French cathedrals of the middle Gothic period, with their forest of stone scaffolding in the shape of flying buttresses; in an open country they would be intrusive and pretentious; in a city,

with houses piled up all round their base, they seem the natural expression of the crowded and intricate life of the city. Our simpler English Gothic has in many of its examples an expression of repose and reserve which fits it for the very different position which most English cathedrals occupy, in the midst of an enclosed lawn or "close."

Mr. Statham's work consists of two parts, one bearing the title of the book as a whole, and the other designated an "Historical Sketch." The first part is the larger and more important of the two. It is original in plan, and contains the expression of the author's personal views, while the narrative part proceeds on more conventional lines, and provides the reader with information rather than with stimulus to reflection. On this account one wonders to find the author making a half-apology in his Preface for the comparatively brief space devoted to the Historical Sketch when measured against the "theoretical considerations." To most readers it is these last that will constitute the real value of the book. For our own part we would willingly have had them greatly extended, even at the cost of a surrender of the more strictly historical section. The history of architectural styles has often been sketched, while we do not remember to have seen, in any language, so clear and well-reasoned an exposition of the principles of architectural effect as that contained in the first part of Mr. Statham's book. The explanations he gives, such as that on "the philosophy of 'elevations, plans, and sections,'" and on "working drawings," are of a kind particularly welcome to the general reader, who may never have had the opportunity of hearing these technical matters expounded by a professional architect. The discussions into which he enters, such as those on the importance of mouldings, on "planning," and on "architectural expression," belong to what we may call the essence of the art, and need especially to be brought home to the minds of the uninitiated. The view of architecture as merely a framework for the display of carved and painted decoration, once propounded in an unfortunate hour by Mr. Ruskin, has still many adherents among those æsthetically inclined; and any exposition of the fundamental truths of the art that can reach the popular ear is serviceable and well-timed. There are, however, other questions of architectural theory as important as those Mr. Statham has dealt with, and there is ample room for an extension of the general discussions, which may perhaps find a place in a second edition of this interesting book.

In the case of what we may call the metaphysics of architectural theory the author touches on the relation between architecture and music, a theme he would naturally be expected to make his own. We miss, however, any notice of what is, after all, the fundamental element in the æsthetic effect of architectural monuments—the impression of grandeur and magnitude. There is no question

that architecture would lose a great part of its power over our minds if it were not that we derive a distinct æsthetic pleasure from the contemplation of what is vast. This is what writers on æsthetics call the impression of Sublimity; and though formal discussions on "the Sublime" may seem to us a little pedantic and old-fashioned, yet it is impossible to treat adequately of architecture without taking into account the grandeur as well as the beauty which belongs to noble buildings. A page or two on this theme would have made Mr. Statham's first chapter more complete.

Another point, which Mr. Statham has passed over somewhat too lightly, is the importance of conformity in architectural monuments to some recognised style. He insists rightly on the necessity for every work of architecture worthy the name possessing the general attribute of "style." Style he defines (p. 49) much as Gottfried Semper had defined it in "der Stil," as implying "a uniform system of construction, and the consistent expression of that construction in the design, combined with a consistency in regard to feeling, scale, and general treatment of the details, with suitability to their position." It is not enough, however, for a building to have "style" in the abstract—it must have *a style*. In other words, an architect cannot evolve a successful building out of his own head, even by following the laws of style as they are summarised in this book. He must conform in general aspect and detail to recognised standards. In the days when architecture was still a living art the buildings of each time and locality had a close family resemblance; and even in our own days, when, as Mr. Statham notices on his closing page, we are personal and eclectic in our tastes, the architect can only in a limited degree invent new forms and details for himself; he must conform more or less closely to standard models. That is to say, there is a limit to the successful expression of the artist's individuality in his work. Unfettered invention would be as bad as the slavish copying, against which Mr. Statham more than once inveighs. A building in which the mouldings had all original profiles, and the ornamented motives were devised for the occasion, would appear to us a piece of barbarism, worse in its way than the cold correctness, say, of modern Munich classicism. The reason of this would have been worth discussing. It is probable that the same principle is involved here as in the case of the use of natural forms in architectural ornament. On pages 152, 153 Mr. Statham gives some reasons why natural forms must be conventionalised to make them suitable as architectural details. The truth is that a certain restraint and severity is needed in architecture. Liveliness, individuality, the charm of Nature's variety and unexpectedness, valuable as they are in their own proper place, have very little

to do with this most dignified of the arts. Details which attract too much attention to themselves, either from their novelty or their imitative character, detract from the broad general effect of the whole mass, which is by far the most important matter. Hence the designer of details, such as mouldings, caps, and bases, must keep more or less within the recognised limits of the accepted styles, just as the carver should stiffen and make symmetrical the wayward and flowing forms of natural foliage.

There are other open questions of architectural theory which the author would probably have noticed had the space at his command allowed, and which he may find subsequent opportunities for discussing. In the matters with which he actually deals, there is more than one point we should like to have time to argue with him. In connection with "Theories of Proportion," Mr. Statham rightly rejects the notion of Viollet-Le-Duc and others that Gothic buildings were designed on a basis of imaginary geometrical figures, yet he still holds that the Greeks designed on "some definite geometrical system of regulating the sizes of the different parts." For our own part we think that the case was precisely the same with Greek as with Gothic builders. The men who really created and matured the styles worked, as all true artists have worked, by tact and judgment. Later on, when the life had died out of the styles, came along the measurers, and finding that the different parts of standard buildings were, on the average, more or less commensurable, they made out a theory of absolute commensurability, which passed into the works of technical writers of the calibre of Vitruvius. On this question, as on others bearing on classical architecture, the book of Professor Durm, *Die Baukunst der Griechen*—a work not so well known in this country as it deserves to be—has to be reckoned with. Professor Durm denies the commensurability of the parts of Greek buildings, scouts the whole theory of the "curvature of the horizontals" as part of a reasoned scheme, and shows that Vitruvius's proportions and measurements hardly ever agree with the actual monuments!

We have said that the "Historical Sketch" seems to us of less value and interest than the more theoretical portions of Mr. Statham's work. The "Sketch" is accurate and up-to-date, in so far as it agrees with the conclusions of the standard authorities for the various recognised periods; it does not, however, go behind these periods and attempt any investigation of those obscure, but most important, intermediate epochs when the different styles were, so to say, in formation. For example, on page 241 the author turns at once from classical Greek to Roman architecture, without even a glance at that later Greek or Hellenistic period, when some of the most magnificent cities the

world has ever seen—Alexandria, Antioch, Seleukeia—were built and adorned, and when there came about a sort of fusion between Greek and Oriental traditions, from which, in time, Roman Imperial architecture was to grow. We are glad to see that the author fully values the dome as an architectural feature, but he probably under-estimates its historical importance as a traditional feature in the old architecture of the East. M. Choisy, in his *Art de Bâtir chez les Byzantins*, attempts to bring this old Oriental tradition into connection with the later development of dome construction at Byzantium, and one would have been glad of some notice of this theory.

Similarly, in the case of Christian architecture, on page 280 Mr. Statham speaks of the "process" of transformation from the early Romanesque "architecture of the fifth century to the complete Gothic of the early thirteenth," but really only deals in the text with the latter part of this long period—the transition from the developed round-arched styles of the eleventh and twelfth centuries to the pointed style. The more obscure earlier period, when the Romanesque styles were themselves being evolved from Roman and early Christian forms, is, however, especially worthy of study. It is one of the most important epochs in the whole of architectural history; yet how little do we really, at present, know about the evolution of the tower as a feature in architectural composition, or about the development of the cruciform ground plan! In connection with the latter point we notice that Mr. Statham holds to the old view, universal a few years ago, that the evolution had its starting-point in the transverse space or embryo transepts across the altar end of early Christian basilicas, such as old St. Peter's at Rome. As a matter of fact, this transverse space only occurs in the earlier Roman basilicas, especially those of great size like St. Peter's, St. Paul's, or St. John Lateran, while it almost entirely dies out at Rome at a later period, and in the basilicas of Ravenna it never occurs at all. It seems probable that the normal ground-plan of the mediæval church was derived rather from the cruciform buildings erected, at first for sepulchral purposes, as early as the time of Constantine, and much favoured at Milan and its neighbourhood at the end of the fourth century. Many investigators are now looking to North Italy as the real scene of the development of mediæval from early Christian architecture.

Archæological considerations such as these may be considered by Mr. Statham beyond the scope of his treatise; and, indeed, he shows no disposition to investigate minutely problems of origin. A chapter on Mouldings seems hardly complete without a notice of the question how such an un-stone-like feature came to play such an important part in the effect of stone masonry. Just as rustication in its various forms is an essentially

stone feature, so mouldings, with their long level lines, would seem to belong naturally not to stone, but to timber construction. How easily a moulding is worked in wood! It was probably in the wooden prototypes of the Greek temples that mouldings were first evolved and their effectiveness demonstrated. In connection with ornament, questions of origin can hardly be neglected. Mr. Statham instances on page 164 the ox-head (or skull), with wreaths and pateræ, which appears on Roman friezes, and which, he says, "symbolised " the sacrifices which went on within the temple." The real fact is that the carved ornament is just a copy of actual skulls and garlands which used to be hung for decoration on altars, at which the beasts to which they belonged had been slain. The "horns of the altar" spoken of in the Old Testament were once the real horns of sacrificed creatures. So, too, the foliage ornament carved on capitals is just a copy of actual foliage wreathed for festal purposes round the heads of the posts of a porch, and this will explain the circumstance, at which the author expresses surprise, that carved foliage is used on classical capitals, and not on bases.

Certain points in the "Historical Sketch" may have a word. A distinction should always be drawn between the architecture of Old Babylonia and the comparatively late work found in Assyria. The date of Khorsabad (page 216) is nothing like 1300 B.C. It was erected by Sargon II., the conqueror of Samaria, a little before the year 700. There is really no direct evidence connecting Greek architecture with Egypt, and if the Greeks had borrowed anything thence would they have failed to annex some of the more striking and prevalent Egyptian features, such as the Papyrus columns or the cornice? The oldest Doric temple of which we know anything is the Heræum at Olympia, and here the proofs of wooden origin for the columns, as well as the other features, are convincing.

On the whole we may congratulate Mr. Statham on an interesting and useful work, to which we wish, in the interests of artistic teaching, every possible success. It is so seldom that an artist will take the trouble to write about his art in a connected and philosophical manner, as Mr. Statham has done, that we may be pardoned for grudging the space he has given to architectural history, with which the non-professional can fairly well deal. The two chapters on Trabeated and Arcuated Architecture might have been extended so as to embrace a notice of the main historical phases of the two great styles, and the history proper might have formed the subject of a separate essay, or been left to other hands. Impatience of theory is a constantly appearing foible of the professional mind, and one is thankful to a professional writer for giving to theory the intention and importance it deserves.

It only remains to say that the book is admirably illustrated. The cuts in the text are clear, as well as aptly chosen, but some of the "ink " photos " on the separate plates are a little faint.
Edinburgh. G. BALDWIN BROWN.

(82.)

TWO RECENT PAMPHLETS.

Gesundheitliche Verbesserungen baulicher Art in italienischen Städten. Von J. Stübben, Kgl. Bau Rath in Köln. Mit 17 Abbildungen. Roy. 8o. Bonn, 1895. [Emil Strauss, Bonn.]
Der Bau der Städte in Geschichte und Gegenwart. Von J. Stübben. Roy. 8o. Berlin, 1895. [Wilhelm Ernst & Sohn, Berlin.]

The first of the two pamphlets whose titles are given above contains a record of the greatest sanitary undertakings of the century. Most of the European nations, with England at their head, have for some time past been gradually improving the sanitary condition of their towns; but none have set to work with the same energy or attained such surprising results as Italy.

Herr Stübben recognises the extent of his subject and has dealt with it in a concise and practical way. He has chosen four typical and striking examples—Rome, Naples, Palermo, and Florence—and has devoted a separate section to each, describing the alterations and additions made to the old towns, their water-supplies, and systems of drainage. These changes were peculiarly difficult to effect in Rome, where the laws regarding the pulling down of old buildings are so strict. Nevertheless, about thirty important streets have been cut through the town, and many squares and gardens provided and planted to afford the breathing space and fresh air essential to so crowded a city as Rome.

The most important roadway, as far as health is concerned, is the embankment of the Tiber, which has been planned for centuries and at last has been executed. It is true that in its present unfinished condition the embankment is an eyesore, and many picturesque buildings had to be sacrificed to make way for it, which called forth much indignant protest from hysterical writers; but picturesqueness had to give way to considerations of health, and the yearly flooding of the lower parts of the city was a source of great danger and inconvenience to the poorer inhabitants. The drainage of the town is much facilitated by the excellent water-supply that Rome has always possessed. Frontinus, in the first century, counted nine aqueducts, and five more were added later on. These fell into disrepair in the Middle Ages, but several of them have been reconstructed, so that Rome is supplied with 232,000 cm. of water daily. By means of a carefully arranged system of automatic flushing, the huge caverns, constructed well-nigh 2,500 years ago, which would nowadays be considered most faulty both

in shape and construction, have been converted into a sewerage system which, though still far from perfect, may compare favourably with the sewers round the House of Commons about five years ago, or with modern horrors not yet twenty years old. Five main sewers collect the soil and waste water from the different quarters of the city and discharge into the Tiber some miles below Rome. This was all the more necessary because, while the river was high, the drains, so far from emptying themselves, had their contents forced backwards, and flooded the open ground round the Pantheon, forming small lakes in the Forum and other low-lying sites.

"See Naples and die" used to possess a double meaning up to a very short time ago; for words fail to describe the state of filth the town had reached when, in 1884, cholera struck a decisive blow, and by carrying off 7,000 souls forced the Government to take rapid and stringent measures towards the cleansing of the town. The poorer classes herded together in cellars beneath the ground level, where neither light nor air penetrated; sewage and refuse of every description lay stagnant in the streets, which varied in width from 5 to 15 feet; the few drains there were square, leaked freely, ran just beneath the surface of the ground, and emptied themselves into the harbour, so that the town was one gigantic cesspool. The Government granted four millions sterling for the most pressing needs of the town, of which one million was spent on an elaborate system of drainage, drawn up by Signor Gaetano Bruno. In nearly every case the collectors are divided into an upper compartment for surface drainage, and a lower one for soil water. The former are emptied into the harbour, while the soil is carried in a main intercepting sewer about ten miles out of the town to Cumæ. Nearly the whole of the old quarter had to be pulled down in order to raise the ground level 13 feet, so as to afford sufficient fall for the drains. The houses for the poorer classes were re-erected chiefly from the designs of Signor P. P. Quaglia, and are more sanitary than, if not so picturesque as, those they replace. The water-supply was undertaken by an English company, and ensures daily 300 litres per head, as against 30 in former years. The temperature of the water, the old imperial *Aqua Claudia* and spring water from the *Serino Valley*, varies from 10 to 11 C., and is exceedingly pure, both chemically and bacteriologically.

Palermo, with its dirt and its picturesqueness, was very like Naples, and had to be treated in a very similar manner. The improvements began here also with providing a water-supply, the more necessary because for five months of the year no rain falls in Palermo. A private company undertook to bring the water from a distance of fifty miles, at a cost of £230,000 sterling. The scheme for the drainage was prepared by Signor

Luigi Castiglia, and will have cost when completed £290,000 sterling. In this case, too, the ground level round the harbour had to be raised for the drains, which necessitated the rebuilding of the poorer quarters.

Florence is by no means all it should be, either from an artistic or a sanitary point of view. When it was proposed to make it the capital of the country, vast building schemes were put in hand, which were abandoned and left in a disorderly condition when the Government was transferred to Rome. The centre of the town, the Ghetto, was condemned by the authorities as a nest of disease, but antiquaries started a controversy, and so many concessions were eventually made that only half-and-half measures were undertaken towards cleansing the town.

Several plans are scattered through the pamphlet, giving the drainage of the four typical towns, and showing the changes which have been effected to render them more healthy.

The second pamphlet under notice consists of a Paper on the building of towns past and present read by Herr Stübgen before the Berlin Society of Architects on the occasion of the Schinkel festival. He began with a description of Greek towns, which were the first to be planned on any system, and consequently the first worthy of the name of towns. In the earliest times, when war was the order of the day, the towns were built on rocky heights, in commanding positions; and the formation of the ground settled the plan. Later on, in the eighth century B.C., when peace was universal and commerce flourished, the people moved down to the water-side and built round their harbours, keeping their more important edifices on neighbouring heights, *e.g.* Athens. In the time of Pericles the artistic development took place. Careful plans were drawn up, due regard being paid to the relative positions of sacred, public, and private buildings, *e.g.* Piræus, planned by Hippodamus of Milus, which, according to Hirschfeld's restored plan, may compare with any modern town. Also Agora and Cnidos, which lie between two harbours and have at their rear a small eminence crowned with a temple.

The typical example of the period of decline is Alexandria, planned by Democrates, where all attempt at artistic feeling is abandoned, and merely straight lines are adhered to. The Romans were famous at all times for their sites. They took into consideration traffic, safety, health, water-supply, and drainage. Pompeii is a charming example of an irregular town built at different times; Turin is unpleasantly regular, having been planned and built all at one time. In northern countries towns went through the same stages as in Greece. In the Middle Ages, for reasons of security, they clustered round a convent, a church,

a fortress, and gradually spread over the country as the population quieted down.

It is the sudden return of people from the country to the towns that has of late been exercising the ingenuity of architects and engineers. In the last fifty years the town population has increased from a quarter to half of the total population of the country. Dwelling-houses for the new-comers were not the only difficulty to be met with. Schools, churches, hospitals, baths, theatres, public and commercial buildings, roads, water, and drainage all had to be supplied, and that without delay.

It is this problem that Herr Stübgen says is the greatest problem of the day: to make a harmonious whole of these modern requirements and meet the demands of health, beauty, and convenience. No hard-and-fast rules can be laid down for the planning of a town, for all depends on the nature of its site and surroundings, and upon the character of the town itself. It is not a question of whether the streets should be straight or crooked; for on the one side Breslau and Krakow prove how picturesque a symmetrical town may be, while Turin shows the reverse of the medalion. Nürnberg and Siena are famous for their beautiful irregularity, which in Cassel and Aix-la-Chapelle amounts to disorder. All that can be done is to suggest a few points which are essential to every good plan—*e.g.* the change from straight to crooked streets should be gradual; the length of a straight street should be limited to about thirty times its width; excessive width in streets or squares should be avoided, and the planting of trees and gardens within the town should be encouraged. The ancients, no doubt, planned cleverly, but we ought not to steal from the past to deceive the future, and we must ever bear in mind what Monsieur Ch. Buisson truly says: "Que l'architecture soit le reflet vivant de la civilisation au milieu de laquelle elle se développe."

ETHEL CHARLES.

(83.)

ARCHÆOLOGICAL SURVEY OF INDIA.

Annual Progress Report of the Archaeological Survey Circle, North-Western Provinces and Oudh, for the year ending 30th June 1894.

This *Report*, which has been received from the India Office, the principal part of it being by Dr. Führer, bears a title that is no doubt officially correct, but the words would not lead anyone to suppose that the greater part deals with the archæology of Burma. Dr. Führer, in pursuance of instructions from the Government of India, left Lucknow on the 26th October 1893 "... on "an extended tour through Lower and Upper "Burma, in order to collect and verify information required for the preparation of descriptive "lists of the monumental antiquities and inscriptions of this interesting country, which offers

"comparatively virgin soil for archæological and "epigraphical studies."

Some of the points dealt with by Dr. Führer will be found in notices of previous *Reports* which appeared in this *JOURNAL*.* He produces what appears to be new names for the Rangûn pagoda; at present it is known as the Shwê Dagôn Payâ, or Dagôn Sandôshin Cheti; but on the authority of the *Mahâyazawin*, "the great royal chronicles" of Burma, it was at first called Kêsadhâtuchetiya, or Digumpacheti. This last means that it was the Cheti, or Chaitya, of Digumpa, as the city had then the name of Digumpanagara. These names are probably correct enough, but the book from which they are derived gives the usual legendary account of the origin of the pagoda, placing the date of its first erection as early as B.C. 588, during the lifetime of Gotama Buddha, and including the mythical story of Taphussa and Bhallika, the two merchants who are said to have received eight hairs from Buddha himself, and which are supposed to be enshrined as relics in the pagoda. This tale, I showed in a former article, is told about the origin of other stûpas, and of one as far removed from Burma as Balkh in Central Asia. Dr. Führer states that the first trustworthy information about the Rangûn pagoda is as late as A.D. 1459-69, when the Talaing Queen Shinsôbû raised the height of the structure to 129 feet, made terraces on the hill, and paved the top-most one with stone. Other sovereigns made additions. The object they had in view was to increase the splendour of the temple, so that it might rival the Shwémôdô pagoda at Pegu, and it was as late as 1768 that, from additions and restorations, it was raised to the present height of 321 feet. This implies that the original structure was encased, probably more than once, by the later additions—a process mentioned by Dr. Führer as having taken place with other pagodas in Burma, and which we know also occurred with similar monuments in India.

Dr. Führer's *Report* is not open, so far as architecture is concerned, to the criticisms that Dr. Forchhammer's communications about Burma were liable to. This results from a more intimate knowledge of the architecture of India, which it is well known influenced the architecture of Burma. Dr. Führer has traced this influence back to the Buddhist period, when Asoka is said to have sent two missionaries, Sona and Uttara, and he mentions the Kyaukku Onhmin, one of the oldest of the ancient historical temples at Pagân, as the original type of the edifices at that place, called *Kalâ Kyauung*, "the monasteries or schools of Western

* See *The R.I.B.A. Journal*, 24th November and 8th December 1892, for some account of the Shwê Dagôn at Rangûn, its relics and legend of Taphussa and Bhallika; and the same *Journal*, 28th November 1893, for the account of Sinbyûin placing the new *ti*, or umbrella, on its summit.—W. S.

“foreigners”—apparently, he says, this meant “Indian Buddhists.” Up to the tenth century the Buddhism of Burma was derived from North-Indian Buddhism, but after that the Southern Buddhist school from Ceylon was introduced, and has continued as the orthodox form of religion from that time. Two long Sanscrit inscriptions are announced as an important discovery at Pagân. The first is dated A.D. 481, and the second as A.D. 610. The latter, being in the North-Indian characters, is assumed as affording undoubted proof that Northern Buddhism reached Upper Burma from the Ganges when India was mainly Buddhist. This also means that an architectural influence came with it at that early period.

Dr. Führer also visited Ava, which he calls “Awa or Inwa,” the capital previous to Mandalay; and Sagaing, situated on the opposite bank of the Irrawady from Ava, another of the old capitals of the country. The *Report* also includes a notice of Tagaung, or old Pagân, a still older capital, which, he says, “. . . hides under its *débris* the “oldest Indian settlement in the whole of Burma.” In the *Mahâyazîn* it is stated that Dhajarâja, a king of the Sakya race, settled at Manipâra about the middle of the sixth century B.C., and that Upper Pagân, or Tagaung, was conquered by him. In the ruins of this old capital terra-cotta tablets, bearing Sanscrit legends in Gupta characters, and a stone slab with an inscription written in the Gupta alphabet of the date A.D. 416, is now strong evidence of the connection with India at a very early date.

About eighteen miles south of Bhamo, on one of the lowest slopes of the Wambutaung hill, above the village of Saw Chaungbya, the *Report* mentions the existence of an old Chin cemetery containing five, more or less perfect, stone structures over some graves, resembling miniature stone cromlechs, with a big flat stone on the top. They are believed to be the tombs of great chieftains, and are very old. These monuments have a special interest in relation to the cromlechs and other rude stone monuments which exist in the Khassia hills, the distance between the two localities being, at a rough estimate, not much above 300 miles. Both are hill tribes, and this discovery suggests the strong probability that in the as yet unexplored hill country that separates the two many primitive remains will be found in the future.

The above only deals with a few of the subjects included in this interesting *Report*, and when the full details of it are published, we may expect that much new light will be thrown upon the archaeology and architecture of Burma.

The second part of the *Report* is by Mr. Edmund W. Smith, architectural surveyor, and contains an account of the details of progress made in preparing for publication the work that has already been surveyed. The only point in this part of it that

may be noticed is that the first volume of *The Moghul Architecture of Fathpâr Sikrî* is completed, and, having been sent to the press, may be expected to appear now in a few months.

Mr. Smith gives a short and interesting description of the Chini-Ka-Rauza, an old tomb at Agra, which he says is not so well known as it should be. This is true enough; still, Fergusson mentions it in his letters, written as far back as 1834;* that was on his first visit to Agra. Keene also gives it due notice in his *Handbook to Agra*. As drawings and photographs of it are now to be published by the Archæological Department it may have a chance of being better known in the future. Sikandra, Akbar's Tomb, is also in hand, and progressing forwards for publication. Mr. Smith adds a few notes on the details of this monument.

The only thing calculated to raise dissatisfaction in this *Report* is Mr. Smith's statement that, “according to present arrangements, only one “more camping season is to be devoted to archæological researches in these provinces, and in “October 1895 the work is to stop altogether.” This is very sad. It is a very small department, and it has all along done good work, and one would like to know why it is to be cut off in its prime. This requires that someone should ask a question about it in Parliament.

WM. SIMPSON.

NOTES, QUERIES, AND REPLIES.

Foundations for Buildings in Calcutta [pp. 428-438].

From HUGH LEONARD [*H.A.*].—

In a Paper by Mr. J. M. Moncrieff, published in the current volume of the *JOURNAL*, p. 431, reference was made to a report of mine on foundations for buildings in Calcutta, and extracts from it were given which are hardly intelligible to the general reader without information as to the circumstances under which the series of experiments mentioned were carried out. I think, therefore, that a few words of explanation may be of interest, at any rate to readers who know something of the difficulties of dealing with foundations in Calcutta, and, indeed, of most sites formed of comparatively recent alluvial deposits.

Anyone acquainted with Calcutta knows that a large proportion of the buildings in the town and neighbourhood are very badly cracked, especially those having some parts of the structure carried higher than other parts. While I had charge of the public works of Bengal it became necessary to erect a considerable number of important buildings, two of them, I may mention, designed by the present Secretary of the Institute when he was in Calcutta. The question then arose as to the best method of dealing with subsidence, and consequent cracking.

* See *The R.I.B.A. Journal*, 14th March 1889.

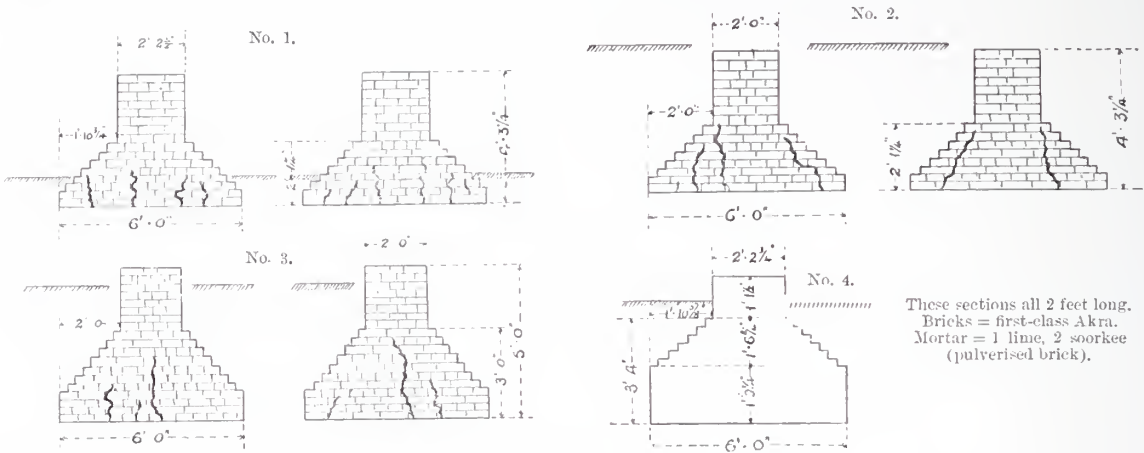
The site of the whole town of Calcutta is an alluvial deposit—part of the delta of the Ganges—especially that branch of it known as the river Hoogly. A section of the ground is somewhat of this nature:—

3 ft.	Rich soil.
4 ft. to 6 ft.	Compact blue sandy clay.
6 ft. to 8 ft.	Brown sandy clay, compact.
6 ft. to 8 ft.	Brown clay, with a good deal of sand and some water.
2 ft.	Peat, with roots and some trunks of trees.
	Sand and clay, wet and unstable.

11 ft. sank much more than those laid at a depth of 4 ft. to 8 ft. This was due to the bottom of the pit, when excavated to 11 ft., blowing up slightly before the load was put on it.

The account of the observations made is given in detail in *Engineering*, vol. xx. p. 103.

Having ascertained that the greatest load on the foundations that caused no perceptible sinking was 1 ton per square foot, and that the buildings to be erected required to have the foundations considerably spread out in order to get only this amount of pressure, it became desirable to ascertain the most economical shape to give the footings. With this object in view the experiments described by Mr. Moncrieff were carried out. For



These sections all 2 feet long.
Bricks = first-class Akra.
Mortar = 1 lime, 2 soorkee
(pulverised brick).

MR. HUGH LEONARD'S EXPERIMENTS ON FULL-SIZE FOOTINGS.

- No. 1, 19 days old, cracked at 1·018 ton per square foot. $f = 38$ lbs. per square inch.
No. 2, 3 months 2 days old, cracked at $1\frac{1}{2}$ ton per square foot. $f = 63\frac{1}{2}$ lbs. per square inch.
No. 3, 15 days old, cracked at $1\frac{1}{2}$ ton per square foot. $f = 36$ lbs. per square inch.
No. 4, 3 months old, did not crack at 2 tons per square foot. $f = 29\frac{1}{2}$ lbs. per square inch without causing failure.

NOTE.—The two sketches under Nos. 1, 2, and 3 show opposite sides of the same footing in each case.

Foundations are generally laid on the blue or brown clay, some 5 ft. to 6 ft. below the ground surface, and it was clear that the cracks were due to the unequal sinking of the buildings when one part was raised higher than another. The question then presented itself, What weight could be put on the usual foundation soil without causing any perceptible sinking?

In order to settle this point a series of experiments were carried out. Blocks of masonry, measuring about 6 ft. area of base, were laid at depths of 2 ft. 6 in., 4 ft., 8 ft., and 11 ft. below the ordinary ground surface. These were loaded with weights of from 1 to 3 tons per square foot of area, and were kept under observation for three months, the levels being measured daily from a fixed point. The result showed that at any depth of from 4 ft. to 8 ft. below the surface there was no perceptible sinking with a load of 1 ton per square foot; there was a sinking of 2 in. to 3 in. with a load of 2 tons, and of 4 in. to 7 in. with a load of 3 tons. The blocks laid at a depth of

convenience of reference extracts from the Paper referred to are here given:—

The footings as constructed are shown on the drawing, together with the load per square foot at which they failed, or, rather, at which cracks were developed. The age of the brickwork at the time of the tests, the position of the cracks, and the values of f , the ultimate calculated stress, are also shown. The bricks were described as first-class Akra bricks, and the mortar was composed of one part of lime to two of soorkee. Soorkee is pulverised brick.

The ratio of the depth to the projection in the first experiment was 1·11; so that as the footing failed when the load on the ground was 1·018 ton per square foot, or nearly 16 lbs. per square inch, the calculated maximum tension, f , would be nearly 38 lbs. per square inch, the masonry being nineteen days old. In the second footing the brickwork cracked when the load was $1\frac{1}{2}$ ton per square foot on the ground, or $23\frac{1}{2}$ lbs. per square inch, and the ratio of depth to projection being 1·05, f works out to $63\frac{1}{2}$ lbs. per square inch, the masonry being three months two days old. Comparing these results we see the increase in strength due to the greater age of the second footing. In the third experiment the ratio of depth to projection was 1·5, and cracks were developed when the load on the ground was $1\frac{1}{4}$ ton per square foot, or nearly $27\frac{1}{4}$ lbs. per square inch, and f

works out to about 36 lbs. per square inch maximum calculated tension, the masonry being fifteen days old. Comparing this with the first test, the increase in the strength of the footing due to increased depth is evident. The deeper footing, although having four days less age, carried nearly 72 per cent. more load per square foot, with very nearly the same maximum tensile stress per square inch. In the fourth experiment the ratio of depth to projection was 1.78 nearly, and a load on the ground of 2 tons per square foot, or a little over 31 lbs. per square inch, failed to crack the brickwork. This load would produce a maximum calculated tension of $29\frac{1}{2}$ lbs. per square inch nearly, the brickwork being three months old.

These experimental footings all rested upon soft alluvial soil, at the depths shown on the drawings; and from the results of the tests of the brickwork at fifteen days old and nineteen days old, which gave ultimate calculated tensile stresses of 36 lbs. and 38 lbs. per square inch respectively, I think we may safely use 18 lbs. as the *safe* stress per square inch, or working value of *f*, in ordinary brickwork footings, as the strength of the mortar keeps on increasing with an equivalent increase in the margin of safety, as evidenced by the much higher value of $63\frac{1}{2}$ lbs. per square inch maximum ultimate stress in the second experiment, and the calculated stress of $29\frac{1}{2}$ lbs. per square inch without failure in the fourth test, where the brickwork was in each case about three months old. There was no concrete bedding under these footings, as the object was to test the brickwork only. It will be noticed that, when the extreme toes of the footings were thin, cracks occurred immediately at the toes, pointing to the necessity for keeping them somewhat thicker than was the case in these particular experiments, in order to ensure that the extreme bricks are properly bonded into the body of the footing.

Attention may also be directed to the mode of failure generally, the main cracks occurring in the centre of the base or thereabouts. A failure of this nature under ordinary circumstances might easily escape notice, and lead to the false conclusion that the movement of the wall was caused by insufficient width of footing causing too great a load per square foot on the ground.

The estimation of the strength of footings in the manner indicated errs somewhat on the safe side, as the surrounding earth, if well rammed down at the sides, will tend to prevent any spreading by providing an abutting surface for the vertical face of the toe; but the calculation can necessarily take no notice of this, as its value is quite indeterminate. Again, the bond of the brickwork brings into play, in the case of a footing, a very considerable amount of friction between the surfaces of the bricks, and it is quite conceivable that even if no mortar were used at all in the lower courses, the calculation of transverse strength would assign a very appreciable value to *f*, the apparent tensile stress, and it was for these reasons that I suggested the advisability of referring to direct tests of footings themselves rather than to tests of simple beams uninfluenced by such conditions.

A concise explanation of the experiments above commented on may be given as follows: Lengths of wall, of about the thickness customary in Calcutta buildings, were built, with foundations spread out to about the thickness of the wall on each side, the depth of toe varying from 9 in. to 1 ft. 9 in., steps being 3 in. base to 3 in. of height. These lengths of wall were loaded with weights giving from 1 to 2 tons pressure per square foot on base area, and were tested for ages of work from 19 days to 3 months. The graphic results of the tests are shown in the illustrations on p. 594, the object of the trials being to ascertain under what condi-

tions, as to shape and age of work, the footings would fail, and how they would fail.

The result may be summarised thus: Foundations with projecting footings should not be heavily loaded before the mortar is fairly set; the footings which cracked badly when loaded after 19 days stood perfectly well with the same weight when 3 months old.

The toe of footing carrying a weight of 1 ton per square foot should be 18 in. deep, and the steps should not be flatter than 3 in. step and 3 in. rise; footings with toes less than 1 ft. 6 in. cracked badly when nineteen days old loaded with $1\frac{1}{2}$ ton to the square foot; but toes of 1 ft. 6 in. deep did not crack at all.

I may say that several large buildings were erected in Calcutta with foundations arranged on these data, and none of them have shown any sign of unequal subsidence; whilst others, built before the experiments were carried out, have subsided and cracked very badly.

The East End of Durham Cathedral [p. 546].

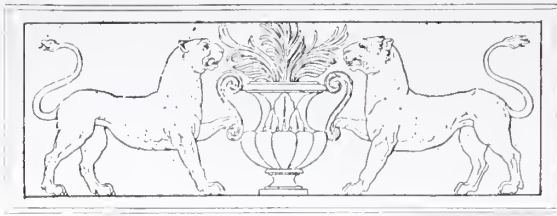
From WILLIAM WHITE, F.S.A.—

Happily Mr. John Bilson has given a very satisfactory explanation as to the point which I raised. In a newspaper report from a "Durham Correspondent" the "simple and most convincing argument" in favour of Carileph having been the builder of the remains discovered was said to be "that he would not have pulled down Aldhune's church until his own was finished for use"; a most inconsequential conclusion, taken, as it appeared to be, apart from all architectural considerations. Mr. Bilson now puts the matter upon a proper basis. I did not even know that these aisle apses had been suggested as being *transeptal* apses. Carileph must have the credit of care for his foundations.

The Schedule of Practice and Charges: Clause 16.

From M. P. MANNING [A.]—

Having regard to recent legal decisions on the subject of the ownership of drawings, may I venture to suggest the desirability of revising Clause 16 of the "Schedule of Professional Practice and Charges" to bring it more into accord with judicial opinion? The clause as it stands is directly at variance with the expressed opinion of such distinguished lawyers as Lords Bramwell, Coleridge, and Bowen, Lord Justice Fry, and Mr. Justice Manisty. I have always understood that the Schedule was issued under the authority of the Institute as a guide to members, and that their practice and charges were regulated by it. If this has any foundation, I contend that Clause 16 as it stands is calculated to mislead, and tends to raise difficulties between architect and employer. It should therefore be revised to accord with what is now generally agreed upon the subject.



MINUTES.

SPECIAL GENERAL MEETING.

PROPOSAL TO ESTABLISH A CLASS OF "CRAFTSMEN."

At a Special General Meeting, held on Monday, 8th July 1895, at 8 p.m., Mr. F. C. Penrose, F.R.S., *President*, in the Chair, with 17 Fellows (including 12 members of the Council), 10 Associates, and 1 Hon. Associate, the Minutes of the Meeting held 24th June 1895 [p. 572] were taken as read and signed as correct.

The Secretary announced the decease of Thomas Chatfeild Clarke, *Fellow*.

The following member, attending for the first time since his election, was formally admitted and signed the Register—namely, Allan John Pinn (Exeter), *Associate*.

Mr. Aston Webb, F.S.A., *Vice-President*, announced that the Council had that day given instructions to issue the new Form of Agreement and Schedule of Conditions for Building Contracts to members. In the absence of Mr. Lacy W. Ridge [*F.*], who had given notice of a question respecting the said Conditions, and whose question was printed in the notice convening the Meeting, it was not put.

Mr. Aston Webb moved the adoption of a recommendation of the Council to establish, under the provisions of the Charter, a class of subscribing members, to be called "Craftsmen"; and to make and adopt By-laws which shall define, regulate, and prescribe the conditions of membership and the mode of election and admission, and the privileges, obligations, and benefits of, and the payments to be made by, the proposed new class.

The By-laws and Declaration governing the proposed new class, the substance of which was explained by Mr. Aston Webb, were submitted as follows:—

By-laws.

4 (i). Craftsmen shall be persons, not professionally engaged in practice as Architects, who are working at any of the crafts connected with Architecture, or who have designed or executed such work or works as shall, in the opinion of the Council, promote the interests of Art.

4 (ii). Every nomination of a candidate as Craftsman must state his Christian name, surname, place of residence, and place or places of business, and must be subscribed by him. Such nomination may be made either by the Council or by at least three Fellows, who shall certify their personal knowledge of the candidate.

4 (iii). A Craftsman may use after his name the following affix—"Craftsman R.I.B.A."

By-law 11, line 4 from bottom, add the letter D. the passage to read thus: "Declaration A, B, C, or D."

15 (d). The entrance contribution of each Craftsman shall be at least one guinea, which shall be appropriated to the Library Fund, and his annual subscription shall not exceed two guineas.

22 (i). Every Craftsman shall sign and return to the Secretary within two months from the date of his election the Declaration D duly witnessed; and any Craftsman contravening such Declaration or conducting himself in a manner which in the opinion of the Council is derogatory to his position as such shall be liable to suspension or expulsion in manner provided by By-law 23.

57 (i). No Craftsman shall be entitled to vote in the

election of any candidate for admission to the Royal Institute, nor in the election of the Council or the Standing Committees, nor on any professional question.

Declaration (By-law 22).

D. FORM TO BE SIGNED BY A CRAFTSMAN.

I, the undersigned,, having been elected a Craftsman of the Royal Institute of British Architects, do hereby declare that I am not and have no intention of following the profession of an Architect, but that I am engaged in, a craft connected with Architecture; and in consideration of my having been so elected I promise and agree that I will be governed and bound by the Charters of Incorporation and By-laws of the said Royal Institute, which I hereby acknowledge to have read, and by any alteration thereof which may hereafter be made, so far as they are applicable to the class of Craftsmen, until I shall have ceased to belong to that class. I further promise that if and whenever I use after my name the affix "Craftsman R.I.B.A.," to which I am entitled, I will do so in that form and in no other; and that by every lawful means in my power I will advance the interests and objects of the Royal Institute.

Witness my hand this day of 189

Signature

Signed by the above-named..... in the presence of.....

Name of witness

Address

Whereupon, after discussion [see Appendix], it was

RESOLVED That this Meeting, while accepting the general principle of the scheme, refers the matter to the Council for consideration of the details and for submission of the same to a subsequent Special General Meeting.

The proceedings having thus been brought to a close, the Meeting separated at 9.15 p.m.

APPENDIX.

THE PRESIDENT said that the subject of the proposed new class of members had been for a long time before the Council by means of a committee, of which he had been Chairman, and that they had decided to recommend the Institute to associate to itself a new class of members to be called Craftsmen. The particulars would now be explained by Mr. Aston Webb, an active member of the Committee.

MR. ASTON WEBB [*F.*], F.S.A., said that he claimed no initiative whatever in the matter, but having taken some part in the deliberations of the committee referred to by the President, it fell to him to formally bring the subject before the Meeting. This he would do as shortly as he could, and if any questions arose he might be allowed to say a word or two in explanation afterwards. The principle involved in the proposed change was not a new one. When the Institute was first started the Presidents were not architects at all, so that from the very commencement members had been admitted who were not practising architects. Earl de Grey, their first President, and Mr. Beresford Hope, President a few years later, were neither of them architects. For some years after that, so far as he knew, there might not have been a non-practising architect among them, but about 1877 it was felt that it would be desirable to add as members gentlemen outside the profession who might feel an interest in the work of the Institute and take part in its discussions. With that view a new class styled Honorary Associates was started. That, he believed, was during the Presidency of Mr. Charles Barry, and a large number of members in that class were elected at that time. It had been generally admitted that the admission of those gentlemen to membership of the Institute, and the interest taken by them in its work, had had the effect of extending considerably the Institute's influence outside the strictly professional body. There were at the present time several

very active and most useful members who were Honorary Associates. He did not propose to mention names, but several of those gentlemen had been of the greatest possible use, and had given their services on the various Standing Committees, and brought outside interest into their proceedings. The President really had started the idea in his Address at the opening of the Session, when he referred to the great decrease in the number of Honorary Associates, and expressed the hope that some means might be found of eliciting the interest of a further number of gentlemen in the proceedings of the Institute. As a matter of fact, the number of Honorary Associates had steadily declined year by year, and at the present time there were not more than half the number that there were at the commencement. So far as could be ascertained, this was not due to any want of interest on their part. Death had removed many, and no sufficient effort had been made to obtain new members to fill their places; so that it had now come to pass that the Institute was being perceptibly weakened by the dropping out of those gentlemen. A committee had consequently been appointed to consider whether it was desirable to increase the class of Honorary Associates, and, if so, in what way that could best be done. Mr. Alfred Waterhouse, Sir Arthur Blomfield, Professor Aitchison, Mr. John Belcher, Mr. Arthur Street, Mr. Brydon, the Honorary Secretary, Mr. Florence, Mr. Caroe, and one or two others were all members of that committee, and attended and very fully considered what could be done. The committee were met at once with the difficulty that the Honorary Associates were expected to pay a subscription of two guineas a year. It was felt by many that in asking gentlemen to join the Institute as Honorary Associates it was difficult to explain to them that although they were honorary they had to pay a subscription—very properly, in his view, because they received material benefits in the way of the Institute JOURNAL, the use of the Library, which was one of the finest in England, and in attending the meetings; so that it was only right that they should pay a subscription. In the course of discussion a suggestion was made that the subscription should be omitted altogether, seeing that there were so many men whom they were all anxious to see as members, and whose presence it was thought would undoubtedly strengthen the Institute. But the Charter did not allow that. Then it was suggested that a new class of members should be created; and upon referring to the Charter and By-laws it was fortunately found that they were elastic enough to permit the addition of a new class of members. The suggestion was favourably received by the committee, and then the question arose as to what the name should be. It was thought that as it was the general wish and desire to affiliate with the Institute a certain number of gentlemen who were recognised as workers—real workers in art subjects allied to architecture—if they called it a class of Craftsmen that would be the best possible designation that could be adopted. That suggestion was brought before the Council, and the Council adopted it and referred it back to the committee to work the matter out in detail. This had been done, and the result was now before the Meeting in the shape of the proposed By-laws, which, if the proposition were carried—and he hoped it would be—it would be necessary to incorporate with the existing By-laws. He might mention that since the suggestion had been adopted by the Council a requisition had been signed by certain members that if the proposal was adopted by the Meeting the sense of the general body should be taken by means of a poll. That requisition had been signed by several members of the Committee—not, he was glad to say, in any hostility to the proposition, but in order to give the general body the opportunity of expressing an opinion upon the subject. Sir Arthur Blomfield had intended to be present to support it, but he (the speaker) had received a letter from him to say that he was extremely sorry he

had been obliged to go into the country and could not possibly attend. Mr. Belcher had also authorised him to say that he was one of those who originally proposed such a scheme some years ago, and he was still strongly in favour, although he had signed the requisition for obtaining the general opinion of members, feeling possibly that at the present time of the year they might have a small meeting. With regard to the By-laws, it was proposed that the description of gentlemen who were to become craftsmen should be: (i.) "Craftsmen shall be persons, not professionally engaged in practice as architects, who are working at any of the crafts connected with architecture, or who have designed or executed such work or works as shall, in the opinion of the Council, promote the interests of art." It was especially put in that the candidates for this class must be actual workers themselves. It was not proposed in any way to admit gentlemen, however active and capable they might be, who employed others to do their special work; it was desired only to embody in the list those gentlemen who actually worked themselves or who designed the work which was carried out in their name. With regard to the nomination of candidates as Craftsmen, it was proposed to place that practically on the same level as the nomination of Fellows. They did not wish to place the gentlemen whom they hoped to see members of their body on any different basis from themselves; they should be put under the same restrictions and regulations. The subscription it was proposed should not exceed two guineas. The question was still open whether it should be one and a half or two guineas; that, however, was a matter of detail which could be considered later. It was desired that the candidates should be scrutinised with the same care, that their names and qualifications should go before the Council and the general body of members, and pass through exactly the same searching examination as those of the other classes of members. By "examination" he did not, of course, mean a qualifying examination. Other by-laws were proposed which had not yet been printed, but they had had the advantage of the opinions of one or more of the Allied Societies, who thought that some further regulations were required. One was that a Craftsman might use after his name the affix: "Craftsman R.I.B.A." It had been suggested that possibly a man might use "M.R.I.B.A."—for himself, he did not think that at all likely; but in order to make it quite clear it was proposed that they should be allowed to use the title "Craftsman R.I.B.A.," and in that form only. It was also proposed that in the declaration under By-law 20, which now read "A, B, or C," there should be added "D," which would refer to the Craftsmen themselves. It was also proposed that a new By-law, to be numbered "22 (i)," and a new Declaration (D) [see *Minutes*] should be added in order to put the Craftsman on precisely the same terms as the other members. He thought it would be a great advantage to the Institute to enlarge its lines to some extent in the way proposed. It was not a new principle; it was practically the same principle, but it would be easier and pleasanter, he believed, to ask those gentlemen to join as Craftsmen than to ask them to join as Honorary Associates. At present they were admitted to the Meetings; they were good enough to come and read Papers on Art Committee evenings, and on other occasions, and he thought if they could still further interest them by enrolling them as members, the Institute would be gainers; and he hoped that they would also find that their association as members would be pleasant and an advantage to them.

Mr. J. M. BRYDON [*F.*] said that, as one of the sub-committee who had taken some little trouble over the matter, he might perhaps be allowed to second the proposal that had been made by Mr. Aston Webb, who had gone so fully into what might be appropriately called the genesis and the particulars of the new class—first of all, how it came to be suggested, and secondly, the condi-

tions under which the gentlemen were to be elected, and who they were to be—that it was unnecessary for him to say anything further on that point. Mr. Webb had also fully explained the aim the Council had in view in proposing to attach a new class of members in their capacity as co-workers in the work that they were all engaged in—that is to say, in advancing the art of architecture. He should therefore only say a very few words more on the principle of the matter, because the details were, after all, matters of formality to a certain extent, which must be carried out so as not to interfere with the conditions of the Charter, and at the same time not to put the new men in an anomalous position, so that they would feel that they were different from the Fellows and Associates who happened to be architects. Their sole object was to make them all of one class; and with that aim in view they wished to associate themselves with the men who were working under them, and with whose assistance they carried out the works that came under their care. What, after all, was the object of the Institute? As he understood, it was to encourage and promote in every way the art of architecture, the mother of all the arts; and they had an idea that if they could bring as many of the children of art as possible round the mother, who was their centre and their parent, they should be doing good to the great art of architecture. Who were the men they wanted to associate with them? That was, after all, the crux of the whole question. In a word, the men they wanted to bring in were frequently seen among them, helping them in an honorary capacity at meetings, especially those under the charge of the Art Committee; they had come there and read excellent lectures and Papers on decoration, and on stained glass, and metal-work, and textile fabrics, and various other subjects—all of which were arts allied to architecture, and without which the architecture of the buildings that they erected as architects would never assume so complete a form. It was manifest to anyone who had studied the history of the revival of art during the last thirty or forty years that the arts allied to architecture had made strides in England which had not been equalled by any other country in the world; he spoke, of course, with some deference in thinking of France. They had made immense strides, particularly in the arts allied to architecture, and they wished to have the help of those men to strengthen their work in the Institute. It was to them that they looked to a great extent for the carrying out of their own ideas in what he might call the more ornamental, or the decorative, parts of their own work, both inside and outside. He referred to the sculptor, the carver, the metalworker, the painter of stained glass, and so on. They must all have felt how much, as architects, they were indebted to the skill and knowledge—the practical technical knowledge—of the men who were carrying out such works as those for the success of the buildings in which they were engaged. The architect might give them his general ideas in each particular department, but, unless he had a body of men who thoroughly understood the drift of those ideas, it was impossible for them to work with him in the same spirit. That was exactly the thing they wanted, if possible, to encourage in the proposed new class of Craftsmen. They as architects were still the master-workers directing the building that was going on, but they wished to look upon the men who worked under their direction as fellow-workers in every way in producing the results that they hoped would be for the advancement of the art of architecture in its highest and best sense. It was for that reason that endeavour had been made to meet the question in this case by the creation of this new class of Craftsmen. That name was about the most honourable name they could call anyone. They themselves were all craftsmen—all workers; and they, the architects, who worked with their heads, their hands, and their hearts, wanted to have the co-operation of the men who were working with their

heads and hands, in another manner, though in the same path. For that reason they wished to associate them with the Institute if possible. Mr. Aston Webb had used the word “examination”; but, as he explained, there was to be no examination but the quality of the work; that was, after all, the examination for them all; and he hoped that, whatever the Institute might come to, the only examination of all its members, whoever they might be, would be the intrinsic quality of their work; and on the strength of that they proposed to admit these Craftsmen. They were not supposed to be merely employers of labour; they were the labourers doing the work themselves, either in designing handicraft or carrying out the works which actually appeared in the building itself; and for that reason they were named by the most honourable name of Craftsmen. Then there was one other point which might be brought in—a little objection had been made that they were trenching very closely upon the province of trade. Theirs, he supposed, was a professional society, inasmuch as the majority of members were what were called professional men. But, as Mr. Aston Webb had said, they were introducing no new element; they had Honorary Associates at the present time engaged in what the world would call trade—indeed, it was difficult to draw a line between where art ended and trade began—at any rate, it was not for them to draw the line. Trade had nothing to do with the question—the point was the man's skill in art pure and simple. There were one or two details which he thought might safely be left for consideration afterwards before the actual By-laws were printed—for instance, the amount of subscription. The Honorary Associate's subscription was two guineas a year; but if they read the extract from the By-laws placed at the head of the list of Honorary Associates in the KALENDAR they would see that it did not quite apply to the men they wanted to get hold of. The men they wanted were not the wealthy, the great, and what the world called famous, but the real men doing the real work, and those men could not always afford a large subscription. He had great pleasure in seconding the resolution, because, first and foremost, he thought it was for the benefit of their noble art of architecture; secondly, he thought it was for the benefit of the Institute as an institute; and thirdly, he thought it would be a benefit to the men who joined them, a benefit to themselves individually as artists. Therefore, he thought it would be a wise thing on the part of the Institute, when they must move with the times, and when art outside the province of mere building was so extending and so full of life, to take what they could of that life and bring it into themselves, and get a benefit from it in full fruition by communion with each other.

Mr. JAMES BROOKS [F.] said that in the main principle of the proposition he was entirely in accord with Mr. Aston Webb and with Mr. Brydon. They, in carrying out their work as architects, wished to have associated with them as members of the Institute under the name of Craftsmen—which he thought a most excellent title—those gentlemen who did so much for their art. They were associated with them day by day, and they should be glad to know them as members of the Institute, to be able to look to them and to know that, having been admitted as real Craftsmen, they might turn to them for their aid and assistance in the development of their buildings, so as to make them still more beautiful than the architects could do by themselves. He most cordially supported the principle; but the By-laws had not yet been under discussion, and there might be a great deal to be said about them.

PROFESSOR KERR [F.] thought they should all agree upon what Mr. Brooks had called the principle of the proposal; but anything more crude than it seemed to be in detail he had never heard mentioned in that room. It was impossible, it seemed to him, to come to a rational conclusion upon the subject that evening. Not only so, but there seemed to have been a sort of protest delivered

to the Council, calling for a poll whatever the result of the meeting might be. Now the poll itself would be money thrown away; and, after all, what would be the use of it? With all respect to those who had taken up this matter, he would suggest that they should think over it a little more during the recess, and let the matter be brought up again when they could get a proper meeting of members. The question which was first raised by his distinguished friend Mr. Aston Webb—the historical question—was one that must not be allowed to drop altogether. The true history hinted at by Mr. Aston Webb was this: the Earl de Grey might be said to have been the means of starting the Institute as a public institution, and therefore he was proposed as President; and when once he accepted that office, he, being a distinguished and eminent person of great influence, was requested to retain the post practically during his life; and although he never, except on formal occasions, attended their meetings, yet he was of the greatest possible use to the Institute at that time, and he had never been replaced. As regards Mr. Beresford Hope, he was put in by the then frantic Gothic party as representing the demolition of classical architecture. He was an exceedingly able man, and a very amiable man, but he was of little use to the Institute. The fact of those two distinguished men being Presidents of the Institute did not influence this proposal in the slightest degree. But there was another matter that Mr. Aston Webb had either forgotten or had not been informed of which did influence it very much. In the early years of the Institute they had a most important class of members called Contributing Visitors. Some of them might remember that old Mr. Crace, the father of their friend who was occasionally there now, was a constant attendant, and a most useful man in debate as an artist. Their proposal now was to exclude men like that. [THE PRESIDENT: No, that class they had already as Honorary Associates.] Mr. Crace, senior, was absolutely turned out when new By-laws were made in 1877. It was a stupid thing to do; and he thought they might now introduce something on the old lines. But he really hoped they would take time to think over it, because if they made a mistake in that particular direction it was a mistake that might never be retrieved; it might tend to derogate from the dignity of the Institute very much unless it was very carefully managed. With all respect to the gentlemen who had taken so much pains already, he thought they must be asked to take a little more; and he was sure Mr. Brydon and Mr. Aston Webb would take a great deal more pains rather than make a mistake. The general idea, which commended itself to all of them, was this, putting it in another form. As he had very often taken the liberty of saying, here and elsewhere, the term "architect" had a meaning, and it meant "the chief workman," "the head of the craftsmen"; and he had always thought that the more they could get of the craftsman element into the Institute the better. But the word "Craftsman" would not do. Not one of those gentlemen whom they had been hinting at would condescend to call himself a Craftsman of the Institute. Those men whom they wanted to bring in were as good as the architects; and, in their own estimation, a little better. But what he understood to be the proposal was this: that artistic artisans and others of their kind should be invited to be members of the Institute. Was that it, he wished to ask—that artistic artisans of high class should be invited to become members of the Institute? [MR. ASTON WEBB said he would prefer to leave it as he had put it.] That was why he said that the proposal was crude. A proposal was brought forward and they were bound to expound it. [MR. BRYDON said that what they meant by the term "Craftsman" was, it was perfectly true, the artistic artisan in the same sense as they were all artisans; but they wanted the man who did the work himself—the man of skill and brain—not the employer of labour who would pay him and make a handsome profit for himself.]

Then they kept out Mr. Crace and let in Mr. Crace's painters! [MR. ASTON WEBB replied that they had got Mr. Crace as an Honorary Associate, and they wanted his men as Craftsmen. Mr. Crace was present at that meeting, and was one of those who took a great interest in the question.] What he (Professor Kerr) ventured to say individually was this: that it would strengthen the Institute very much if they, as head craftsmen, could get the real craftsmen around them of a certain class. He did not mean the man at weekly wages, but he meant the designer; and there were, as Mr. Brydon suggested, a very great number of highly artistic designers in this country now who were left, to a certain extent, in obscurity by reason of the middleman, as he was called. But they could not ask all classes of designers to come in, and they could not ask all classes of craftsmen. It was a very difficult question, and they must think over it a great deal more. He would therefore respectfully move as an amendment, in any form that gentlemen might think best, that the matter be postponed till the next Session of the Institute.

MR. JOHN SLATER [F.], B.A., said he should like to point out that, in the face of the requisition which had been sent in to the Council, even if the Meeting decided upon the principle, voting-papers would have to be sent to all the members of the Institute as to whether they agreed with the principle. They could not, he thought, consider the principle without the full details of the scheme, and, after what had fallen from Professor Kerr, he thought it would be wiser for the Council to take the matter back and to consider it more in detail before next session. He quite agreed with all that had been said by Mr. Aston Webb and Mr. Brydon as to the desirability of admitting craftsmen, or artistic artisans, or whatever they were to be called, as members of the Institute; but he could not also help feeling that it was a wise move on the part of those members of the Council and others who had sent in a requisition to send it now, so that they might avoid making what was a radical alteration in their constitution at such a small meeting as the present. It was a radical alteration, it was a far-reaching one, and he did not think that even those members of the Council and others who had given it their best thought quite knew how far-reaching it was. He, for one, although a member of the Council, and although he had not signed the requisition, felt disposed to, and would, second Professor Kerr's motion that the whole matter be referred back to the Council to bring up again next Session with full details as to how they proposed to carry out the alteration, so that it might then be submitted. He had not had any conversation with any of the requisitionists, but he felt almost certain that the gentlemen who had signed the requisition would be quite satisfied at present if that was done. And it might very well be that, with further consideration of those details, when the scheme was brought forward again, it would meet with the acquiescence and support of those who signed the requisition, and it might not be necessary to go to a poll of the Institute at all. Under those circumstances, he begged to be allowed to second Professor Kerr's amendment.

MR. H. L. FLORENCE [F.] said he should have preferred to refrain from adding anything to the discussion lest it be thought that he spoke in any opposition to the proposal; but as one of the requisitionists and a mover somewhat in the matter he was exceedingly anxious that it should be considered by the Institute generally. The matter had been brought before the Council at a late period of the Session; it had been impossible for all to attend every meeting or to go very fully into the principles or prospects of the proposal; but all must see that it was a most serious thing to introduce a new class into a society like theirs. It should only be done as the result of very grave and continued deliberation. A false step was most difficult to retrace, and might leave effects and lead to consequences that no one at present foresaw. As to the desirability of adding a new source of strength to the Institute by

the admission of a class like that referred to, few would question that it might be a source of power to the Institute. He would even go further than either Mr. Aston Webb or Mr. Brydon, by suggesting that it might be possible to bring them in on even more advantageous terms without giving so direct an influence and without the power of taking so prominent a part in professional and business matters. He should be almost more willing to see them brought in without any contribution at all, or perhaps just an entrance fee, than to see them subscribing members, as a new class, exercising a new influence, the extent of which could not at that moment be comprehended, and perhaps by combination exerting a most powerful influence on the destinies of the Institute. Therefore he, with some others, had signed the requisition, not at all in a spirit of opposition or delay, but because it was important that the matter should not be rushed through at the *fat-end* of the Session, and should not be judged upon by a meeting of the proportions of that at present assembled. Some considerable time should be given to work the scheme out, not only in the general principle, which he thought all agreed upon, but in the regulations, the by-laws, the stipulations, and conditions, which would give rise to much anxious consideration, and which must be well discussed. The end of the Session was not the time for that. Let them think over it during the vacation; and when they started work afresh in the autumn, let them come with the result of more mature consideration, and see how they could bring that scheme in a perfect and workable form before the members. Therefore, although he was at one with the Council and with the committee on the principle, on this occasion he was, as he had often been before, a supporter of Professor Kerr.

MR. ALEXANDER GRAHAM [F.], F.S.A., said that as the requisition had been spoken of, he should like to say that he had signed it after full consideration. He thought that the matter was one which affected the general body and the general constitution of the Institute, and that it was right that every member should have an opportunity of expressing his opinion upon it if he thought fit to do so. The matter had been brought forward at the end of the Session, and, as could be seen from the small gathering that evening, and from the previous meeting, which was equally small, it was not the time of year when a matter of vital importance, not only to the Institute but to architecture as an art, should be brought forward and voted upon without full consideration. He could not help thinking, after what had transpired, and especially after the remarks of Professor Kerr, that it would be very much better if the matter were more fully thought out. There were a great many things in its favour, but there were a few which he fancied might be against it; and although he was one of those who strongly advocated, and had done for a long time, a proposal of this kind, he was of opinion that they would do better if they thrashed it out more in detail. The Council could then bring it up early next Session in such a form that there would, he hoped, be no necessity to take the poll that had been asked for, and a unanimous resolution would probably be passed that the class of men they were going to introduce would be a very great benefit, not to the Institute only, but for architecture as an art. What had been said with regard to the history of the matter seemed to him to be perfectly true; but there was one thing that had not yet been mentioned, namely, that the allied arts had made most extraordinary progress in recent years. They, as architects, were thrown so much into contact with the gentlemen whom they called Craftsmen that they could not possibly do without them, so much so that they were constantly being asked for their assistance in the work of the Institute, either in reading Papers or in taking an active part on the Committees, which they did with the greatest loyalty, and in which they had been of great service. If they could attach a large class of those workers, to whom they were more or less indebted every day, and with whom they were in daily

communication, he could not help thinking that the Institute would not only gain, but that architecture as an art would be very largely promoted.

MR. WILLIAM WOODWARD [A.] said he must confess that at first he looked upon the project with considerable disfavour, but not for the reasons which Professor Kerr and others had urged. His mind had been then filled with a work that had excited considerable attention in literary circles, and which many present might have read, entitled *Degeneration*, by M. Max Nordau. If they would permit him he would read one or two extracts from that work; and, whether or not they agreed with the views expressed by the writer, he was sure they would agree that for vigorous expression and power of thought Professor Nordau was second to none at this end of the century. Professor Nordau said: "And next, what does 'all this spirit mean—what underlies it? . . . To the 'sensitive nature yearning for æsthetic thrills it means 'the vanishing of ideals in art, and no more power in 'its accepted forms to arouse emotion. And to all it 'means the end of an established order which for 'thousands of years has satisfied logic, fettered depravity, 'and in every art matured something of beauty.'" The author went on to say: "Men look with longing for 'whatever new things are at hand, without presage 'whence they will come or what they will be. They have 'hope that, in the chaos of thought, art may yield revelations of the order that is to follow on this tangled web." And then, speaking of the class affected, the Professor went on: "'It consists chiefly of rich, educated people, or 'of fanatics.' 'The Philistine or the Proletarian still 'finds undiluted satisfaction in the old and oldest forms 'of art and poetry, if he knows himself unwatched by 'the scornful eye of the votary of fashion, and is free to 'yield to his own inclinations.' And yet the tendency is 'not to be discussed, as some people do, as 'a passing 'fashion and nothing more.' It means 'the confluence 'of two well-defined conditions of disease . . . viz. 'degeneration and hysteria, of which the minor stages 'are designated as neurasthenia.'" And then the Professor proceeded: "All these new tendencies, realism, 'or naturalism, 'decadentism, neo-mysticism, and their 'sub-varieties, are manifestations of degeneration and 'hysteria. . . . Led by this firmly linked chain of causes 'and effects, everyone capable of logical thought will recognize that he commits a serious error if, in the æsthetic 'schools which have sprung up in the last few years, he sees 'the heralds of a new era. They do not direct us to the 'future, but point backwards to times past. Their word 'is no ecstatic prophecy, but the senseless stammering 'and babbling of deranged minds, and what the ignorant 'hold to be the outbursts of gushing, youthful vigour and 'turbulent, constructive impulses are really nothing but 'the convulsions and spasms of exhaustion.'" His (Mr. Woodward's) mind had been filled with those extracts when he received the notice-paper announcing the subject for discussion that evening, and he thought that the author's words did to some extent apply to the proposal which was set forth in that Paper. He confessed, however, that after hearing Mr. Aston Webb and Mr. Brydon's exhaustive statement of the real object of the new departure, he looked with very much more favour upon the proposition; and he could not follow Professor Kerr nor Mr. Florence nor Mr. Slater in thinking that the subject needed a more thorough thrashing out. It appeared to him that with a few emendations the proposed By-laws contained all necessary safeguards. The nominations were left to the Council, and Mr. Aston Webb had told them that the election would be in the same way as the election of the other classes of members. The word "election," however, did not appear in the By-laws, and that was a question he should like to raise. He thought words should be added to say that the election, not only the nomination, should be similar to the election of other

members of the Institute. Mr. Brydon had, he thought, grasped the idea of the Craftsmen. As he understood, the Craftsman was the man—taking the smith for example—who in wrought-iron had produced something which in the minds of the Council of the Institute was a work of art connected with architecture; or, to take other branches of art, the man who had decorated; and the same expression should be extended to apply to the artistic artisan—the designer, for example, of the internal decorations now frequently seen—such men were artists in the strongest possible sense of the word, and would be worthy members of this or any other Institute. With regard to the By-laws themselves, he would suggest the addition of the words “and of architecture” in By-law 4, so that it would read, “as shall, in the opinion of the Council, promote the interests of art and of architecture.” With regard to the appropriation of the fees, it was suggested that the fees should be devoted to the Library Fund. To his mind the Library Fund was not in want of those fees, but the Institute was. That was a minor matter, and he thought that they should subdivide the fees in the way that appeared to be of necessity at the moment. Then in the Declaration he would propose that the last words should read: “I will advance the interests and objects of the Royal Institute, and of architecture as an art.” He did not think the proposed new members should be asked to pay a couple of guineas to advance the interests of the Royal Institute. What was meant was that they must pay a couple of guineas to become members of the Institute, and they would advance the objects and interests of the Royal Institute and of architecture as an art. He ventured to think it would be regrettable if the subject were shelved for another Session. It seemed to him that they might leave those matters to the Council. The members had the privilege of electing or rejecting the particular gentlemen suggested by the committee, and therefore they had the matter entirely in their own hands. They had ample opportunity of thoroughly enquiring into the antecedents and merits of any particular candidate, and, that being so, it seemed to him that they were as fully prepared to carry out the proposed scheme as they were prepared to carry out the election of any member of the Institute. He was sure that Professor Kerr and others had no desire to unnecessarily delay the matter, and he ventured to suggest, with all deference to the speakers, that they could very well pass the By-laws as they stood, with slight modifications, and let the matter come forward at once. It was a subject that they were all thoroughly acquainted with. At all events, with the safeguard of a poll being taken of the General Body, he should strongly support the proposal to adopt at once the principle of the matter, and let the general views of the Institute be heard upon the paper to be sent out.

THE HONORARY SECRETARY thought it highly interesting to feel that the “degenerate babbling” of an “exhausted” Council had found some favour in Mr. Woodward’s mind, and he should like to move as a second amendment, which perhaps Mr. Woodward would be good enough to second, That this Meeting approve of the general principle suggested of a further class of associated members, and that the Council do reconsider the details of the scheme and bring them before a General Meeting next Session. Then, if the requisitionists should consider it necessary to have a poll, the poll could take place after that.

Mr. WOODWARD seconded the amendment.

Mr. R. PHENE SPIERS [F.], F.S.A., asked whether the Allied Societies had been consulted, as there might be some very cogent reasons in the provinces why craftsmen should not be admitted.

THE SECRETARY replied that the Allied Societies had not yet been officially approached on the matter.

Mr. EDWIN T. HALL [F.] thought the Honorary Secretary’s proposal would be a way out of the difficulty. If that proposal were adopted he would suggest that it

should be adopted subject to details to be submitted to the Council at a later meeting.

The Honorary Secretary assented to the suggestion, and a discussion then followed on a question raised by Mr. Slater as to whether the requisition did not bind the Council to go to a poll of the General Body at once. It was ultimately agreed, with the concurrence of those present who had signed the requisition, that the adoption of an amendment in the form suggested by the Honorary Secretary rendered it unnecessary at the present stage to proceed to a poll. The amendment was then put and carried unanimously [see Minutes, p. 596].

PROCEEDINGS OF ALLIED SOCIETIES.

Architectural Education at Liverpool.

A meeting of the Liverpool Architectural Society was held on the 20th June at the office of its ex-President, Mr. Henry Hartley [F.], to discuss, on the invitation of Professor F. M. Simpson, a scheme of architectural education drawn up by him for the City of Liverpool School of Architecture and Applied Arts. The details of the scheme were fully considered, and at the close of the Meeting a resolution was passed expressing entire approval of the principles of education laid down, and recommending architects to conform to the suggestions as to apprenticeship and premium contained in it. A copy of the resolution has since been sent to all architects practising in Liverpool and district asking them, if they approve, to sign and return a form stating their willingness to shorten the term of pupilage and reduce the ordinary premium for students who, having attended a two years’ course at the College, have been awarded the College Certificate. The following particulars of the scheme have been furnished by Professor Simpson:—

The course of studies is so arranged as to meet the wants of two classes of architectural students—(1) those already engaged in architects’ offices as pupils or assistants; (2) those who, intending to become architects, shall pass through a course of preliminary training before entering an architect’s office. For the latter class of students the course of training extends over two years, and embraces Freehand and Architectural Drawing, Construction, and a knowledge of building materials; Design, both elementary and advanced; the History of Ancient and Mediæval Architecture, Mechanics, Modelling, &c.

The course is not intended to supersede pupilage, but to be preparatory for it. It is now customary for the student, as a rule, to go straight from school into an architect’s office as a pupil. He has, in nearly all cases, no knowledge whatsoever of architecture, often none at all even of drawing, and his first year or two are consequently more or less spent “picking up” in a casual, unmethodical manner the rudiments of his craft.

It is, in a great measure, to prevent this undoubted waste of time, and to provide a systematic course of training from the very beginning, that this portion of the scheme is started. Students who pass through the two years’ course will, on entering an architect’s office, have a fair knowledge of drawing, construction, and design, and will thus be able, from the very first, to derive full benefit from seeing work in actual progress, and working on the drawings for the same in a good architect’s office.

A somewhat similar scheme has been in existence for several years in the principal towns of America, and has been found to work most successfully. In New York, at Columbia College alone, Professor Ware, in a Paper read on 12th June 1888, said: “Meanwhile, beginning with ‘one or two students six years ago, we have this year ‘had nearly sixty, and instead of occupying one corner ‘of the miners’ drawing room, we have seven rooms of ‘our own.’”

The Architectural Department comprises a well-fitted

Studio, about 33 feet square, and a Lecture-room adjoining. There is already a large collection of over one thousand architectural plates, drawings, photographs, &c., for the use of students. An Architectural Library, containing the principal books of reference, and a Museum of Building Appliances, illustrating the various materials &c. used in building, are now being formed, and will be available for students. The Applied Arts Building contains also a good collection of casts—architectural and the figure.

The Architectural Studio is open every week-day, except Saturday, during the College Terms, from 10.0 a.m. to 4.0 p.m. (on two days until 5.0 p.m.), and from 7.0 to 9.0 on four evenings of the week.

Students entering for the complete course pay a Composition Fee of £25 for the Session of three terms. This admits them to all Lectures by the Professor of Architecture or his Demonstrator, to the Architectural Studio whenever open, to the Lectures by the other Professors on the subjects mentioned in the time table, and to all the Classes in the Applied Arts Lecture for which they have time.

Students are recommended to enter for the Preliminary Examination of Victoria University before commencing the Architectural course, so that their general knowledge may be thoroughly tested. Special attention is also directed to the College courses provided in Mechanics, Physics, French, German, English Literature, &c.

The Board of the College, recognising the necessity of offering Prizes to students working in the School, and having no funds at their disposal for the purpose, have resolved to invite subscriptions from persons interested in art training, in the hope that they will be enabled to start a prize fund. The Board have approved the following list of prizes, and hope to be able to advertise some at least in the Prospectus for the next Session:—

	Architecture.	Sculpture.	Dec. Painting.	Total.
Antique	—	£2 & £1	£2 & £1	£6
Head from Life	—	£2	—	£2
Drapery	—	£2	£1 & £1	£4
Figure from Life	—	£3, 2, 1	£3, 2, 1	£12
Painting from Life	—	—	£2	£2
Ornament	—	£2	—	£2
“ (design)	—	£2 & £2	—	£4
Stained glass	—	—	£2	£2
Wall decoration	—	—	£2	£2
Black and White (wash and line)	—	—	£1 & £1	£2
Wall paper	—	—	£1	£1
Drawing	£2 & £1	—	—	£3
Design	£3, £2, & £1	—	—	£6
Wood carving panel. £2 and £1	—	—	—	£3
Wrought-iron work. £2 and £1	—	—	—	£3
				£57
				Making a total of

LEGAL.

Builders and the Public Health Acts.

On 11th June at the West London Police Court Mr. Rose heard twelve summonses, three in respect of each of four houses in Claxton Grove, Fulham, alleged to have been let by Mr. Edward Lowman, contrary to the provisions of the Act. Mr. Blanco White, for the Fulham Vestry, stated that the first offence was under the Public Health Act of 1891 (section 48 (1)), for letting the houses and allowing them to be occupied without ashpits and a proper water supply. The second offence was under the same Act (section 48 (2)), for letting the houses before obtaining a certificate of there being a proper supply of water. That certificate, he said, was for the protection of the poor, so that builders should not let houses to obtain rent or mortgages before the water had been supplied. The third offence was under the Metropolis Management Act 1855 (18 & 19 Vict. c. 120), s. 75, for constructing drains contrary to the regulations of the vestry. He said that the ventilating pipes were left under the windows, so that the gases escaped into the living-rooms.

Dr. Jackson, the medical officer of health, gave evidence that there was not any water supply, and said he considered it a serious case, for when they had new houses they expected to find them in a good sanitary state. One of the occupiers, a man named Cox, said he went into the house on 28th January. There was not any water supply in the house, but there was a standpipe outside, from which he obtained all the water required. The water was put on on 13th May.

Mr. Cooney, for the defence, raised several objections to the proceedings, one being that a proper notice was not served, and said that the proceedings were arbitrary, as the defendant had been in correspondence with the company for the supply of water during a period of six months.

Mr. Rose imposed a penalty of £2 with costs in respect of each house under the Public Health Act, and 10s. with costs in respect of each house for not obtaining a certificate.

In the third case Mr. Cooney contended that the ventilators had been properly constructed, but consented to pay the costs.

Street for Foot Traffic only.

THE LONDON COUNTY COUNCIL *v.* DAVIS.

This was a case stated by a Metropolitan police magistrate, which came before a Divisional Court, consisting of Mr. Baron Pollock and Mr. Justice Wright, on 13th June.

The respondent Davis had been summoned upon a complaint made by the appellants before the magistrate for unlawfully commencing “to form or lay out a road, passage, or way for building as a street for foot traffic only” without their previous sanction, and contrary to section 8 of the Metropolis Management Amendment Act 1882. The road, passage, or way was an approach through a gateway to two blocks of buildings intended for artisans’ dwellings, both of which blocks fronted on to this passage or way, and each of the blocks had a door leading to the central staircase of each block and opening on to the said way. The buildings were to consist of forty separate sets of chambers in each block. The gateway and passage were not intended to be open to the public, but were for the use of the tenants of the sets of chambers in each block. The passage was 200 feet long and 20 feet wide, and had no other exit but through the said gateway into a street. The magistrate held that as the passage or way was not intended to be used by the public, it was not, in his opinion, a street for foot traffic, and dismissed the summons, but stated a case.

Mr. Horace Avory and Mr. Daldy appeared for the appellants; and Mr. Cripps, Q.C., and Mr. Scott-Fox for the respondent.

The Court held that upon the facts stated the magistrate was justified in holding that this road, passage, or way was not commenced to be laid out as a street for foot traffic; that the finding of the magistrate by no means implied that such a road, passage, or way must be dedicated to the public in order to come under the provisions of the statute; that the question whether such a passage or way amounted to a street for foot traffic was very much a question of degree; that the facts here were entirely different from those in *Daw v. The London County Council*; and that, looking at the purposes for which this passage or way was intended to be used, they thought the magistrate was correct in his finding. Their lordships accordingly dismissed the appeal.

Dangerous Structures: District Surveyor’s Fees.

THE LONDON COUNTY COUNCIL *v.* DIXON.

On the 14th June, at Lambeth Police Court, before Mr. Denman, a summons was heard under which the London County Council sought to recover £5. 10s. 2d. from Mr. Robert Dixon, the owner of five houses in Viary Street, Brixton Hill, as surveyor’s fees incurred by the County Council in connection with the defendant’s property.

Mr. Norman Bevan, from the Solicitors’ Department of

the County Council, appeared in support of the summons, and the defendant, a solicitor, conducted his own case.

The County Council, in consequence of a letter which was sent to them in October 1894, directed the district surveyor, Mr. Henry Parsons, to survey the defendant's houses. He did so, and reported to the Council that the cornices of the houses were in a defective condition. The attention of the defendant was drawn to the matter, and the cornices were repaired to the satisfaction of the district surveyor, who in all paid three visits to the property.

In cross-examination, Mr. Parsons said he examined the cornice from the footway, the houses being only small ones. It was possible he might not have been occupied more than ten minutes or so on each occasion.

Mr. Dixon pointed out that a separate attendance was charged for each house, and proceeded to call the builder who did the work for the purpose of showing that the cornices were not in a dangerous condition. It transpired that the cost of doing the repairs was about £7.

Mr. Denman said he was clearly of opinion that the cornices were in a dangerous condition, and that the case was one in which the County Council were entitled to take action. He ordered the defendant to pay the County Council the amount claimed, together with the cost of the summons.

The Building Line.

ALLEN AND ANOTHER v. THE LONDON COUNTY COUNCIL.

This was a special case stated by a metropolitan magistrate, who had made an order for the demolition of a certain building in the metropolis as being beyond the building line. The case came on before Mr. Justice Wills and Mr. Justice Wright on the 1st July. The substantial question raised was whether the decision of the architect as to the building being beyond the building line was conclusive and binding on the magistrate.

Mr. Channell, Q.C., appeared for the appellants; Mr. Ivory and Mr. Daldy for the London County Council.

A complaint had been made to the magistrate by the County Council that the appellants began to erect a building beyond the general line of buildings on the north-western side of Birchington Road without the consent of the County Council, contrary to section 75 of the Metropolitan Management Act, 25 & 26 Vict. c. 102. The facts were these. The appellants, on 13th November 1894, began to build four shops and houses upon the land at the corner of Birchington Road, Kilburn High Road, having a frontage of 22 ft. to Kilburn High Road and 58 ft. to Birchington Road. This front in Birchington Road extended 16 ft. beyond the general line of buildings, as determined by the certificate of the Superintending Architect of the London County Council, who stated in it that the main fronts of the buildings in a certain row of houses formed the general line of buildings on the north-western side of Birchington Road, "in which road the building in question is situate, and the building in question would project "beyond the prolongation of the said general line." It was contended on behalf of the appellant that the architect had not by his certificate found that the building was situate in the "street, place, or row of houses" described as the north-western side of Birchington Road, and if he had so found, he had placed the building in a "street, "place, or row of houses" in which the same was not situate. The respondents contended before the magistrate that the certificate had determined that the building was situate in Birchington Road, and that such determination was binding on the magistrate. The magistrate adopted this view on the authority of the case of the *London County Council v. Cross*,* and directed the demolition of so much of the building as was beyond the line. The question for the Court was (1) whether the certificate showed that the house in question was situate in the street, place, or row of houses on and for which the

general line of buildings was determined; (2) whether it was the duty of the architect to decide and find the situation of the appellants' building, and, if so, whether his decision was binding on the magistrate.

Mr. Justice Wills, in giving judgment, said the question raised was whether the certificate of the Superintending Architect of the London County Council, who now represented the Metropolitan Board of Works under the Metropolitan Management Act of 1862, deciding whether the building line in a street applied to a particular building, was decisive of the point in dispute. Looking at the Act, apart from the authorities, the learned Judge would have thought the tribunal which should decide that was the magistrate. But the matter had been much discussed both in the Divisional Court and in the House of Lords. It could not be said that the authorities were satisfactory. In 1886, in the case of *Barlow v. The Vestry of St. Mary Abbots, Kensington* (11 App. Cas., 257), Lord Watson held, without hesitation, that the architect was the person to decide, while Lord Bramwell equally unhesitatingly held it was the magistrate. Lord Fitzgerald agreed with Lord Watson. The majority of those learned Lords therefore were against the view that the magistrate was the deciding tribunal. The point also came before the Divisional Court in *The London County Council v. Cross*, where Mr. Justice Denman and Mr. Justice A. L. Smith both adopted the view that the Architect was the person. It was true that the case was subsequently overruled on another point, and therefore could not be called a binding judgment; but it seemed better to follow the views of this majority of Judges rather than to set up his own opinion. The point was not so important as it might seem, because the London Building Act of 1894 had made provision for the appointment of a tribunal of appeal against the Architect. On the second question the Architect must be taken as meaning to decide and determining that the building in question was in the street to which the building line applied.

Mr. Justice Wright, solely in deference to the judgment of the other Judges, concurred. Leave to appeal was granted.

The London Building Act 1894.

CROW v. REDHOUSE.

This was a special case stated by Mr. Dickinson, one of the metropolitan magistrates, on an appeal by Samuel Redhouse, under section 150 of the London Building Act 1894, against a decision by Mr. Arthur Crow, district surveyor for the Whitechapel Spitalfields district. The case came on for hearing on the 4th July before Mr. Justice Wills and Mr. Justice Wright. The report of the proceedings before the magistrate will be found at page 440; that which follows is from *The Times* of the 5th July.

Mr. Dickens, Q.C. (Mr. Daldy with him), appeared for the surveyor; Mr. R. C. Glen, for Redhouse.

The 150th section provides that where it appears from the building notice served on the district surveyor under this Act that it is proposed to erect any building . . . which will be in contravention of this Act . . . the district surveyor shall serve upon the builder or building owner a notice of objection, and it gives an appeal to a magistrate from this notice. The case arose out of the following circumstances. Samuel Redhouse proposed to rebuild a six-storey warehouse, No. 3 Church Street, which, in consequence of a fire and of subsequent proceedings, was taken down as dangerous in November 1894, for more than one-half of its cubical extent, so that the proposed rebuilding would be a "new building" within section 5 (6) of the London Building Act 1894, which defines "new building" as "any building which has been taken down "for more than one-half of its cubical extent and re-erected, or recommenced to be re-erected, wholly or "partially, on the same site after the commencement of "this Act." A notice of objection was served by the

* *The R.I.B.A. Journal*, Vol. VIII, N.S. p. 100.

district surveyor on Redhouse. The matters in the notice were, however, remedied with the exception of the objections made to the use without thickening of a wall, forming the west boundary of the site, as the party-wall between the reinstated building No. 3 Church Street and the adjoining warehouse No. 1 Church Street, the said wall not being in conformity with the provisions of the Act as to new party-walls. Before the fire the party-wall had been the party-wall between No. 1 and No. 3. So far as the party-wall concerned No. 1, which had not been seriously injured by the fire, it had been reinstated in the course of the reinstatement of No. 1. These reinstatements had not amounted to the erection of a "new building" at No. 1. Redhouse appealed to the magistrate on the ground that he was not compelled by law to make the party-wall conform to the provisions of the Act of 1894. The extent to which the party-wall had been burnt and taken down in consequence of the fire amounted only to one-third of its superficial area. The remainder was safe. The party-wall had been erected in conformity with the previous building Acts, but was not of the thickness required by the Act of 1894. In support of Redhouse's appeal to the magistrate it was contended that, as the party-wall had not been taken down, burnt, or destroyed to the extent of one-half thereof, by virtue of section 208 of the London Building Act 1894, the proposed use by him of the party-wall was not in contravention of the Act. The surveyor, Mr. Crow, contended before the magistrate that, the proposed re-erection being a "new building" within section 5 (6) of the Act, the party-wall should be so erected as to comply with the provisions of the said Act, and that there was no exemption enacted or implied in section 208. The magistrate thought the contention of Redhouse was correct, and that he could not be compelled to take down, rebuild, or thicken the said party-wall. The surveyor appealed.

Mr. Justice Wright said: As we are unable to agree upon the proper construction of the Act, I have to deliver judgment first. The question related to a party-wall, and the question is whether it is to be considered as a new structure within the London Building Act 1894. If this party-wall is considered by itself, it has not been pulled down or destroyed to the extent of one-half; and therefore, if taken by itself, it is not within the section requiring it to be constructed as a new wall. The Metropolitan Building Act 1855, section 10, enacts: "Whenever any old building has been taken down to an extent exceeding one-half of such building, such half to be measured in cubic feet, the rebuilding thereof shall be deemed to be the erection of a new building; and every portion of such old building that is not in conformity with the regulations of this Act shall be forthwith taken down." If that section is re-enacted in the Act of 1894, either in substance or expressly, the whole of this building comes within it, and must be rebuilt. Now, the Act of 1894 does not in terms contain any such provision. On behalf of the County Council, it was said that the 5th section of the Act of 1894 had that effect. If subsection 6 of section 5 is to be taken according to the usual rules of construction of interpretation clauses, there is nothing in the Act which would apply to the present case. The expression "new building" is not used in those parts of the Act which are material. But, according to the ordinary rules of construction, is there anything more in the interpretation clause? I think (with great hesitation) that this interpretation clause is an enacting clause, and not a mere interpretation clause. The Legislature could never have intended to destroy section 10 of the Metropolitan Building Act 1855. But the question is not what the Legislature intended, but what it has done. It is extremely material to observe that this so-called interpretation clause actually does contain one or more enactments—for example, subsection 4 and subsection 7; and to my mind subsection 6 is so expressed that we can come to the conclusion that it is an enacting clause. If

the interpretation clause is not to be construed as I have construed it, it seems to me that section 209 would have very little effect at all. I think that Parliament in enacting the definition clause did consider subsection 6 of the definition clause as an enactment. Then section 210 appears to me as a mere repetition of sections 7 and 9 of the Act of 1855, and strengthens the ground for concluding that the whole of that group of sections should be considered as included in the present Act. I think the magistrate was wrong.

Mr. Justice Willis said: It is with great regret that I find myself unable to agree with my learned brother. The expression "new building" is not to be found in the portions of the London Building Act 1894 which apply to the wall in question. But I think section 208 governs this case. Supposing that this party-wall had been destroyed to the extent of one-half, the proper course under that section would have been to order the whole to be taken down or to make it conform to the provisions of the Act. It seems to me that, if the wall was not destroyed to the extent of one-half, it is enacted that such liability should not attach. It is said that this case comes under subsection 6 of the interpretation clause. I think there is no foundation for saying that there is a substantial enactment in the interpretation clause. There is a string of expressions which are to have the meanings attached to them. If, therefore, I can find any section which contains the expression "new building," that will meet the present case. Now sections 13, 14, 16, 17, 63, 160, 209, and 210 all contain the expression "new building." It seems to me that the interpretation clause is satisfied by giving the extended meaning to the words "new building" which is contained in the definition clause. I therefore think the learned magistrate was right, and that our judgment must be for the respondent.

Mr. Justice Wright then withdrew his judgment.

Building Line—"Building, Structure, or Erection."

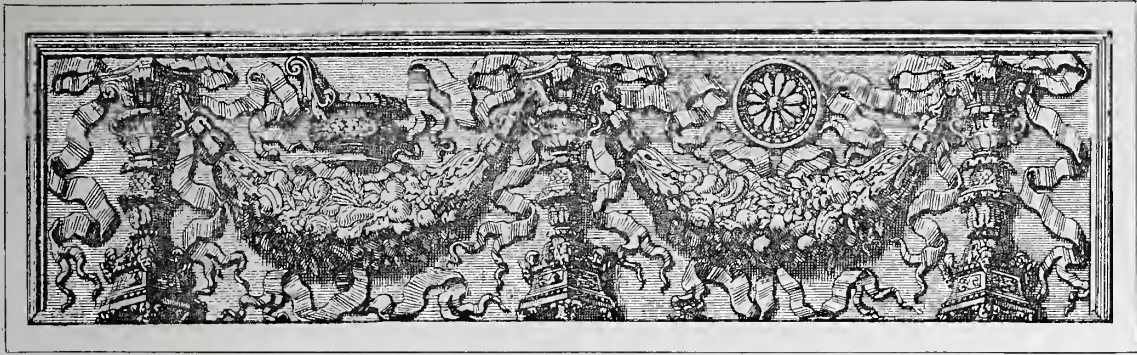
LAVY AND UPJOHN *v.* THE LONDON COUNTY COUNCIL.

This was an appeal from a decision of a Divisional Court which came before the Court of Appeal (Lords Justices Lindley, Lopes, and Rigby) on the 15th and 16th July. The facts will be found fully stated, in the report of the case in the Court below, at page 524.

The appellants were the owners of a house in the City Road, having a forecourt between it and the highway, bounded on the side of the highway by a dwarf wall with an iron railing thereon. They removed the dwarf wall and railing, and built on the same site a wall 11 feet high and 14 inches thick, which they intended to use for posting advertisements. The respondents, the County Council, summoned the appellants, under section 75 of the Metropolitan Management Amendment Act 1862, for erecting a building, structure, or erection in front of the general building line of the street. After the issue and before the return of the summons the general building line was determined by the superintending architect, and after the return but before the final hearing by the magistrate the architect's decision was confirmed by the Tribunal of Appeal. The magistrate held that the wall was a "building, structure, or erection" within section 75, and ordered it to be demolished. His decision was affirmed by the Divisional Court.

Mr. R. A. McCall, Q.C., and Mr. R. Cunningham Glen were for the appellants; and Mr. A. M. Channell, Q.C., Mr. H. A. Forman, and Mr. F. K. North for the respondents.

Their Lordships, in dismissing the appeal, held, first, that it was not a condition precedent to the issue of the summons that the architect should have determined the general building line; and, secondly, that it was a question of fact for the magistrate to decide whether, in the particular case, the wall was or was not a "building, structure, or erection" within the section, and that there was nothing to show that he had not rightly decided that it was.



WILLIAM EDEN NESFIELD'S DRAWINGS.

By R. PHENÉ SPIERS [*F.*], F.S.A.

IF it were not for the beautiful series of drawings illustrating mediæval architecture of the twelfth and thirteenth centuries in France and Italy, published in 1862 by William Eden Nesfield, his name would already by this time have been forgotten, except by a limited number of his friends and admirers. There are still some, and they include painters as well as architects, who recollect the enthusiasm which was created by one of his early works—viz. the lodge in Regent's Park. To those who in their rambles had sketched the half-timber structures in Kent and Surrey, the possibility of the revival of similar picturesque structures, breathing throughout the spirit of the old work, must have come as a revelation. This lodge, however, is only one of a series of many works, some of them of much greater importance, which are to be found here and there throughout the country, but, from the fact that they were chiefly built on private estates, are little known, even the name of the architect who designed them being forgotten. This, however, is partly due to the fact that Nesfield would never allow any of his executed works to be published, and at his death he left strict injunctions that all his working drawings should be destroyed. Mr. Norman Shaw states that Nesfield never made a show drawing, nor did he ever send drawings to the Royal Academy Exhibition. His works, however, still exist, and these will in the future take their place as among the most beautiful creations of this second half of the nineteenth century.

It is not, however, his executed works which are to form the burden of this article, but that which comes next in importance to them—viz. the record of the studies which he went through, in order to cultivate his powers of design and drawing, and of which his works are the outcome. Some of the members of the Council and of the personal friends of William Eden Nesfield have lately purchased and presented to the Library of the Institute what may virtually be looked upon as the whole collection of his drawings and sketches, including all but two or three of the famous series which he published in 1862, about sixty to seventy others of equal beauty but unpublished, and two sketchbooks, one being the octavo album known to his friends, which contains perhaps the most delicate and beautiful drawings it would be possible to find. The main collection, arranged under his direction, is contained in two large folio volumes. Before describing the collection it may be as well to give a brief outline of his student career. Nesfield was born in 1835, and was brought up at Eton. In 1850 he was articled to the late William Burn, who, however, sent him for a year to learn drawing with the late J. K. Colling. Returning to Burn's office in 1851, he found a congenial companion in Mr. Norman Shaw, and the two henceforth studied together (except

during the greater portion of the long tour which the latter made as Travelling Student of the Royal Academy), and eventually, as it is known, were associated for a time as partners in their professional career.

The classic style of the work in Burn's office was not much to Nesfield's taste, but he avenged himself by devoting all his spare time when in London to the measuring and drawing of Pugin's work in the Houses of Parliament. He and Mr. Norman Shaw obtained permission from Sir Charles Barry to prosecute their studies there, and the Saturday afternoons and occasional Sundays were spent in measuring and drawing, not so much the regular architectural work as the accessories in the shape of carved woodwork, metal work, stained glass and tiles. Their summer holidays were, of course, devoted to old work, and at Worcester, Hereford, and Salisbury they measured and drew to their hearts' content. The study of Pugin's work, however, increased his sense of dislike to Burn's classic work, and in 1853 he left the latter's office and entered the late Anthony Salvin's. In 1854 he accompanied Mr. Norman Shaw to the north of France when the latter was starting on his tour, and for his month's holiday worked with him. In 1856, when Mr. Norman Shaw returned to England, he also entered Salvin's office, and the two friends worked together again. On his return, Mr. Shaw was requested by the Council of the Royal Academy to publish his drawings, and the success of these probably suggested to Nesfield the idea of undertaking a similar work. Terms were arranged with Messrs. Day & Sons, who had published Mr. Shaw's work, and in 1859 he started for the Continent to prepare the drawings, returning, however, to England for the winters (one drawing at Rouen has a date of 1861). This terminates, so far as the collection of drawings shows, Nesfield's career as student.

The thicker of the two large folio volumes of drawings contains the earliest efforts of Nesfield's pencil; the pages have been numbered, so that the simplest way to describe the collection will be to follow them.

The first seven pages contain his earliest drawings, dating from 1846, when he was eleven years old: some are in pencil, some in water-colour; some are, as noted on them, "original," some are copies. The late J. D. Harding was a great friend of Nesfield's father, and on the 24th August 1848 gave Nesfield his first lesson, recorded on the sketch, probably by his mother, "Willie's first lesson with Mr. Harding." Pages 8 and 9 contain Harding's lessons and Nesfield's copies. The study of a branch of a tree, dated 29th August, by Harding, showing how it should be shaded according to the inclinations of the sun's rays, is one of the most brilliant examples it would be possible to suggest of what a lesson should be. Nesfield evidently felt this, for on one of the copies (page 9) he has written "One of J. D. Harding's lessons, most loveable and cherished." The next two pages contain copies of Harding's drawings. In September of the same year (1848) Harding and Nesfield go to Beaumaris Castle, and pages 12 to 14 contain a drawing by Harding, its copy by Nesfield, and his own original sketches. Page 17 contains what must be looked upon as a remarkable copy for a lad of thirteen who had had his first lesson only three months previously. On the same page are water-colours which are not brilliant, but show much sense of aerial effect; and Mr. Shaw informs me that many of these are copies of the elder Nesfield's drawings, who was a member of the old Water-Colour Society. On pages 22 and 23 are two other admirable copies, and on page 28 an original drawing of a tower at Eton done in 1849, which already suggests his future powers. Up to page 43 are numerous studies, some in colour. A drawing (elevation) of arcades of Chapter-house, Wenlock Abbey (page 44), done in 1850, is perhaps his first purely architectural drawing; in this drawing, done when he was fifteen years old, the value of Harding's lessons is shown. On page 47 is another admirable copy of one of Harding's drawings. It is possible that many of these copies were made from

some of the numerous lithographs published of Harding's drawings. Page 48 is his first drawing of a classic Order, which I fear would not pass the present examination standard. Perhaps he was set to it by Colling. Pages 60 and 61 contain four very good drawings, apparently in "crayon conti," on toned paper, and tinted. A water-colour of an old house at York (page 62) is one of his best: he has followed Harding's custom in using a little body-colour, and the texture of the broken plaster-work is admirable. Then follow more drawings of the Orders. On page 73 is a measured drawing of the bench-ends of Ufford Church, Suffolk, done with J. K. Colling; the date has been altered to 1852 from 1851. It is far too good a drawing to have been made in the latter year; besides, other windows in Norfolk follow, all dated 1852, which suggest they were the work of one tour. On page 80 is the first drawing done in the Houses of Parliament: drawings of tiles, half full size, dated February 1852. This was probably the first drawing of that type of work done by him. The result of these studies made in the Houses of Parliament seems to have drawn his attention to similar architectural accessories in his sketching tour; and after that, tiles and metal-work, linen-fold panels, coats of arms, old lettering, &c., all of old work, are recorded in his sketches. A measured drawing of Bishop Bridport's tomb in Salisbury Cathedral made in 1852, when he was seventeen, is a capital work, showing that he had mastered the use of the ruling and bow pens. Pages 96 to 105 are filled with drawings of metal-work, iron and brass, and of tiles done in 1853 in the Houses of Parliament. On page 106 are two admirable drawings of the Guesting Chamber at Worcester (now pulled down): these were done on a tour with Mr. Norman Shaw in 1853. Henceforth he became a master in draughtsmanship. Winchester, Wells, Gloucester, and Salisbury all furnish him with examples, almost always measured work, and of the most elaborately carved description. In 1854 he makes studies of masonry of the castles of Conway and Caernarvon. The jointing of ashlar and rubble masonry seems always to have had a special attraction for him. This is already shown in a drawing of Winchester College staircase leading to the dining hall (page 113), and in the measured drawing of the west window of nave, Wawn Church, Yorkshire (page 81), done 6th March 1852. The drawing of the clerestory from roof of aisle of Evreux Cathedral (page 138) is one of his early finished drawings made when travelling in July with Mr. Norman Shaw. I have omitted to note that on pages 128 and 129 occurs almost the only design in the book: a sketch for a college, plan and elevation, made in March 1854, for probationary work of the Royal Academy; but it was never completed and sent in. There is something Puginesque about the design. Already in 1852 he had paid a visit with Mr. Shaw to Ramsgate to see St. Augustine's Church, which he sketched, and they happened to arrive on the day of Pugin's funeral. Again in 1854 Nesfield visits St. Augustine, and makes a careful perspective view (page 139), and he still continues his studies in the new Houses of Parliament. In 1855, whilst his friend Mr. Shaw was abroad, he visits Worcester again, and there is a second drawing of the roof of the Refectory, or Guesting Chamber (page 152), which fairly takes one's breath away. That and a portion of a buttress of Wells Cathedral, on the same page, are drawn with a precision of line and vigour of effect which are quite remarkable. These and some other drawings of work abroad fill up to the 166th, the last, page of the first folio.

The second folio contains chiefly the original drawings of the work published in 1862, and entitled *Specimens of Mediæval Architecture of the Twelfth and Thirteenth Centuries in France and Italy*. Mr. Norman Shaw returned from his tour in 1856, and submitted the drawings he had made to the Council of the Royal Academy, who requested him to publish them. The work, entitled *Architectural Sketches from the Continent*, was published in 1858, and he put the greater number of them on the stone himself. Nesfield must have constantly had the opportunity of seeing the process; it is possible, therefore, that at that time he conceived the

idea of publishing his own drawings some day. The sketches made in the summers and autumns of 1857 and 1858 are so beautifully finished that they might have been transferred at once, had the reproductive processes of the last few years been known. They could, at all events, have been handed over to an expert, as they were later on, to copy them. The success of Mr. Shaw's book having been assured, Mr. Nesfield early in 1859 entered into communication with Messrs. Day & Son, who had published Mr. Shaw's drawings, in order to arrange terms for the publication of a second series of the same character, and he undertook to make a tour in France and Italy for the special purpose of preparing additional drawings, so as to make up a series of one hundred plates and a title-page. This second folio contains the title-page, the upper portion of which is a lithograph from Nesfield's original design, the lower portion the original drawing made for Nesfield by Mr. Albert Moore. Then follow ninety-six of the original sketches, two tracings, one of which seems to cover the original drawing, and one lithograph (to supply a missing drawing). There is only one drawing missing, therefore, which he gave to Mr. Norman Shaw. Of the hundred plates, five only were put on stone by Nesfield himself; the others were copied by other artists from his drawings. In six cases the plates were re-drawn, the originals not having been completed. If, on comparing the originals with the published lithographs, any fault is to be found with the latter, it is that they have been worked up too much. No one knew better than Nesfield where to leave off in the indication of the stone jointing or of the tiles; he put in sufficient to suggest all the important constructional lines, and no more. The original drawings, therefore, have a brightness (beyond the brilliance of touch) which is wanting in the lithographs, some of which are heavy, and have the appearance of being too much laboured; and this defect is found even in those which Nesfield himself drew on the stone. These drawings, therefore, have a special value attached to them, and will no doubt be consulted with advantage by our future Pugin Students. That which is most remarkable in the drawings is the unerring truth of the lines of the arches. A minute examination of them shows that he began by turning in with the bow pencil most of the arch-moulds—of pointed arches, at all events, when this was practicable. These lines were put in as lightly as possible, so that when he drew them in by hand afterwards they are scarcely noticeable. His own line is so firm and accurate that one can only suppose he adopted this course when commencing a sketch. To turn in the lines of an arch in a geometrical drawing is easy enough, but to find the proper centres for a series of lines of the arch-moulds of a great portal would seem to be a most difficult task because the lines do not lie parallel to one another; at the apex of the arch they are wider apart than they are at the springing. Plate 5, the west door of the church of the Abbey of Ardennes (page 3 in folio), is an example which may be quoted as suggesting the great difficulty of determining the centres.

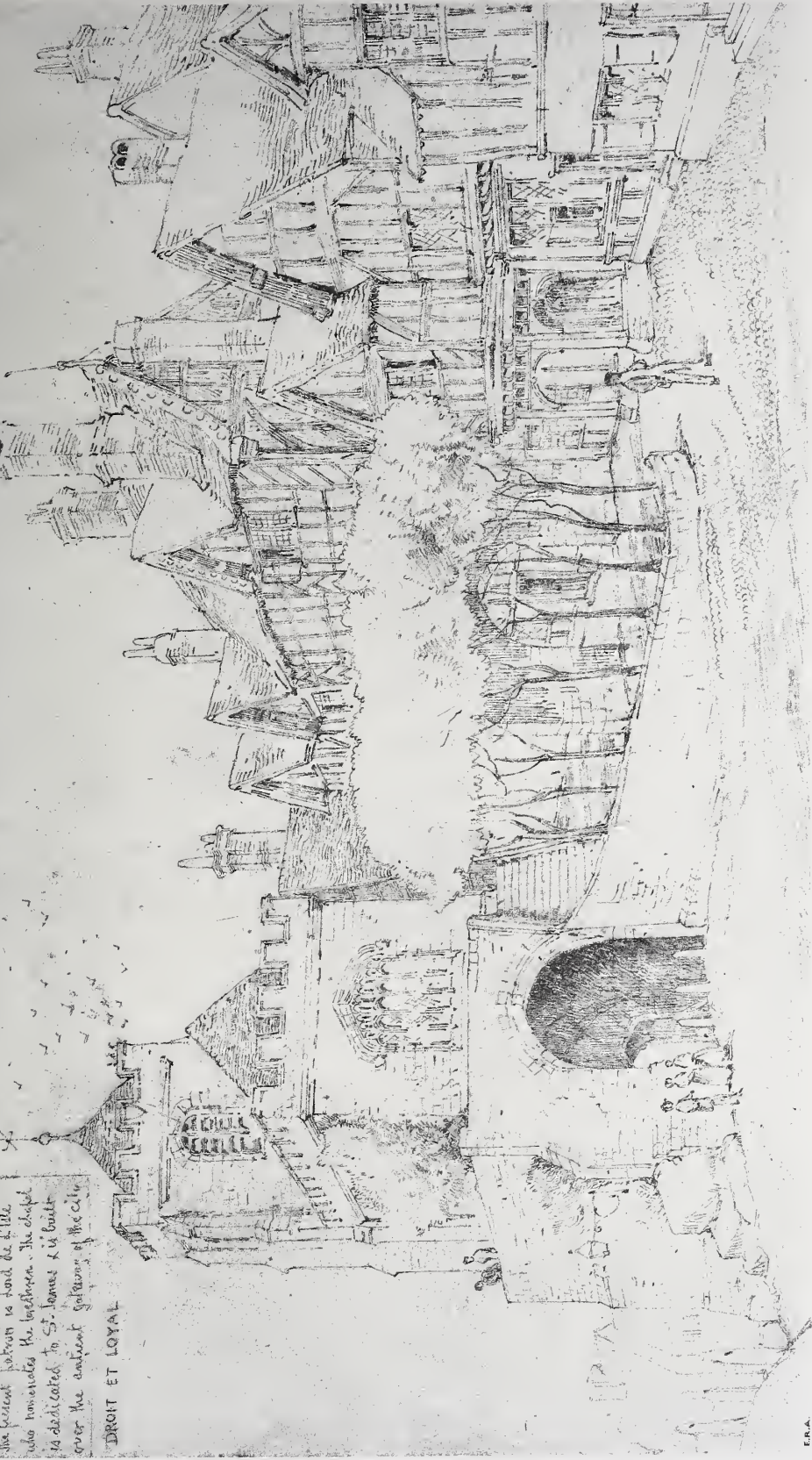
Next in value to the interiors and exteriors of early work, the examples of the Flamboyant and early Renaissance styles, such as plates 14 and 15 (page 7 in folio), claim one's admiration. The beauty of the frechand drawing of the staircase tower of the Hôtel of the Dukes of Berri at Bourges, and the upper part of the staircase of Blois, is most remarkable. The latter is one of the most complicated problems in perspective which could be found, but Nesfield draws it in with the greatest ease, as though he had nothing else to think of than to make a beautiful line, and one full of feeling. This is, in fact, one of the chief characteristics of all Nesfield's drawings. They are all lined in as if he had got a camera lucida in his eye, with these special advantages, that he had no need to look through it, and that the lines never shifted. More than that, he must have had a magnifying glass as well, or it is difficult to understand how he could have made such a drawing as the south-west Flamboyant tower of Chartres (page 12 in folio).

The Earl of Leicester's Hospice Warwick.

Oct. 17th 1862.

Founded by Robert Dudley, Earl of Leicester, 1571 for 200 soldiers & a workhouse. The present hospice is Lord de Mordaunt who commemorates the benefactor. The chapel is dedicated to St. James & is built over the ancient gateway of the city.

DROIT ET LOYAL



E.R.A.

FACSIMILE OF A PENCIL SKETCH BY W. E. NESFIELD [P. 610].

I have referred to the use he made of the bow pencil; the T and set squares were also utilised when necessary, as in the towers of Coutances Cathedral; but even in ruling them in, the lines are not of the same thickness—he breaks or increases the force of the line to avoid the hardness of a ruled line. Although at an early date he had freed himself from what may be called the mannerisms of his master, Harding, yet throughout his work the influence of his early training is shown in the crispness of his lines and the sparkling, sunny effect of his shadows. The lesson of the shading of the trunk of a tree in accordance with the inclination of the sun's rays was never forgotten by Nesfield. The correct representation of the shadows thrown by the sun was never lost sight of by him. In most drawings, even including those by painters, the sun seems to be in a dozen different positions at the same time—due to the fact probably that they cannot all be Joshuas. Nesfield avails himself of an actual shadow when it suits his drawing; if he puts in his own shadows they are always in unison, and are never contradictory. His reflected lights are admirable. Another great characteristic of all his drawings of old work—he never exaggerates their age or ruin; in the actual jointing of the masonry he finds quite sufficient to break up the plain surface. The way in which he produces variety is by leaving out. But the whole of these pages might be filled with descriptions of the lessons which Nesfield's drawings suggest. It will perhaps be sufficient now, therefore, while speaking of the published series, to call attention to three examples:—I. The two capitals from Chartres (p. 11 folio), which for perspective foreshortening, beauty of line, and brilliance of shading are masterpieces of drawing; II. The south front of the Cathedral of Pisa (page 56 of folio), the only finished purely architectural water-colour drawing in the collection; and III. The second plate (page 1 in folio), details of carving of Amiens Cathedral. This drawing was made in May 1857, when he was under the influence of Viollet-Le-Duc. It is drawn on tinted paper, shaded in black, with the high-light in Chinese white. At the end of the folio volume will be found a number of tracings from drawings by Viollet-Le-Duc, which the two young English students, Nesfield and Mr. Norman Shaw, had permission from him to make at Amiens in April of the same year. Nesfield probably, however, found himself more at home in pencil shading than in the use of the brush, and he rarely resorted to it afterwards.

From page 60 of the folio are the unpublished drawings and various studies in colour. Some of these are earlier drawings, but quite as fine as the published examples: The interior of Chartres; the tower of St. Martin's, Honfleur; the belfry of west tower of Rouen Cathedral; the interior of Caudebec Church; the lower part of the north transept with the fine portal of Rouen Cathedral,* one of the most delicate of the whole set, and a remarkable drawing to have been made by a boy of nineteen, the greater part of whose time was occupied in office-work; for it must be remembered that up to 1856 all the drawings made by Nesfield were done during his holidays, and even after then only the summer months seem to have been devoted to his travels. Many of the examples which follow were done during the month he accompanied Mr. Shaw abroad in 1854. There is no date to the bay and transverse section of Amiens Cathedral (page 74 in folio); it is placed by the side of a bay of Bourges, dated 1854, but was, I am informed, not measured till 1859.

On page 79 is an interesting drawing not named or dated, but it represents a bird's-eye perspective of a restoration of the Abbey of Cluny. It is set out in a pencil drawing on which

* An amusing incident is told in connection with this drawing. Nesfield was upset from his sketching-stool, and all his materials, including the drawing, were sent flying into the street. A neighbouring cobbler, taking pity on the poor artist, ran out of his shop to assist him, and taking up the drawing, which, as usual, had fallen face down-

wards, was about to wipe the dirt off with his apron, but was fortunately stopped in time. The good intentions of the compassionate cobbler, however, so delighted Nesfield that he never lost an opportunity, when passing near, to go and have a chat with him, always taking half a pound of tobacco as a present.—R. P. S.

are marked the portions which exist : viz. the west tower of fifteenth century over crossing of eastern transept, the Bourbon chapel, the cloister (of which there is a published drawing, plate 27), and a fourteenth-century chapel. Over this pencil drawing on a folding slip is a second study in ink of the eastern half of the abbey. This is remarkable for the minute detail of the Bourbon chapel and the eastern apse of the south transept. Then follow (pages 82-84) studies of frescoes and figures in the Campo Santo at Pisa, and of the pavement of Siena Cathedral (pages 85 and 87). Page 92, a drawing of the pulpit. Page 93, a measured drawing of some of Viollet-Le-Duc's own work at Vézelay, not dated unfortunately (Nesfield went to Vézelay in August 1859), because it would be interesting to know whether he continued to measure and draw modern work. On pages 95 and 96 are drawings of the Parthenon and the Propylæa at Athens, with general views of the Acropolis : these were made in March 1858. By comparison of the drawing of the Parthenon with photographs in its present state, it might be possible to ascertain the increase in the size of the cracks of the architraves. On page 97 is a beautiful drawing of the old cathedral at Athens, which shows clearly the sculptured slabs taken from earlier edifices. On page 102 are some sketches in Constantinople, which shows he was able to draw there ; it is not easy, because the Turks do not like it and throw stones at you. Then follow numerous sketches in pencil from the old masters ; on page 115 two careful pen-and-ink copies from examples of Albrecht Dürer's drawings at Florence, and on the last two pages of the folio the tracings of Viollet-Le-Duc's drawings, which were made in April 1857 at Amiens.

I have now to speak of the two octavo albums. Of one of these there is not much to be said ; it is probable that Nesfield kept two or three going at the same time ; the sketches in it are sometimes hurried, and the paper, having a hot-pressed glazed surface like writing paper, does not lend itself to pencil-work. The other sketchbook is of a different kind, the paper being a kind of straw paper, which was discovered by Mr. Shaw and Nesfield about 1862. They each of them had a book made up of it, taking it to Messrs. Parkins & Gotto for that purpose. It takes both a fine and a dark line, H.B. being apparently the best pencil to use. The paper is equally good for ink lines, as witness the Japanese drawings (pages 34 to 36), and the isometrical prospect of "Ye Forteress of Caer Narvon as it might have been a long time ago" (page 142). The drawings in it are all sketches in the proper sense of the word. It is true that occasionally he turns in arches with the pencil-bow, and in two or three measured sketches light lines have been ruled in : as a rule, however, all is freehand drawing, and of the most beautiful and delicate kind. The jointing of the masonry, tile hangings, and tile roofs all seem to have had a special fascination for him. In the pencil sketch reproduced [facing p. 608], the subject perhaps is one which would be selected by a painter rather than an architect ; and although all the half-timber work and the masonry of the chapel are drawn in with that knowledge which few but architects could pretend to—and even then they must have been expert in half-timber work—Nesfield seems to have been more attracted by the cobbles in the foreground, of which he sketches in exactly as many lines as the sketch will admit ; or by the tiles of the various roofs, of which he indicates those only which give brightness and brilliance to his sketch. If in some of the string-courses of the barge-boards all the lines are not carried through, it is not because he knows of the dodge and adopts it throughout, but to avoid harshness, and to accentuate certain parts. As a matter of fact, every barge-board happens to be treated in a different way, and this variety could only be gained by representing each as it appeared to him when looking at it.

The long training of ten years he had undergone as a draughtsman of the most elaborate architectural work, enabled him to grasp at once the salient characteristics of any subject he was sketching. What strikes one in the sketches in this album, in contra-

distinction to the subjects which he sketched for his earlier finished drawings, is their comparative simplicity; there is no more elaborate flamboyant detail; he delights much more in pure constructive masonry, or in the framing of simple open-timber roofs. Of both kinds there are numerous examples, such as the roof over one aisle of Leominster Church; the bell-framing in Rustington Church; the roof of the kitchen in the Bishop's Palace at Chichester—a marvellous drawing right across two pages; the roof in the George and Dragon at Speldhurst, in Kent; the roof of Cuddesden, or, again, the half-timber work at Warwick, of Upperfolk, Fernhurst; the old hall, Sandbach, Cheshire, which he repaired; or the old house at Conway, since pulled down; or, again, in hanging tile-work, as at Rusthall Common, the shop, Speldhurst, or the Red Lion, Lower Green, near Tunbridge—the latter one of the most beautiful drawings in the book. Whilst in earlier days no subject could be too elaborate for him, now he delights in the greatest simplicity—Climping Church, or Merton College Library, or Bampton porch, or Broughton Castle; the drawings of the old chests at Winchester, showing the framing and construction; of the settle at the George and Dragon Inn, Speldhurst; of the Jacobean pulpits at Tortington and Edburton Churches, and St. Lawrence's, Reading; of the chair at Warwick, the bench and the chair in the Lady-chapel of Winchester Cathedral. The drawings are of the most admirable kind, with full notes as to dimensions, framing, and covering. Every page, indeed, has its interest; but I must limit my description, and draw attention to three subjects: I. (pages 33 to 36) figures taken from Japanese books in 1862—the first books, perhaps, which came over from Japan, Nesfield having at once seized on the vigour in the drawing and the designs on the covers; II. (page 138) a sketch of the hall at Conway Castle, and (page 139) a suggested restoration of the same drawn in ink; and III. (page 143) a minute pen-and-ink drawing of Caernarvon Castle in the old times, with ships of the period grouped and drawn in perspective in the most marvellous way.

NOTES UPON THE SMALLER "TREASURIES" AT MYCENÆ.

By WILLIAM SIMPSON [H.A.], R.I.

THE term "treasuries" is not here used in ignorance of the real character of these monuments which still remain on the site of the ancient city of Mycenæ. Under this name they have been known from the time of Pausanias, and such a lengthened use of the word would in itself almost justify its continuation; but my main reason for its employment is, that it serves to distinguish this particular class of tombs from those of a different kind in Mycenæ as well as in other parts of Greece. Monsieur Perrot calls them "Domed Tombs" and Schliemann "Beehive Tombs," fairly good names as descriptive of those at Mycenæ; but I should prefer to apply the words "Tumulus Tombs," believing that their true character would be thus expressed. Such nomenclature would not be limited to Greece, but would include a very wide range of monuments extending over a large portion of the globe. The cells of tumuli are not all circular in plan, nor domed in their roofs. Some of the Kertch tumulus tombs are square; and I give illustrations [figs. 2, 3] of one of the Bin Tepé, or the Thousand Tumuli, near Sardis, which is square in plan, with a flat roof formed of three stone slabs.

My visit to Mycenæ occurred in March 1877, shortly after Schliemann had closed the first explorations at that place.* Before then I was familiar with the so-called Treasury of Atreus from drawings, though they did not in the least prepare me for the surprise I experienced

* My mission there was to make, for the *Illustrated London News*, sketches of the explorations that had taken place. After that I visited the Troad, and made illustra-

tions of Hissarlik, and other sites there; and as Wood had shortly before finished his work at Ephesus, I went on to that place also.—W. S.

on first entering the monument itself. I had not realised the great size of the beautiful dome, which, in the dim light that is permitted to enter by the doorway, may have helped perhaps



FIG. 1.—THE SO-CALLED "TREASURY OF ATREUS" AS IT WAS IN 1877.

to make it look higher and grander than it really is. A walk along the dromos, and a glance round the interior, were sufficient to convince me that I was in the sepulchral cell of a tumulus, and I naturally asked myself the question, Why does this place pass for a treasury? I was

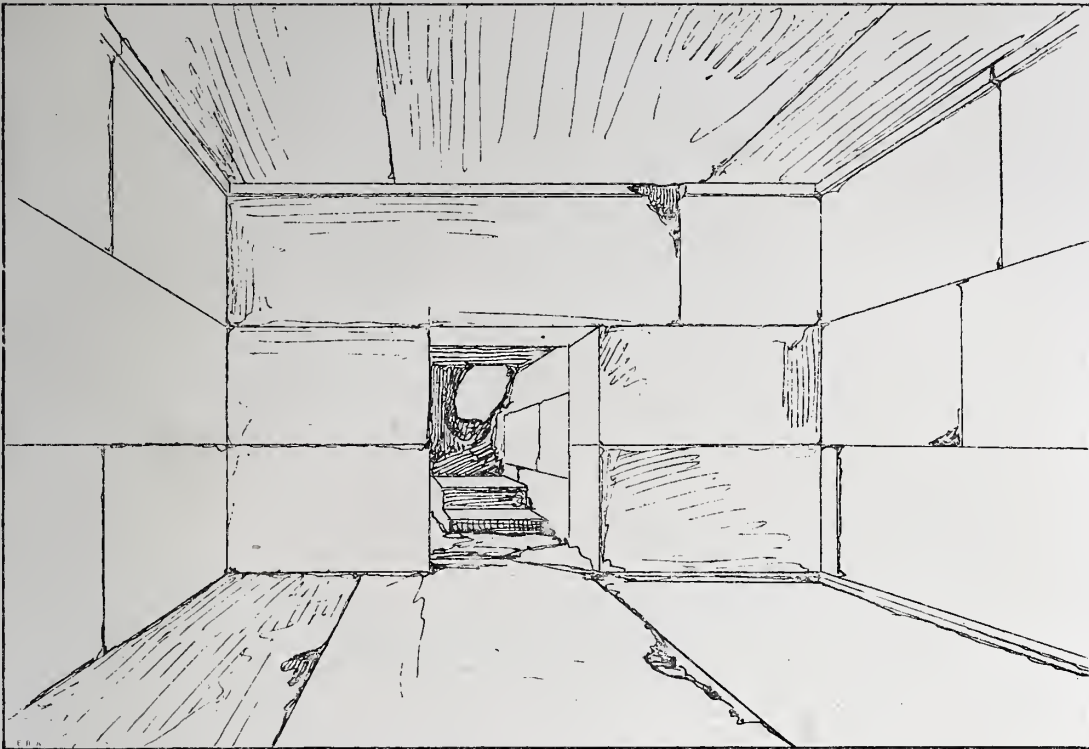


FIG. 2.—CELL OF TUMULUS, BIN TEPE, SARDIS (ON THE HERMUS RIVER) ASIA MINOR.

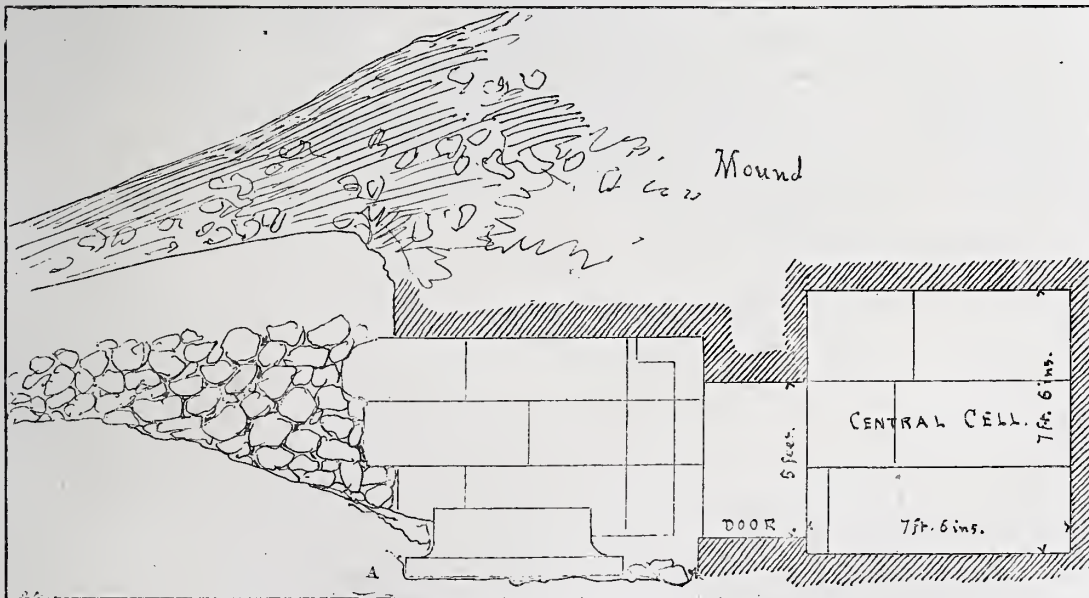


FIG. 3.—SECTION OF CELL OF TUMULUS, BIN TEPE.

A, block of stone that closed the doorway.

with the troops who, in May 1855, occupied Kertch, in the Crimea, at the entrance to the Sea of Azof, and had seen the tumuli around that town. They have the same dromos with walls rising in height towards the doorway—a form resulting from the lower slope of the mound, and

found in the Bin Tepé tumuli at Sardis. At the end of this dromos is the doorway leading into the constructed cell—here, at Mycenæ, in the so-called treasury, I found the very same arrangement in every part. The details of masonry and construction differ in many ways, but the general design of the monuments preserves a similarity that cannot be mistaken. Feeling confident in this, it was a slight surprise to find on my return home that archaeologists were still doubtful as to what the building had been originally. Dr. A. S. Murray, who, it turned out, had realised their sepulchral character, told me of a German writer who had published a work in which he treated these treasuries as tombs. Curtius, I understand, has also written about them from the same point of view. At the present day, so far as I know, there is no difference of opinion regarding them.*

It was after seeing the Treasury of Atreus that I chanced to come upon two of the smaller "treasuries." My first impression was that they belonged to what are now termed "rude stone monuments," and that they were dolmens. It was with this idea in my head

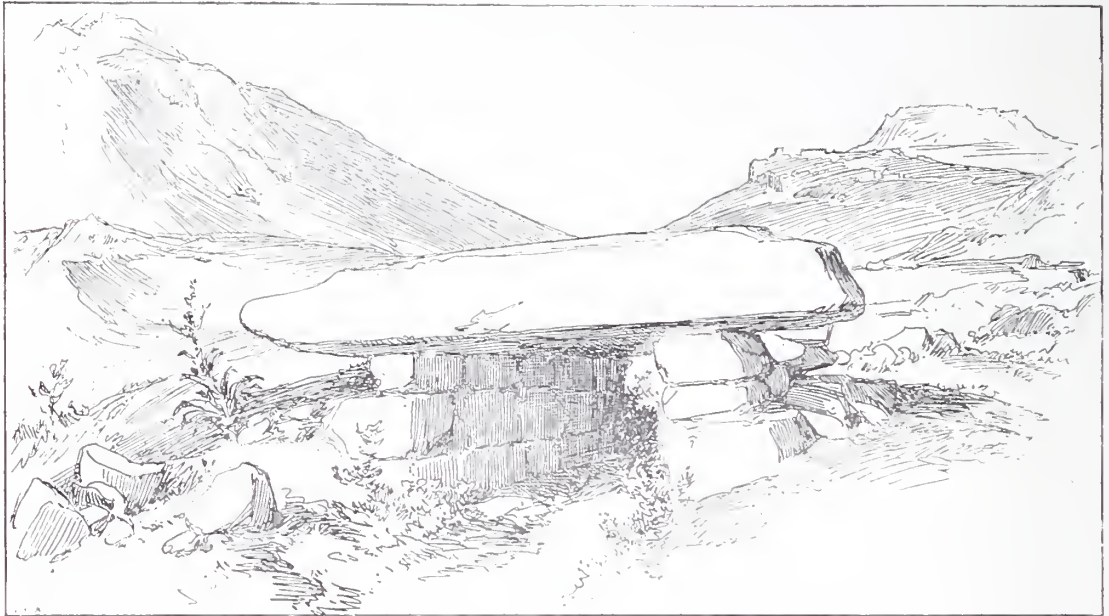


FIG. 4.—THE THIRD TREASURY, MYCENÆ. (From a sketch by Wm. Simpson, R.I.)

that I sketched one of them, and it was only when making a plan of it—which has been my custom with such monuments—that I discovered the remains of the circular cell: there is not much of it left, but still quite enough to show its real character. On carefully inspecting the other, a portion of the circular outline in it also became visible. It then dawned upon me that, although smaller and ruder in construction, these remains belonged to the same class of structures as the Treasury of Atreus and Madame Schliemann's Treasury.† There are three more of these smaller treasuries, making seven in all at Mycenæ. I did not see the three others, and I have seen no description of them, but I give drawings of the third and fourth treasuries [figs. 4, 5], as they are called, from which their character can be understood.

These rude erections could not have been decorated as we know the Treasury of Atreus was. In the third treasury it will be seen that the upper stones rest upon two walls of roughly dressed blocks, of which three courses are visible above ground; most probably

* Schliemann, in his *Mycenæ and Tiryns*, ignores their character as tombs, and deals with them alone as treasuries.—W. S.

† So called from Madame Schliemann having superintended its excavation while her husband was engaged at the explorations within the Gate of Lions.—W. S.

there are more courses now covered up. These walls slope inwards towards the top, and correspond to the sloping walls in the doorway of the Treasury of Atreus; in which, again, it will be noticed [in the illustration of the doorway, fig. 1] that the roof is covered by two large lintels, the inner one of them being the larger. This is a magnificent block of stone; its length on the lower surface is $27\frac{1}{2}$ feet, and on the upper 29 feet; it is 17 feet in width and 3 feet 9 inches in thickness, and is calculated to be about 130 tons in weight. The inner edge is curved to harmonise it with the curve of the circular dome. In the plan of the third treasury [fig. 6] is a similar arrangement; there are three lintel stones, but the largest is the inner one, and its edge is curved to run with the circular plan of the dome. The fourth treasury is so very rude that the slope of the walls cannot be affirmed as a certainty; the roofing stones are also very rude and fragmentary; there appears to be five of them, and the inner and also the largest of them has been trimmed to follow the curve of the dome. There is a



FIG. 5.—THE FOURTH TREASURY, MYCENÆ. (From a sketch by Wm. Simpson, R.I.)

curious and at the same time what appears to be an exceptional projection in the form of this stone, which, although rough, appears to be too regular in shape to be accidental; but what its purpose may have been I can form no notion. It must have formed a sort of shelf above the doorway [fig. 7].*

These details are sufficient to show that the smaller treasuries belong to the same class of structures as the larger ones, and that the Treasury of Atreus is only a more highly

* The plans of these smaller treasuries here given only pretend to be sketch plans, and the measurements had better be taken as approximate; however, they are accurate enough for the purpose of what is here written about them. It is now so long since I made these sketches that I quite forget on what authority the enumeration of "third" and "fourth" was taken. The only illustration of these treasuries that I have noticed is in Dodwell's *Views and Descriptions of Cyclopien, or Pelasgic Remains in Greece*

and Italy, published in 1834. Even MM. Perrot and Chipiez, in their *La Grèce Primitive, L'Art Mycénien*, which appeared only last year, although they give numerous illustrations of the Treasury of Atreus and the second treasury, have not, if the English translation of that work is full and correct, given a scrap of illustration of these smaller treasuries. The size, stated above, of the large stone lintel in the Treasury of Atreus is not from my measurement; it may be assumed as correct.—W. S.

developed example. Owing to its having been constructed on a slope, its tumulus character is not apparent. The position of the smaller treasuries is upon more level ground—this is the case with at least the two I made sketches of—and when their domes were covered with earth they must have had the appearance of mounds. As their constructive character, although far inferior in every way, is the same as that of the larger treasuries, it is clear, in my opinion, that the latter were also tumulus tombs.

In the illustration of the Treasury of Atreus which shows the doorway, two perpendicular lines of small holes are visible; these are supposed to have held the bronze pins by means of

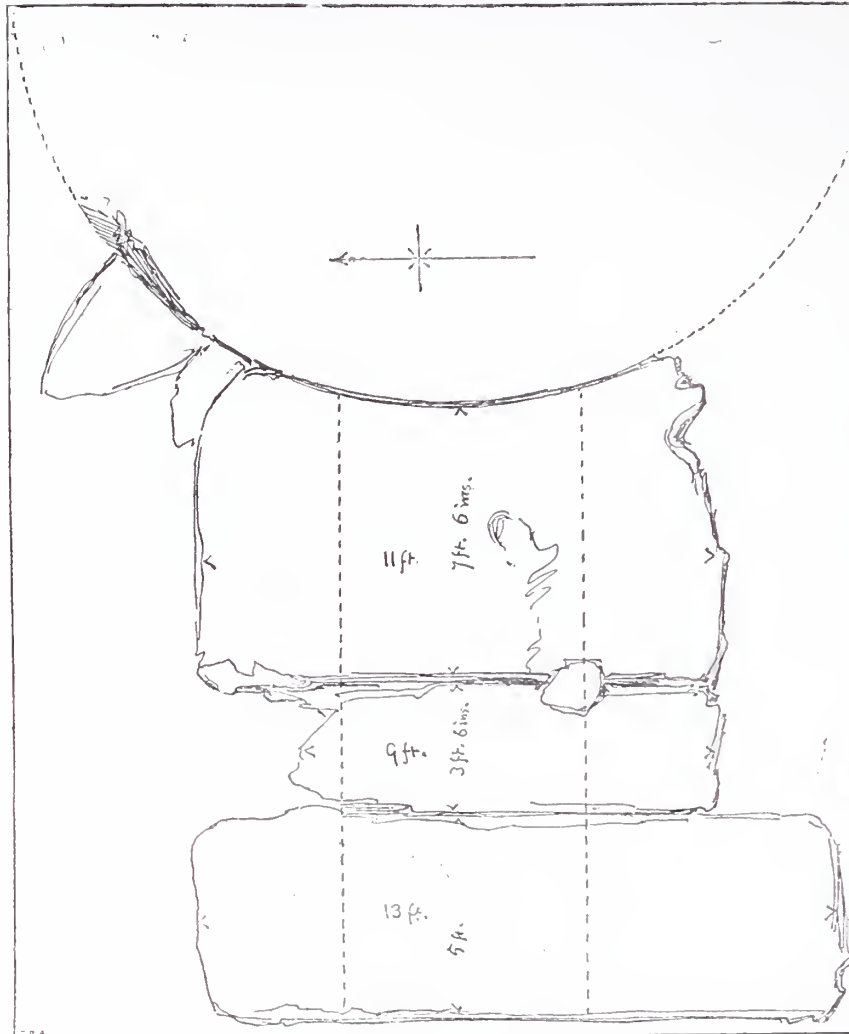


FIG. 6.—SKETCH PLAN OF THE THIRD TREASURY, MYCENÆ.

which the frame of the bronze door was fixed to the wall. At the time of my visit I did not notice whether any indications of a door existed or not in the smaller treasuries; and my sketches, unfortunately, fail to give any information.

The length of the doorway is a marked peculiarity of these monuments. There is no constructive requirement that seems to demand it. If any special reason for it existed, which there no doubt was, no suggestion of its purpose has as yet appeared. The plan of the fourth treasury curiously enough recalls the "allées couvertes" found in France, where they form part of the construction of dolmens and mound tombs; but their purpose, if they had any, is also as yet unexplained. The only

guess I can make is that at some early date, when it was customary to close up the cell, the funeral rites would be performed at the entrance, and that in course of time the walls were extended and the space enlarged for this purpose. This would mean that it was the funeral chapel. In the section of the Bin Tepé tumulus it will be seen that the large squared stones are continued for some distance outside the door of the cell: this forms in reality a second chamber. I find strong support for my guess in the tomb discovered by M. Tsoundas at Vaphio, in the plain of Sparta, where what M. Perrot designates a "sacrificial pit" is formed

in the ground, and in the doorway leading to the cell.* Offerings to the Chthonian or infernal deities were poured or placed in pits, or in the ground, and these rites would be appropriate for the dead.† This sacrificial pit, or altar, shows that, in some cases at least, the doorway

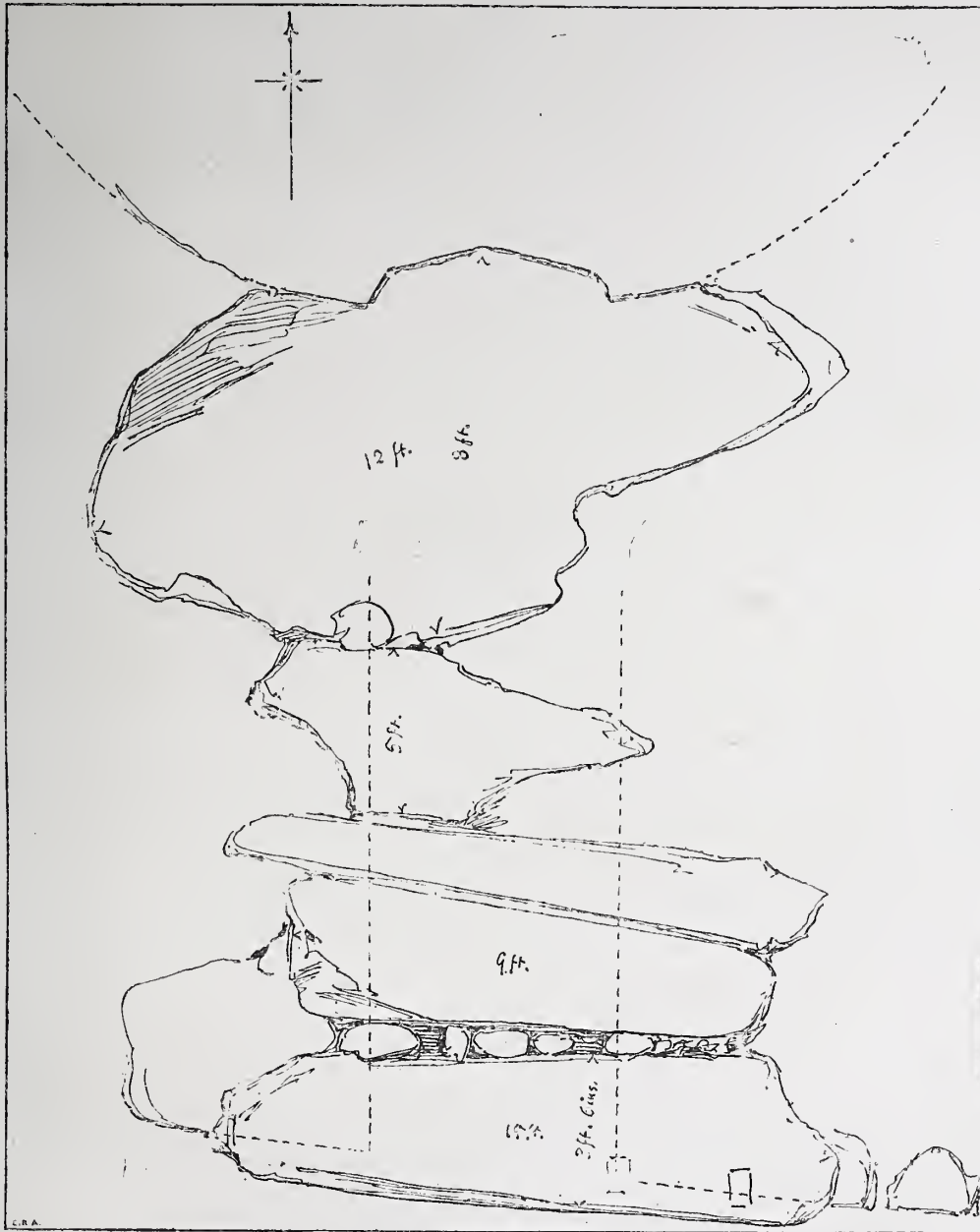


FIG. 7.—SKETCH PLAN OF THE FOURTH TREASURY, MYCENÆ.

of tumulus tombs served the purpose of a chapel for funeral rites. I doubt if this explanation would apply to the “allées couvertes”; it might perhaps to some, but from what I recollect

* See MM. Perrot and Chipiez’s *La Grèce Primitive, L’Art Mycénien*, in the English translation of which [vol. i. p. 393] there are plan and section, showing the

sacrificial pit, of the Vaphio tomb.—W. S.

† Achilles, at the funeral rites of Patroclus, poured wine upon the ground to the manes (*Iliad*, xxiii. 120).—W. S.

of one or two of these constructions at Locmariaker, in Brittany, my impression is that they were narrow and too contracted to permit of rites being performed in them. However that may be, the guess might explain the purpose of the long passage in such tumulus tombs as the one at Gâvr Innis (Brittany), the Maes-Howe in the Orkneys, or New Grange in Ireland, as well as many others.

In the two smaller treasuries I could perceive no remains of the passage or dromos leading to what may be assumed to have been the doorway. This passage is generally formed of smaller stones than those in the doorway leading into the vault, and if their walls existed they have either fallen in or been removed. The Treasury of Atreus has a dromos 20 feet wide and at least 60 feet in length, the wall rising in height towards the doorway from following the slope of the ground. This wall on each side of the approach, increasing in height as you enter, is a marked feature of almost all chambered tumuli, and is not limited to the Mycenæ examples. In the section of the Bin Tepé tumulus the wall is shown as built with unwrought stones. The Kertch tumuli that I have seen have also this characteristic feature. As already explained, it was the sloping wall of the approach which helped to produce the impression in my mind that the Treasury of Atreus was a tumulus tomb. This in itself would not have been conclusive evidence; but, with other conditions which were visible, it turned out to be correct enough.

The block of stone that closed the entrance to the Bin Tepé tumulus, which was not a door in the usual acceptance of the word, now lies on the ground where it fell when the cell was entered. It is merely a stone plug, and never could have been intended for opening and shutting. This would imply that whatever the ceremonies may have been which took place at the tomb, they were performed on the outside of the cell. M. Spiegelthal explored some of the Bin Tepé tumuli in 1854, and in one he found a stone couch, which would imply that the body was not confined, but lay on the couch as if resting in the same manner as the person might be supposed to do when alive. The bronze bier found in the Regulini-Galassi tomb at Cervetri indicates the same idea of treatment of the dead by the Etruscans.* The rules in relation to the dead varied very much in each locality, and even in the same locality there were marked differences, owing probably to rank, or to sects, or perhaps to tribes that may have been living together; we must not, consequently, infer that the dead would be dealt with at Mycenæ as in Italy or in Asia Minor.

There appears to be considerable doubt regarding what Veli Pasha found in the Treasury of Atreus. It is most probable that rumour exaggerated every detail.† Schliemann states that he found some old men at Charvati—the village close to Mycenæ—who remembered the exploration, and they at least confirmed one part of the story: the finding of a marble table. If this was not the couch on which the body was originally placed, it goes far to prove that the chamber was fitted up like a house or a palace: and that the corpse would not be in a coffin, but repose in state surrounded by the articles that its dignity may have been supposed to require. If thus uncovered any ritual that had to be performed could scarcely be gone through in its presence. Such a thing would be most incongruous, particularly after decay in the corpse had begun to show itself.

* There are two fine Etruscan sarcophagi in the British Museum, with figures resting on the top. Although in these cases the body would be below in the coffin, the suggestion of placing figures of the deceased as resting on a couch above was probably derived from the older practice of placing the corpse on a couch or bier. If this was the case, it gives us the starting-point of a style of funeral monument that has been followed down to the present day.—W. S.

† In 1879, when I explored the Ahin Posh Tope at Jellalabad, and found a gold relic holder and twenty gold coins in the central cell, the news spread rapidly about the locality. Shortly afterward a friendly Khan made an official visit to the late Major Cavagnari, who was political officer with the army; the Khan inquired if it was true that a golden chest full of gold coins had been found in the Tope. The incident forms a good example of the power of rumour among country folk.—W. S.

The pit-graves that Schliemann discovered underneath "the circle of the Agora," within the Acropolis of Mycenæ, tell of a very different manner of disposing of the dead, for those buried there must have been very important, if not royal, personages; and it is difficult to account for such widely separated modes of interment, and that too in the same town. Time would account for such variations in the mode of burial, and a considerable space of time might be required to explain the great changes that took place; but this is a subject on which I do not feel myself competent to give an opinion. MM. Perrot and Chipiez, the translation of whose work I have been lately reading, state [vol. ii. p. 365] with regard to the treasuries, "It is agreed on all sides that they are later in time than the shaft-graves of the stone circle"—meaning those found by Schliemann in the Agora.

On first seeing the smaller treasuries my impression was that they were the earlier and ruder forms which in time developed into the more elaborate and finished structures. I am still inclined to this idea; but it is not impossible that the very opposite theory may be the correct one, and that they are only the degenerate descendants of the style. There is, however, another supposition equally probable. These smaller treasuries, perhaps, were not the tombs of royal personages, and the rude form of their construction may imply that less wealth was expended upon them; and they may not be either earlier or later in point of time than the larger treasuries. A more extended study of the other tumulus tombs in Greece may assist in the determination of this point.

Although much has been written about these treasuries, or tumulus tombs, it still appears to me that they have not yet had full justice done to them as a most important style in the classification of the architecture of Greece. They have always been written about as exceptional; as structures outside the recognised Orders. When Greek architecture is mentioned, the mind limits its conception of the phrase to what is conveyed by the words "Doric," "Ionic," or "Corinthian." Unluckily, almost nothing remains but fragments of the earlier architecture; there is no witness left to proclaim its former glory, like the Parthenon standing on high. We have to search and burrow into holes and corners to find the few relics of it that still exist; and the best of these can only be seen in a defaced condition, completely despoiled of all outward beauty, which may perhaps explain why this style has been left out of its true position and rank. That these tumulus tombs were numerous in Greece, we have the testimony of Athenæus, who says: "You may see everywhere in the Peloponnesus, but particularly at Lacedæmon, large heaps of earth, which they call the Tombs of the Phrygians." The so-called "Treasury of Minyas," at Orchomenus, shows that they were not confined to any one part of Greece. Many have been discovered and some explored lately by M. Tsoundas, showing to what extent these monuments existed, that they were not exceptional, and that in at least one part of Greece they were seen "everywhere."* We now know the high perfection the style reached in the Treasury of Atreus, which was covered with alabaster, porphyry, and other fine stones of varied colours, all most elaborately ornamented. The few fragments found, of which some may be seen in the British Museum, show how good and effective the decorative work must have been. Bronze was also largely used, and we know that the interior was covered with this metal, and no doubt richly ornamented, recalling Homer's description of the brazen abode that Hephæstus, the divine architect, made for himself [*Iliad*, xviii. 370].

The origin of this "treasury" style is interesting as a contrast to the other forms of Greek architecture, which were almost wholly wooden in their first state of existence, while

* The description of Athenæus reminds me of the district round Kertch, where in many places the tumuli are so numerous that they give a serrated outline to the

heights; in the neighbourhood of Kertch one might truly repeat the words that the large heaps are seen "everywhere."—W. S.

this has always been lithic. Its constructive forms could not have been produced except from building in stone. It has always been intimately connected with what we understand under the rather vague term "cyclopean masonry"; in fact, cyclopean building may be considered as forming a part of the style, particularly as they are both associated with the name and the race of Pelops.* In a former Paper of mine it was shown that mud or crude brick, as a building material, produced walls, and that where wood was scarce the roofing was accomplished by means of barrel-roofs and domes; the same material also produced the arch. We have here a striking contrast with the forms evolved from the wooden or trabeate construction. Now the "cyclopean" or "treasury" style began with stone walls, and it produced the arch, the barrel-roof, and the dome. The Treasury of Atreus still remains with at least its constructive parts intact, and its splendid dome is there as a witness for one of these forms; the galleries in the walls of Tiryns contain what may be accepted as a rude form of the barrel-roof; and the triangular space over the doorway of the Treasury of Atreus, and the Gate of Lions, at Mycenæ, is only a straight-lined arch. That these are all on the corbel, not the keystone, principle, is a detail that does not touch the point under consideration. Walls could be made to support such works upon them, but wooden posts could not. I am aware that in later times domes have been erected on columns; but such designs did not belong to the early developments of wooden architecture. The two styles were thus perfectly distinct; the perpendiculars were different; and the result was that the covering over of spaces, both in form and principle, was widely separated. The lintel was common to both styles; the magnificent stone over the doorway of the Treasury of Atreus, as well as the covering stones in the smaller treasuries, are sufficient evidence.

One feature appears to have been common to both: that was the large employment of metal. It is generally understood that the palace in ancient Greece was constructed of wood; and we have Homer's description of the palaces of Menelaus and Alcinous, in which one is inclined to suspect that there may exist a slight touch of the poet's licence; but still there must have been some basis on which he founds his account. In the palace of Menelaus there was not only "the shining of brass throughout the resounding house," but there were also gold, amber, silver, and ivory [*Odyssey*, iv. 73]. The palace of Alcinous had "brazen walls," which were "firmly built each way"; and it had a "brazen threshold," on which stood "silver pillars," with "golden doors" [*ib.* vii. 87]. In the Treasury of Atreus we know that metal had been used to a considerable extent, and that almost the whole of the interior was covered with bronze. The use of metal in the "treasury" style may have been borrowed from the wooden style, in which it probably originated, for where wood is employed metal is often used for the purpose of clasping or binding; and when wealth exists and ornament is desired, this material becomes decorative.

In conclusion, I may refer to the existence in India of domes similar to that of the Treasury of Atreus; and to structures bearing some resemblance found in other parts of the world. Not long ago there appeared a short article of mine upon "A Primitive Mode of Construction still practised in the South of Italy" [*JOURNAL*, Vol. I. Third Series (1894), p. 313]. It referred to a rude kind of dwellings, called "truddhi," still built with stones in fields, with round vaulted domes, the continuation of a very old form of construction showing that such domes had existed long ago in Italy. These structures are allied to the Núrags of Sardinia and Majorca. The brochs of the north also bear some points of resemblance; the Maes-howe in the Orkneys, and other chambered tumuli of a similar kind, have all touches of the same family likeness.

* I use the word "treasury" here because it will be easily understood. The style has been called "Pelagic," but traditionally it is "Pelopian," which might perhaps be the best name to distinguish it by.—W. S.



9, CONDUIT STREET, LONDON, W., 22 August 1895.

CHRONICLE.

L'INSTITUT NATIONAL DE FRANCE.

Centenary of its Foundation.

This day, one hundred years ago, the National Institute of France was founded by a decree of the first French Republic, for the purposes, as it was officially declared about two months later, of (1) improving science and art by uninterrupted research, the publication of new discoveries, and correspondence with learned societies abroad; and (2) of following, in conformity with the decrees of the *Directoire*, scientific and literary labours of general utility. The National Institute, afterwards modified and enlarged by the admission of five restored academies—of Literature, Archaeology, Science, Fine Art, and Moral and Political Science—has maintained, under the name of L'Institut de France, a place in the world for the space of a century such as no other body devoted to the promotion of similar objects has been able to hold at any period of History. The heartiest congratulations are due from Englishmen, at home and beyond the seas, to that distinguished company on their centenary; and were the Royal Institute of British Architects now in session it is certain that a congratulatory message would be ordered to be sent to the Palais de l'Institut of a character more authoritative than is possible in a note of this kind. Suffice it, on the hundredth anniversary of a great and auspicious event, to offer an expression of the most sincere felicitation to Messieurs Daumet and Garnier, Baron H. von Geymüller, Professor Commendatore Lanciani, Sir Frederic Leighton, Sir John Millais, Messieurs Müntz, Naville, Normand, and Révoil, the Chevalier da Silva, Mr. Alma Tadema, Monsieur Vaudremer, the Marquis de Vogüé, and Mr. Alfred Waterhouse, all of whom form part of the Institut de France and, at the same time, are members of the corporate body of British Architects, three of them having been recipients of the Royal Gold Medal.

The Modified Reservoir at Philæ [p. 535].

Not the least of the services done for Literature, Archaeology, Science, and the Fine Arts by the

Institut de France is its great work on Egypt; * and it is gratifying to know that the British Minister in Cairo defers in matters connected with the arts to the administrative authorities—all of whom are French—of the Egyptian Museum of Antiquities, even going so far, it is averred, as to discourage the official appointment of Englishmen to any works of archaeological research and survey in Egypt. The fears entertained in England last year of the possible engulfment of the island of Philæ by the construction of a dam across the Nile at Assouan were shared by architects and archaeologists in Paris, though less was said and done there at the time than in London; and it was a great satisfaction to learn from an official memorandum, published in *The Times* of the 27th November 1894, that the Egyptian Department of Public Works had so modified its original intentions as to reconcile the interests of Egypt with those of science and archaeology. By the improved scheme, portions only of the island of Philæ would be submerged, and the rest of the Nubian monuments would remain untouched [p. 77]. Mr. Somers Clarke, F.S.A., who was a member of the Commission invited to visit Philæ and consider the best means of saving the island, gave a description [p. 535] of what had been done to effect the desired end; and concluded his report with the assurance that a very real effort had been made to do as little harm as possible to the historical monuments threatened by the original scheme. Nevertheless, the Parisians are not satisfied, and two of the academies in the Institut de France have addressed communications on the subject to the French Minister for Foreign Affairs, M. Hanotaux. Lastly, the Société centrale des architectes français has forwarded, through its President, the following protest:—

À M. le Ministre des affaires étrangères.

MONSIEUR LE MINISTRE,—Une compagnie anglaise ayant l'intention d'établir sur le Nil un barrage à l'île de Philæ, barrage ayant pour effet d'engloutir cette île dans le fond d'un réservoir, l'Académie des inscriptions et belles-lettres, mise en éveil par M. Maspéro, a par deux fois protesté contre ce projet, et a émis le vœu qu'il ne soit pas donné suite à une opération néfaste, qui supprimerait le joyau égyptien, ferait disparaître un motif des plus pittoresques et ensevelirait les superbes ruines qui font l'admiration de tous.

Préoccupée de cet outrage à la beauté, l'Académie des beaux-arts, dans sa dernière séance, s'est associée à l'unanimité à ce vœu, dicté par une sincère conviction, vœu que d'ailleurs, de leur côté, les sociétés britanniques d'archéologie avaient aussi énergiquement formé.

A son tour, la Société centrale des architectes français a cru de son devoir de joindre sa protestation aux requêtes déjà formulées, et, en assemblée générale, elle a décidé qu'elle s'adresserait respectueusement à vous, Monsieur le

* *Description de l'Égypte, ou recueil des observations et des recherches qui ont été faites pendant l'expédition de l'armée française, publié par ordre du Gouvernement.* Text 10 vols. fo. Plates 13 vols. fo. Paris 1809-22. Presented to the Library by the late James Fergusson [F.].

ministre, pour vous prier de vous intéresser à la sauvegarde de telle merveille et, si vous le jugez convenable, d'agir devant qui de droit afin d'empêcher cet acte de vandalisme.

Du reste, Monsieur le ministre, vous êtes certainement informé de ces faits désastreux, et nous ne doutons pas que, même avant d'en être sollicité, vous n'ayez déjà songé aux mesures à prendre pour éviter un réel sacrilège. Néanmoins, la Société centrale des architectes français, en vous soumettant ses doléances et ses désirs à la suite des souhaits si hautement exprimés par l'Institut, a voulu vous montrer, Monsieur le ministre, combien elle aussi est émue par les rumeurs qui se propagent au sujet de la mutilation de l'île de Philæ et combien ses regrets seraient amers si l'opération projetée était mise à exécution.

Nous espérons, Monsieur le ministre, que vous nous pardonneriez de venir à vous en cette circonstance, et que vous voudriez bien accepter la délicate mission que nous avons l'honneur de confier à votre bienveillance, dans l'intérêt de l'art, dans celui de l'histoire et du respect dû aux monuments du passé.

Veillez agréer, Monsieur le ministre, l'assurance de nos sentiments respectueux.

*Le Président de la Société centrale des architectes
français, membre de l'Institut,*

CH. GARNIER.

Since the foregoing was sent in, a letter on the subject has been addressed to the President, Mr. Penrose, by a French architect, M. Hippolyte Boussac, who appears to have thought that the project of constructing a reservoir in the Nile at Assouan had been entirely abandoned; and who now complains that Italian workmen have been sent to Philæ in contravention of a promise made by the authorities. M. Boussac, who has just returned from Egypt, therefore urges the British architects to unite with their brethren of France in opposing an act of vandalism which, he maintains, is imminent. The President, in his reply forwarded from Cornwall, where he has been staying, gave a short account of what had been done by the British learned societies to prevent the entire submergence of Philæ, adding that they were satisfied with the modified scheme, which secured so large a part of their aim. "What now appears to be of the greatest consequence," said the President in his letter to M. Boussac, "is to keep the Egyptian Government to its promise, and not to allow the barrage to be raised above the level agreed to;" adding that if M. Hanotaux's amicable communication with Lord Salisbury were to ensure the loyal observance of this condition, British architects would, he was confident, be profoundly thankful.

The old "Broodhuys," Brussels.

The Burgomaster of the Belgian capital, Monsieur Ch. Buls [*Hon. Corr. M.*], has presented to the Library a photograph of the old Maison du Roi (in Flemish "Broodhuys," and in English "Breadhouse"), which has been recently opened by the City of Brussels, its restoration having just been completed. M. Buls accompanied the gift by a letter, addressed to the President, on the

24th ult., in which he has given a most interesting description of the building, as follows:—

Après une longue et patiente restauration qui a duré 20 ans, la Maison du Roi vient enfin d'être terminée et forme un des plus beaux ornements de la Grand'place de Bruxelles, déjà si célèbre par son Hôtel-de-Ville gothique et ses pittoresques maisons de corporations, construites après le bombardement de 1695. L'édifice qui s'appelle en français Maison du Roi et en flamand Broodhuys (*Breadhouse*) doit son premier nom au fait que des tribunaux chargés de veiller aux intérêts de la Couronne y avaient eu leur siège, et son second nom à ce qu'il avait été autrefois une halle au pain.

Les plans de ce petit palais durent être élaborés vers 1514, après que la halle au pain se fût écroulée de vétusté. Ils sont dus à trois architectes: Antoine Keldermans, qui mourut alors que les fondations étaient à peine établies; Louis Van Bodeghem lui succéda en 1516; mais, accablé de travaux, il dut abandonner la direction de la construction à Henri Van Pède, architecte de la Ville. Celui-ci y travailla jusqu'en 1525.

À la fin du XVI^e siècle, l'édifice fut surmonté de cinq lucarnes en style de la Renaissance. Le bombardement de 1695 endommagea gravement le bâtiment. Il subit probablement alors une restauration; plus tard en 1767, la toiture et le pignon furent remplacés par un lourd toit à la Mansard avec deux lucarnes en œil-de-bœuf et un frontispice garni d'un cadran solaire, le tout dans le goût de l'époque.

En 1875 l'édifice menaçait de nouveau ruine; les pignons latéraux avaient été renforcés par un mur en briques qui en cachait les fines nervures gothiques et la riche décoration.

L'Administration communale, qui s'était rendue acquéreur de l'édifice, en confia la restauration à son architecte, M. V. Jamaer, en le chargeant de rendre à l'édifice son aspect primitif. Les sondages qu'il fit exécuter permirent de constater que les pilotis sur lesquels reposait la construction, étaient pourris et qu'une réédification totale s'imposait; la partie consommée des pilotis fut rasée et une plate-forme de béton reçut les fondations de l'édifice. On pouvait voir, entre le rez-de-chaussée et le premier étage et au-dessus de celui-ci, la naissance de nervures indiquant que, dans la pensée des architectes primitifs, deux balcons superposés devaient orner la façade. On avait découvert dans le pavement de la place les bases préparées pour recevoir les colonnettes qui devaient supporter ces balcons; un ancien compte de la Ville portait une dépense pour le modèle de la bretèche couronnée d'un clocheton, qui devait faire saillie au centre de la Maison du Roi et contenir le grand escalier.

Ces données, quelques vieilles gravures, les motifs fournis par les pignons latéraux débarrassés de l'empâtement de briques qui les dissimulaient, des éléments empruntés à l'Hôtel-de-Ville d'Aude-

narde construit par Van Pède, permirent à M. V. Jamaer de reconstruire un édifice dont la décoration en style gothique fleuri du XVI^e siècle doit se rapprocher beaucoup de la conception originale des trois premiers architectes. Un coup d'œil jeté sur la photographie ci-jointe en dira plus qu'une description détaillée. L'ossature fondamentale est en pierre bleue d'Ecaussines, sur ce fond sombre se détachent, en pierre blanche, les réseaux qui ornent les panneaux des balcons ; les nervures des voûtes des balcons sont aussi en pierre blanche sur fond de briques rouges. Les statuettes sont en bronze doré. Le clocheton contient un carillon.

La Maison du Roi renferme à son deuxième étage un musée historique communal ; au premier étage et au rez-de-chaussée est installé le service des finances de la Ville ; mais il entre dans les intentions de celle-ci d'attribuer tout le bâtiment au Musée.

L'Administration communale poursuit la restauration et la conservation de toutes les maisons de la Grand'place reconstruites après le bombardement de 1695, et quand cette œuvre sera achevée la Grand'place constituera certainement un ensemble décoratif sans rival en Europe.

Mr. Alma Tadema [H.A.], R.A., on Art Training.

Mr. Alma Tadema's speech on the occasion of the distribution of prizes at the National Art Training School at South Kensington on the 25th ult., which has been published in various forms, is so admirable in its teaching that members will be glad to preserve it in their JOURNAL. A corrected report here follows :

Art teaching is a field in which I have had some experience, for I have been a frequent visitor to the Royal Academy schools during the last twenty years. True, my work there was confined to teaching drawing and painting from the life model ; but that is the highest in art, by which all the other branches are guided. Did not the Greek art, the highest of all, emanate principally, if not completely, from the study of the human figure ? The human figure contains the completest curves and balances in lines that exist, and is consequently the best guide for all art, and therefore it is a great advantage for an art teacher to know the human figure as completely as possible.

"To know"—a great word ! who is there that knows enough ? And still so many of the younger ones of to-day despise knowledge in art. Of course, knowledge alone is not art ; but, then, art without knowledge is incomplete and unsatisfactory, and, if I insist on this, it is because I am addressing the future teachers of art throughout the British Empire—the students of the National Art Training School, who are the future missionaries of our art throughout the kingdom and the colonies. You will understand the importance of this when I tell you that some 500 have already passed this

school and are now teaching the new generations the traditions of art.

I should like to insist on the word "traditions," for art is not spontaneous. Art is not so much the outcome of an individual brain as the continuity of experiences, which concentrated in one specially gifted brain produce those incomparable artists who are the crowning features of their time and country. Art is, with literature and music, the flower of civilisation. Like civilisation it is a development of what was done before. Egyptian and Babylonian art shows the origin of the Greek forms as developed under new conditions. Roman art was the outcome of the Greek, and the decayed trunk having been grafted with Oriental experience produced Byzantine art. The Norman art was believed by their architects to be the continuation of Roman architecture, as it was the dream of Charlemagne and later German emperors to reconstruct the Roman Empire, until with the new religion came the neglect of old civilisation. The fresh blood and the new contact with the Orient produced the Mediaeval art, the beautiful Northern flower that gave us our cathedrals. Little by little things forgotten were re-invented, and antiquity asserted itself once more, this time grafted on the Mediaeval art, and our modern times begin. To speak of days near to us, we know that Constable and Turner are the fathers of modern French landscape painting ; and I remember well in 1870 hearing Daubigny, the great French painter, say, "Without those great men "we should not exist." Géricault, the father of Romanticism in France, has studied in England the art of the Reynoldses and the Gainsboroughs, who themselves believed that they had derived much from Van Dyck, as the last words of Gainsborough prove.

Therefore, go on in study, in order that you may know much of what has been done, in order that you may be able to teach the real art, which is tradition, refreshed by modern feeling and temperament ; and the world will gain, and you will gain the world's gratitude. If I insist on this it is because I see all around us a kind of painting produced and praised as the highest aim of art, where one cannot distinguish an apple-tree from a pear-tree, an Ionian cap from a Corinthian—a world of mist, a regular bubble-and-squeak, which somehow does not satisfy me. I have heard a youngster say that he was saved by the visit he paid to the painters at St. Ives, and that now he paints the mast of a ship with horizontal touches, and not, as everybody else had always done, with a stroke perpendicular, according to the grain of the wood. Surely art is higher than painting with points or spots or trying to imitate Berlin woolwork, because nobody has ever painted in that way before ! And teaching must go deeper into the study of the human figure than time studies can teach. But you are here in a better *milieu*. Serious work is

still done here, as I was glad to see yesterday when, as one of the trustees of the Royal Institution Scholarship Fund, we awarded the scholarship of sculpture and of engraving to pupils of your schools; and when, out of the four successful painters, three were from your schools, of which one is the Nottingham School, if I remember aright, and the fourth was gained by a student of the Royal Academy who began his studies in your schools. But the great work of South Kensington is its museum, and its teaching of what is now generally called the minor arts. I well remember the Paris International Exhibition of 1878, where there was an English house which took the French quite by storm and left a decided mark on their productions afterwards.

The influence of the minor arts is, perhaps, greater than the one exercised by pictures and sculpture and architecture, because it goes deeper into the daily life of the people. The weavings of and prints on cloth, carpets, hangings, wall decorations, &c., surround us every moment of our lives, and we form our standard of judgment in art matters very much from them. When Mr. Whistler painted the whole of his dining-room canary-yellow, and had hangings, carpets, and furniture to match, the yellow in which he moved must have had a great influence upon his eye. When I found that the black Pompeian decorations of my early Antwerp studio made me paint my pictures too heavy I had my next studio painted red. Then they got too hot. So, moving to Brussels, I painted my studio light green: and, when I arrived in London, my first studio was blue and green. The influence was such that you can classify my pictures according to the influence produced upon them by the surroundings. If such is the immediate effect, it stands to reason that the influence exercised by surroundings upon the taste of the man who lives daily among them must be equally great. Therefore, do not underrate the value of the so-called minor arts.

Art is everywhere, and the more it is considered the better for every one. The more you take your vocation *au sérieux* the better it will be; and the more you know about it the better it will be for those who have to learn from you. To know in art is of the greatest necessity. If you know how a plant grows you will be able to draw it. If you do not know you will mistake forms for what they are not; for nature is much too complex and far too complete for an untrained eye to understand without knowledge. For instance, a shepherd knows every individual in his flock, though I am afraid that few of us can distinguish one sheep from another. A gardener in midwinter will tell you which is an apple tree and which is a pear tree. How many landscape-painters are there who would be able to do the same? You must not misunderstand me. I do not mean that a work of art must give everything the artist can see. What

is required is that every touch, every line, slight as it may be, must render the feeling of what it has to represent; and that is not to be done without the necessary knowledge. Some say anatomy is superfluous; but is it possible to find anatomical errors in the masterpieces of the Greeks or of the Italian Renaissance? So they must have known anatomy, as it is impossible to be correct without knowledge. I defy any painter to paint a view of a building without any knowledge of perspective, or to draw a hand without any knowledge of the bones that are within. When a Velasquez summed up in after life with a few well-understood touches, and was able to give us those incomparable masterpieces, it was because he had begun so very elaborately. In his picture, "The Water Carriers," belonging to the Duke of Wellington, even the drops of water running down the pot are finished to the utmost. And so in Rembrandt's so-called "Night-watch," when looked at quite near, you can well make out the pattern of the lace on the yellow man in the centre, and the drum to the right is rendered so minutely that not a nail fails. Everybody knows by now, through the interesting photographic researches of Mr. Muybridge, that the horses on the Elgin Marbles are the only ones of which the action is true. Are they not the more beautiful for it? And are not those horses preferable to the rocking-horses of the seventeenth and eighteenth centuries? How could a writer give in a few words the deep thoughts and feelings he succeeds in giving if he did not know them thoroughly? If a Holbein succeeds in giving, with but an indication of a line, more than another artist can do, it is because he knows more about it. To know enables one to render, not to know induces one to blunder. To know enables one to teach. Who can teach without knowing?

The late Richard Morris Hunt [*Hon. Corr. M.*],
Royal Gold Medallist 1893.

The name of Richard Morris Hunt, whose death, it is regretfully announced, occurred on the 31st ult., will long remain associated in the mind of every American with much that is most progressive and beautiful in the architecture of his country. Born at Brattleboro', State of Vermont, in 1828, the son of the Hon. Jonathan Hunt, Member of Congress, he came of a worthy New England family, the later generation of which appears to have been endowed with artistic talent of no ordinary degree. His brother, the late William M. Hunt, achieved the highest fame in America as a painter; he himself has been styled by Baron H. von Geymüller "the Brunellesco of the United States." His education was commenced at French's School, New Haven, Conn., whither his mother removed on his father's premature death, and was continued at the Boston High School and Latin School.

In 1843, when fifteen years of age, he accompanied his family to Europe, and was placed in a school at Geneva, where he began the study of architecture under Samuel Darier. From Geneva he went to Paris, and became a pupil of Hector Lefuel, entering the *École des Beaux-Arts* in 1845. Here he remained for some seven years, and on leaving the school he set out on an extensive tour, travelling through Europe, Asia Minor, and Egypt. Returning to Paris in 1854 he received from the French Government the appointment of Inspecteur on the works of the new buildings connecting the Tuileries and the Louvre. His old master, Lefuel, having been appointed architect in succession to Visconti, Hunt was put in charge of the Pavillon de la Bibliothèque, opposite the Palais Royal, and had the honour of making, under Lefuel, all the studies and working drawings of that Pavillon.

Mr. Hunt returned to the United States in 1855, being then only twenty-seven, but having a mind stored with knowledge of the most famous architectural monuments of the Old World, and with a hand which had received practice in the art centre of the world, under the teaching and guidance of one of the most famous of contemporary architects. On his arrival in America he was engaged for about six months assisting the late Thomas U. Walter in preparing plans for the completion of the Capitol at Washington, and afterwards entered into practice on his own account in the city of New York.

Although comparatively rich, both by inheritance and by marriage, he worked assiduously and ardently in his profession, and designed and carried out an immense number of buildings and monuments in all the principal cities of the country. To mention only a few: the Lenox Library in Fifth Avenue, New York, the *Tribune* building in Printing-house Square, Mr. W. K. Vanderbilt's house in Fifth Avenue, the Osborne House in Park Avenue, the hospital near Third Avenue, the pedestal to Bartholdi's Statue of Liberty, the Vanderbilt Mausoleum on Staten Island; among country houses, the so-called Marble Palace at Newport belonging to Mrs. W. K. Vanderbilt, and the magnificent Goelet House, reputed to have cost over a quarter of a million sterling. At Asheville, North Carolina, he was engaged at the time of his death in the completion of an immense house for another of the Vanderbilt family. His practice was singularly varied in range and in style, a characteristic example being the Administration Building at the Chicago Exposition, one of the most pronounced successes of that great architectural display.

Early in his career he took an active and a prominent part in founding the American Institute of Architects. He succeeded the late R. M. Upjohn and Thomas U. Walter as President; and when the institution was reorganised he was again

elected its President. His vital and organising energy was further displayed in the opening of an architectural atelier for students on the French system, thus demonstrating in a practical form the influence of his Parisian studies. In this studio worked many of the leading architects of the United States—such men as Professor Ware [*Hon. Corr. M.*], George B. Post, Frank Furniss, Henry van Brunt, and Charles Gambrill.

Hunt's refined taste, educated judgment, and cosmopolitan experience made him in great request at the International Exhibitions. He served as a Member of the Fine Arts Jury at the Paris Exposition of 1867, and at the Centennial Exhibition in Philadelphia in 1876. At the Columbian Exhibition at Chicago in 1893 he was a Member of the Fine Arts Jury of Selection, and President of the Board of Architects. His distinguished attainments received conspicuous recognition abroad. In 1882 the French Government decorated him with the Cross of the Legion of Honour; and later, the French architects, who seem to have followed his career with an affectionate interest which was fully returned on his part, made him Corresponding Member of the Institut de France in the Académie des Beaux-Arts. He was an Hon. Member of the Société Centrale des Architectes Français, and of the Architects' and Engineers' Society of Vienna; and an Academician of St. Luke at Rome. The Harvard University honoured him with the degree of LL.D., the first ever conferred by the University on an artist. In 1886 he was elected an Hon. Corresponding Member of the Institute, and two years ago, it will be fresh in the recollection of many, he was invested with the Royal Gold Medal for the promotion of architecture, the gift of Her Majesty the Queen—the first ever presented to an American. The Presidential address delivered on the occasion by Mr. Macvicar Anderson, which gave a short but excellent account of the late Mr. Hunt's professional career, may be found in *The R.I.B.A. Journal*, Vol. IX. N.S. pp. 425-28.

The late Henry Clutton [*F.*], A. E. Johnson [*F.*], and George Knowles [*F.*].

The death, at the age of 81, of Mr. Clutton, of Hartswood, which occurred on the 17th inst., is announced. He was elected an Associate in 1838, and a Fellow in 1850. Mr. George Knowles, of Bradford, who died on the 26th ult., was elected a Fellow, 3rd February 1862, his nomination paper having been signed by the late Professor Cockerell, R.A., the late Mr. John Gibson, and Mr. F. C. Penrose. The decease of one of the earliest of the Soane Medallists, Mr. Arthur Ebdon Johnson, of Melbourne, who gained the Medallion in 1843, is also announced. He won the Gold Medal of the Royal Academy in 1845; and was afterwards in partnership for a few years with the late Sir Horace Jones. During the earlier part of his pro-

essional career, he was engaged, for fourteen years, in the Department of Public Works, Melbourne, to a considerable extent in connection with the Post Office erected in that capital. Since then he has carried on a large practice, and has designed and superintended the erection of numerous buildings, mercantile and private, in Melbourne. He was elected a Fellow in 1884.

The Healthiness of "Flats."

A year or two ago medical men seemed to look with disfavour on the increasing popularity of the huge edifices in London designated "Flats." It was said that the aggregation of a number of families in a block of buildings on a circumscribed area must result in a vitiated atmosphere and consequent ill effects; and that the risk of contagion in cases of febrile disease would be considerably heightened. But it is satisfactory to learn, from a recent report on certain groups of artisans' dwellings scattered throughout the metropolis, that the death-rate in these buildings amounted to only 15.89 per thousand, as compared with 17.8 for the whole of the metropolis.

"Academy Architecture."

Academy Architecture and Annual Architectural Review, which has now reached a seventh year of publication, has deservedly established for itself a permanent footing not only as a valuable book of reference, which will increase in value as the years go on, but as an interesting souvenir of each year's exhibitions of architectural drawings. Mr. Alexander Koch, its editor, has presented to the Institute the volumes for the past four years—1892-93-94 bound together, and 1895 separately. They contain (1) a selection of the most prominent architectural drawings hung at the Exhibitions of the Royal Academy, the Royal Scottish Academy (Edinburgh), and the Glasgow Institute of Fine Arts; (2) a review of interesting architectural subjects carried out or designed during the last few years in England and abroad. Each volume averages over 150 pages of illustrations, admirable reproductions in miniature of the original drawings, and well printed on good paper. There is also a useful index. The publishers ["Academy Architecture," 58, Theobalds Road, London, W.C.] promise towards the end of the present year a supplemental volume; and as more time is available for its preparation than for the annual volume, still better work is promised.

The Liverpool School of Architecture.

One of the most gratifying results of the educational movement which, during the last quarter of a century, has taken place in this country is the establishment of a School of Architecture and Applied Arts in Liverpool. The School is the outcome of an understanding between University College of that city and the Municipality, by which the former gives its Chair of Art to the Professor

of Architecture, and the City of Liverpool grants an annual sum of money from the amount allotted for technical instruction. The Board of Direction consists of Mr. Hartley [F.], a Past President, and Mr. Culshaw [F.], the President, of the Liverpool Architectural Society, the former being Chairman; the Lord Mayor of Liverpool and Alderman Philip H. Rathbone; Sir William B. Forwood; Mr. W. E. Willink [A.], M.A. Cantab.; Mr. W. Wardlaw Laing, Past President of the Liverpool Academy of Fine Arts; Mr. J. Sirett Brown, President of the Liverpool Master-Builders' Association, and Mr. G. Johnstone, representing the Building Trades' Association; the Director of the School, Professor F. M. Simpson; and six others. The inauguration of the School took place last May, when an address was delivered by Mr. T. G. Jackson, A.R.A., on the Training of Architects. This scholarly essay, an abstract of which was given in the local newspapers and in the London professional journals, has recently been published [D. Marples & Co., Printers, Lord Street, Liverpool]; and is reprinted in the JOURNAL—its opening sentence and two final paragraphs, with a quotation, excepted [p. 636].

REVIEWS. XXX.

(84.)

ST. JOHN'S, CLERKENWELL.

St. John's, Clerkenwell, with Historical Notes and Letterpress Description of the Grand Priory of the Order of the Hospital of St. John of Jerusalem in England. By John Underhill. Together with etched plates and other illustrations by Wm. Monk, R.P.E. Large folio. Lond. 1895. Price 2s. [Cadbury Jones & Co., 60, Haymarket, S.W.]

The historic and descriptive letterpress of this attractively got-up and admirably illustrated production was written by the late John Underhill, of the *Pall Mall Gazette*, just prior to his decease, and dedicated to T.R.H. the Grand Prior and Sub-Prior (the Prince of Wales and the Duke of York) and to the Grand Priory of the Order of St. John of Jerusalem in England.

According to the preface, "the principal object of the work is to describe how the mighty Order of St. John of Jerusalem came into existence; how it fulfilled in this country and abroad the purposes for which it was called into being; how its members nourished the sick, succoured the helpless, and fought for the Faith; how the imposing fabric at Clerkenwell was destroyed, first by a mob of rebels, and then, after having been rebuilt, by the Lord Protector of a King; how the Knights, after entertaining more than one English Sovereign, were disbanded by another; and how, finally, after many strange vicissitudes, the Order was resuscitated, the remains of the ancient Priory repaired, and the good work initiated nearly eight hundred years ago

"again taken in hand under the patronage of the "reigning Sovereign and under the auspices of "the Heir to the Throne." There is, however, a good deal more than this in the work. An interesting account is given of St. John's Gate and the Church Crypt, and there is an agreeable chapter on the historical and literary associations clustered round these sole remaining relics of the far-famed Priory which once occupied the site of that quarter of the now unlovely neighbourhood of Clerkenwell. Not before it was needed was the old Gateway restored some two years ago. It had passed through many vicissitudes, having been in turn a store-house, a printing-office, a lodging-house, and a tavern. Once again it has become the headquarters of the Order to which it belongs.

Mr. Monk has done his portion of the work well. The illustrations, and especially the etchings, are excellent, and do great credit to the artist and the printers. Of the etchings there are five altogether, depicting St. John's Gate, the Council Chamber, St. John's Church Interior and Exterior, and the Crypt, showing the three bays of the Norman church. The publishers have evidently spared no expense in the production of this interesting monograph of a most fascinating subject.

(85.)

IMPERIAL LONDON.

La Construction des Villes: Règles pratiques et esthétiques à suivre pour l'élaboration de plans de villes. Rapport présenté au Congrès International des Ingénieurs de Chicago, 1893, par J. Stübben, Conseiller Royal d'Architecture à Cologne. Traduction de Ch. Buls, Bourgmestre de Bruxelles. Large 8o. Brussels, 1895, [E. Lyon-Claesen, Editeur, Bruxelles.]

The Architectural Record, Vol. V. No. 1, September 30, 1895: "Architecture in London," by Barr Ferree, Price 25 cents. [Record and Guide Press, 14-16, Vesey Street, New York, U.S.A.]

The Quarterly Review, No. 363, July 1895: "Londoners "at Home." Price 6s. [John Murray, Albemarle Street, London, W.]

A distinguished patriot, who is now one of Her Majesty's Principal Secretaries of State, delighted an audience of 5,000 Londoners, some short time ago, by showing them what the Municipality of Birmingham had been able to do for that community of 450,000 inhabitants, in the common interests of all. The Municipality carried on a great co-operative undertaking in which every citizen was a shareholder, and the dividends were payable in the better health, the increased comfort, the recreation and the happiness of the whole population. The Mayor of the town was its first citizen, and his Council did all the work that was done in London by the vestries, all that was done or attempted to be done by new County Councils. This Council of Birmingham maintained, for the common benefit of the citizens, an art gallery and two museums, a great central library and eight lending libraries, five baths and wash-houses, fourteen parks and recreation-grounds, a technical school,

a hospital for infectious diseases; and it had the control and possession both of the water-supply and the gas-supply of the town. This Council had reconstructed an entire district of the town; and it held, on behalf of the citizens, estates in the town which were worth two millions sterling. Yet these possessions belonged to barely half a million of people on an area no larger than the Tower Hamlets in which the orator, Mr. Chamberlain, M.P., was then speaking.* His object was to prove that, by a system of decentralisation, and by that system alone, similar benefits might be conferred on London, which was ten times the size of Birmingham. Indeed, it might be so divided as to consist of ten Birminghams, each with its Mayor and Corporation. By such a division the work of improving, developing, reconstructing the Metropolis in the interests of the Londoners themselves, so far as each division is concerned, would become possible; nay more, the task would be absolutely easy compared with that now attempted by the London County Council. The Metropolis, already a colossus among capital cities, would then become a Power consisting of ten self-supporting communities—it would be, really and truly, "Imperial London."

And when one tries to realise what those two words mean—when one attempts to treat London in accordance with the methods of amelioration and development adopted by even Vienna and Paris, the case appears hopeless, as much from differences of climate and people as from traditional custom. But, in these matters, there is so little system or organisation within our own shores and so much beyond them, as exemplified in the progress made of late years in the great Continental cities, that something is always to be learnt by a diligent perusal of foreign treatises on the laying out of cities and their general construction; more especially of those written by men who are practically engaged in the control or in the design and supervision of such works.

Monsieur Ch. Buls [*Hon. Corr. M.*], the author of that admirable essay entitled *Esthétique des Villes*,† which appeared in 1893, has recently translated into French a Paper on the arrangement and construction of towns, written by Herr Stübben of Cologne, and presented to the Conference of Engineers held at Chicago during the period of the Great International Exhibition in that city two years ago. No one is better fitted than M. Buls to popularise, in the one language still universal in Europe, the views of Herr Stübben upon a subject which the Burgomaster of Brussels has himself treated with a breadth of view and knowledge of detail that

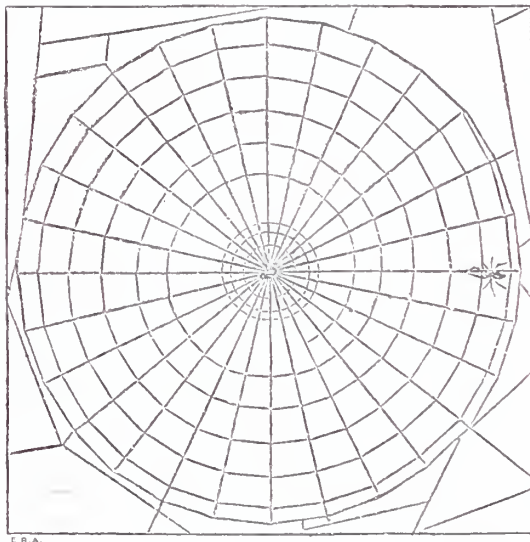
* Extracts from the speech are given, pp. 251, 252.

† See "The Sentiment of Beauty in Towns," a review of the *Esthétique des Villes*, in *JOURNAL*, Vol. I, Third Series (1894), p. 567.

might have satisfied Viollet-Le-Duc — making many of us in London envy the Belgian metropolis its possession of a Chief Magistrate so competent to advise and control the architects and engineers of his municipality.

Herr Stübben is the author of the volume bearing the title "Der Städtebau," forming part of the *Handbuch der Architektur*,* published by Herr Arnold Bergsträsser. His Chicago Paper is taken from that volume, which is a complete and methodical study of everything appertaining to the construction of cities. The author brought to this work a specially acquired experience, having been summoned to Cologne in 1880 to carry out a plan he had prepared for the extension of that city; and being also the author of schemes for the enlargement of Aix-la-Chapelle, Dresden, and Vienna. Herr Stübben, moreover, has furnished plans for the extension of many other towns at the request of their respective municipalities.

Perhaps I may be permitted, if only on account of a coincidence which will be seen in due course, to look back into the TRANSACTIONS of the Institute for a Paper on "The Laying-out of Cities," read by the late Mr. J. B. Waring [F],† just two years after the great fire of Chicago, which occurred in 1871, when the author laid out on paper a new city on what he called "an entirely new plan." The principle of it was the web of the "geometrical spider," a diagram of which he



gave, and by which he attempted to show that the quickest way of reaching the centre from any given point was therein clearly obtained. Mr. Waring then communicated a portion of a Report he had forwarded to the Mayor and Corporation of Chicago, as follows:

* Darmstadt, 1890. In the Institute Library.

† TRANSACTIONS 1872-73, pp. 141-145.

The main plan is to be on concentric circles, or rather semicircles, divided into sections by radiating streets and subdivided into wards, to be provided with means against fire, and sanitary arrangements complete in each section respectively, corresponding to our old system of wards or guards. In rebuilding the city advantage might be taken of a combination of squares, crescents, terraces, boulevards, and streets, so as to produce the greatest pictorial effect. The houses might have colonnades on the lower storey, as at Bologna, forming comfortable walks in summer or winter; whilst arcades, like those of Milan and Paris, should connect the principal points of interest. All buildings should be constructed as nearly fireproof as possible, and permanent sites for fire-escapes should be established at stated distances throughout the city. . . . I would suggest that all buildings wherein large masses of persons congregate—such as theatres, churches, assembly-halls, &c.—should be provided with numerous ways of speedy egress, not only for safety's sake in case of panic, but for the ordinary convenience of the crowd, whilst the ways of ingress may still be few in number. Public baths and laundries, and public kitchens and bakeries for the poor, should be established in the poorer quarters of the town, as well as a regular system of public drinking-fountains for men and cattle. There should be a large public park, gymnasium, and baths, and a public garden with terraces and fountains, laid out on the model of the old Italian gardens, such as, for instance, that of the Pitti Palace at Florence. These should be connected with boulevards, which might consist of a central paved promenade lined with trees, having a road and tramway on each side, furnished with a handsome paved way next to the houses for foot-passengers. I have seen an example of this kind at Toulon which produced an excellent effect, and might be carried out on a larger scale.

A few good canals, crossed by ornamental swing-bridges, as in Holland, might serve to connect the traffic of Lake Michigan with the principal railway stations and the Illinois canal. Spacious markets should be erected in central positions, those for fish being furnished with troughs to each stall, filled with water, in which fish can be kept alive, as in the "Halles" at Paris. Abattoirs, cattle markets, and all offensive or dangerous manufactures should be kept outside the city precincts; and, finally, not only should a system of sewerage be carefully prepared for the purification of the city, but the sewage matter should be utilised as manure, which might prove of incalculable service on the cleared prairie land of the State, and in all cases it should be borne in mind that, as Chicago has grown so rapidly in the past, there is every reason to believe that it will increase still further in the future; therefore, whatever is done, an eye should be kept to the requirements of an increased population.

It may appear fanciful, and yet in many respects a large city appears to me to resemble a human being. It has arteries and veins, or large and small thoroughfares, through which the blood corpuscles, in the shape of men and women, continually circulate. It has a heart: its centre, where all meet, and where the great business of life is mainly carried on; lungs, or parks and open spaces, in which the air is purified. It requires water reservoirs and apparatus for receiving and discharging solid and liquid secretions, by means of drainage and sewage, outside the body corporate; moreover, to complete the resemblance, the surface of the city—the skin, so to speak—requires constant cleansing by water and friction to insure that cleanliness which is essential to health; whilst the municipality may be regarded as the brain, which brings experience and science to bear on the regulation of the entire body, having an equal regard to the convenience, health, and external appearance of the whole city.

As regards the figures adaptable for the block plan of a city with its thoroughfares, it will be seen that the choice

lies almost entirely between a square, a parallelogram, or a circle; and my own opinion is all in favour of the last named, both for beauty and convenience.

Space, air, and trees should enter into all plans for new towns or new quarters, and I would propose that, instead of the old system of gardens at the back of town houses, the garden should be in front of the house, then the pavement, and the road for ordinary traffic, with a double tramway in the centre for the carriage of trains and cattle, not by steam but by horse power; for there seems to me no valid reason why railway trains should not be carried right through a city without changing. This, of course, would necessitate a much wider roadway than is common at present. All streets, terraces, &c., should be provided with back roadways for house service, coals, dust, and the carting away of refuse or sewage matter; and in a well-arranged city a back road to each street will be as necessary as a back staircase in a well-arranged house.

That was written nearly a quarter of a century ago, and read to the Institute in 1873; and the gist of it is now supported by Herr Stübben, whose main contention in his *résumé* of "practical and of æsthetic principles" is that circulation in towns requires the planning of radiating streets, circular, diagonal, and secondary, with clearing spaces for the crossways. He goes only a little further than Mr. Waring when he boldly and rightly maintains that the streets of a town are not to serve merely as the medium of circulation, to furnish opportunities for covering land with buildings useful and beautiful on account of their airiness, their situation, or their arrangement; but they have yet a mission to fulfil—that is, to exhibit buildings in a favourable light and an artistic grouping. He even argues that a monumental building or a great statue, to be properly judged, must be looked at from four different points of view. First, to examine its details one must place one's self at a distance from it equal to its mean height; secondly, to take in the whole, separately, at a distance double its height; thirdly, to appreciate the relation a building or a monument bears to its surroundings and enjoy the effect it produces in an architectural group, at a distance triple its height; and fourthly, to appreciate the whole as one looks at a picture, grasp the several divisions and the complete outline, at a distance at least four times its height. When, therefore, a great building has to be placed in a public thoroughfare, the street should not be less in width than the height of the building; it would be better, he urges, to make the width of the street one and a half, or even twice, the height of the building. Herr Stübben would place a great edifice, and public buildings generally, in such a position as to form the termination of a street or of a network of streets. Take, for instance, the Church of the Madeleine terminating the Rue Royale in Paris, or the Opera House which forms the main object in view to persons approaching the Boulevard from the Place Vendôme and the Place de la Bourse. In fact, Herr Stübben would avoid long,

straight streets like the Rue de La Fayette, in Paris, and Oxford Street, which weary the eyes as well as the legs of pedestrians. A statue, he says, ought not to close the perspective of a street, and he would not make a statue the central *motif* of a square or *place*; he would range a combination of statues around the four sides of the square. He would adorn the centre with a fountain or a column, which he describes as architectural monuments. M. Buls is of the same way of thinking, but more philosophic; for in his opinion—and it is shared by a thoughtful minority, including a few artists—a *place publique* which has no useful destination is dismal and a desert. The original *places* in the old cities were market-places, absolutely indispensable to the welfare of the town. A vast open space laid out, as is now sometimes done, with paving-stones and lamp-posts is an artificial creation wanting in life and possessed of little to justify its existence.

The practical rules which, according to Herr Stübben, mainly determine the elaboration of the methodical plan of a town are evolved from the exigencies of circulation, building, and hygiene; the æsthetic rules to be observed relate to the development of streets and squares or open spaces, and also to the harmony which should exist between them and the buildings which line their borders. In laying out a street he considers that its crown should be about a metre above the natural level of the soil, in order to avoid too much digging in the construction of basements and foundations. For houses let in flats and business premises the sites or lots should have a length of about 395 English feet and a depth of about 170 to 200 (50 à 60 *mètres de profondeur sur 120 mètres de longueur*). For working-men's dwellings he suggests dimensions of site even more magnificent. The minimum width of a street he fixes at 33 English feet. A street of more than 130 English feet in width is rarely, he thinks, required for circulation; though sanitary or æsthetic reasons may justify, in his opinion, a greater width than that. No streets planted with trees ought to be less than 66 English feet wide, though their minimum width, says Herr Stübben, would be better fixed at 80 English feet.

What probability is there that the authorities who control the destinies of London will have courage enough even to consider suggestions such as those offered by Herr Stübben, much less apply them for the benefit of the metropolis entrusted to their charge? There is no money for such purposes in a city of five millions! Why, in this country, so careful a guardian of the public purse is Government that an imperial building may not be set back from the pavement far enough to prevent the drippings of its cornices falling on the heads or the umbrellas of passing pedestrians. Their grand stairs begin at the entrance doors, and hall porters find a refuge on their entrance steps; for *salles des pas*

perdus, or halls, or antechambers are forbidden, lest a Chancellor of the Exchequer's Budget should jeopardise his place, or his political party, or worse still, his parliamentary seat! Nothing ever written on the laying out of cities or the building of towns can, in the present condition of things imperial and municipal in London, be made applicable to the huge city on the Thames :

A mighty mass of brick and smoke and shipping,
 Dirty and dusky, but as wide as eye
 Could reach, with here and there a sail just skipping
 In sight, then lost amidst the forestry
 Of masts; a wilderness of steeples peeping
 On tiptoe through their sea-coal canopy;
 A huge, dun cupola, like a foolscap crown
 On a fool's head—and there is London town!

Through groves, so called as being void of trees
 (Like *lucus* from *no* light); through prospects named
 Mount Pleasant, as containing nought to please,
 Nor much to climb; through little boxes framed
 Of bricks, to let the dust in at your ease,
 With "To be let" upon their doors proclaimed;
 Through "Rows" most modestly called "Paradise,"
 Which Eve might quit without much sacrifice—
 Through this and much and more is the approach
 Of travellers to mighty Babylon.

Happier far than Don Juan, Mr. Barr Ferree [*Hon. Corr. M.*] came into London by train; and, possessed of more artistic culture than Byron, he was "hypnotised," during his stay, "by the endless reiteration of the same lack of architectural form, the most careless—or is it studied?—indifference to architectural values; the utter ignorance of architectural ideas, the complete mastery of commercialism that would do no more than provide the barest, ugliest shelter, and which, when applied to domestic work, is in the barest, ugliest, most intolerable of all forms, styles, and manners of building." This indictment forms part of an article in *The Architectural Record*, entitled "Architecture in London," by Mr. Barr Ferree, who was here last year—and has been known for some considerable time to British architects by his literary essays and criticisms in American journals. But I ought, in choosing the foregoing denunciatory sentences as an introduction of his Paper, to qualify them by quoting him further, for he adds: "This is the painful side to London architecture, and a very large one it is, but it is necessary to refer to it here in order to explain just what I mean in saying that only the new buildings of London are of interest. These buildings are still in the minority in the huge mass of London architectural deadness, for as yet there is no *new* London, architecturally speaking." Of course, he is nothing if not an admirer of "correct architectural taste," and to judge by the illustrations he has chosen for his essay, the "correct" taste in architecture is the picturesque. His predecessors have owed much to the *École des Beaux-Arts* and have believed in the French architectural school, importing a good

deal of it into the United States. But many Americans, and Mr. Barr Ferree among the number, are getting tired of the "Louis Seize," the "Napoléon III.," and the "Néo-Grec," and they evidently intend henceforth to shut their eyes to any beauties found in the Place de la Concorde and the Place de l'Étoile of Paris, or in the Ringstrasse of Vienna, or in the new quarters of Brussels, or in such a group as the London Royal Exchange and its surroundings seen from the Mansion House, or in such streets as Pall Mall. At the same time he gives views of the Thames Embankment and Northumberland Avenue embodying comparatively new buildings designed in a style once thought "correct," though not the picturesque style of to-day. He has a good deal to say about the Imperial Institute, the front of which is shown in a beautiful illustration; and following the custom of American purists who spell the words travelled, "traveled," and marvellous "marvelous," a consistent compositor with a turn for logic has docked its architect of an "l"—spelling him "Colcutt." Nor does Mr. Barr Ferree wholly agree with what he calls the British criticism of this edifice—that it does not represent the glory of the British Empire. He rashly maintains that the two beasts on the entrance steps sniff the air with an upward turn of the nostrils "that raises them among ordinary animals and endows them with an air of utter respectability and contempt for mankind in general which must, I am very sure, largely typify the British Empire, though the building fails to do so." Several other works are commented on; and he reserves his commendation for the Houses of Parliament, eulogising Sir Charles Barry as architect of "the greatest and most successful" among the great buildings of the world. He has plenty of praise also for the ecclesiastical structures erected in London within the last fifteen years. Taken altogether, British architects have every reason to be pleased with the appreciation shown for their works by Mr. Barr Ferree, who is able to write a readable essay on what at the best is a severe subject; and of enlivening it at times with observations which, if addressed to citizens of the Great and Free Republic, might cause even the Young Columbian to "sit up," but which are not too acutely felt by the long-suffering, much-abused inhabitants of an older country.

To enjoy a description of Londoners it is not necessary to search American quarterlies. He who believes that London is the world's headquarters and the only possible home for men with any desire for domestic civilisation, for the amenities of a club, and for kindly treatment from those whom Mr. Gladstone calls the masses, may be disillusioned by a perusal of "Londoners at Home" in the latest issue of *The Quarterly Review*. It is, of course, Mr. Dick again, with a new version

of his Memorial, out of which he can no more keep the leasehold system and the architectural profession than he can pardon the latter for having ousted "inspired workmen" from their proper sphere. Not that Mr. Dick's name is affixed to the article; every child knows that the *Quarterly* is one of those journals

Where Lord knows what is writ by Lord knows who!

and that its contributors dwell upon past ages of universal contentment, sixty and seventy years, even a century, ago. Indeed, when the author of "Londoners at Home" states that "Those who have reached their threescore years and ten remember an entirely different class of people in the town whose northern boundary was the line of road from Paddington to Islington," one becomes reticent, feeling that the ground on which he treads may be delicate; and that possibly the erection of termini by the Great Northern and Midland Railway Companies may have brought this calamity home to him. When one is gravely told that "drink appears to be the only gustatory pleasure left to men," and that Londoners are satisfied with "generally dirty linen," one feels that writers, even in *The Quarterly Review*, are apt, from the small intellectual world in which they dwell, to generalise, perhaps hastily, on the habits of the larger one beyond and around them. When one learns, not for the first time, that "A century ago the servants of the middle class lived with the family, and dined with them, below the salt," and that later, "the younger generation became uppish," one is reminded of the *Struldbrugs* whom Gulliver encountered after he left Laputa and its famous Academy at Lagado. These *Struldbrugs* were men, born with a red spot over the left eye, who lived for ever! They acted like mortals till about thirty years old, after which they grew melancholy and dejected, increasing in both till they came to fourscore, so that their neighbours, the mortals, when desirous of ascertaining their age, were wont to ask them what kings they remembered, and then consult history; for, as a rule, the last in their minds did not begin his reign after they were eighty years old. Now, there were certain restrictions to the liberty of every *Struldbrug* which made him, as it were, a lodger rather than a proprietor upon earth; and if there is one thing that rankles in the bosom of the good old Tory reviewer, it is the humiliating fact that the majority of Londoners are merely lodgers. For more than twenty years he has harped on the same string, the burden of his melody being that "Londoners are aliens on the soil they occupy," and that "all good, stable government is founded on possession of the land," which latter assertion is a paraphrase of Swift's dictum that Law in a free country is, or ought to be, the determination of those who have property in land. A blind craving for real property,

which appears to possess the soul of the author of "Londoners at Home," is obviously aggravated by the knowledge that no *Struldbrug* was allowed to purchase lands or take leases (see *A Voyage to Laputa*, &c.). An uncontrollable sense of injustice urges him, every quarter of a century, to compromise *The Quarterly Review* by the promulgation of revolutionary doctrine. The leasehold system has grave defects, and is responsible for much bad building; but if that ancient and immortal Review is in earnest, it must assail this remnant of feudalism with different weapons from those it has hitherto used before the system can be eradicated or improved.

The moral truths in "Londoners at Home" are excellent reading. For instance, the author says: "The exclusion of three-quarters of the London population from polite society, whatever be the cause, should be esteemed a reprehensible misfortune;" and again, "The great aim of all of us should be to make the lowest working man in London a true gentleman"—both of which precepts are unobjectionable, nay, they are praiseworthy. But the assertion which follows, that "Instead of this endeavour to improve the status of the proletariat, the present public impulse is to bring our London workmen to a state of pauperism," is absolutely the reverse of the fact. He is not, however, wrong in the statement that "London, all its gifts considered, is perhaps the least efficient and least influential aggregate of people on the globe." The fact is only too patent, and the remedy seems to be the scheme so ably propounded by Mr. Chamberlain, whereby London may be rendered capable of administering its own affairs in ten independent divisions of 500,000 inhabitants each, as described above; and under the ægis, I take it, of an Imperial Council composed of representatives elected from each division. Moreover, *The Quarterly Review* is perfectly correct, and does a public service, in making the following statement:—

Houses are mostly built with some part of the outer walls but one brick, of nine inches, thick; and workmen's houses, "self contained," are wholly built with merely nine-inch work. . . . Roofs are constructed with extreme tenuity; an inch of slate and plaster is the wholly insufficient covering and protection of an average London house.

This, though, is not the fault of architects, but of the Legislature. When the clauses of the Bill which last year became law under the title of "The London Building Act 1894" were being discussed, an attempt was made to get the 9-inch external wall increased to 14 inches, but the promoters of the Bill feared to add to the cost of building operations, especially those connected with workmen's dwellings; and the advice of architectural experts was not entertained. As for the flimsy character of roof construction, and of floor construction also, architects are only too desirous of doing good work if their clients will

but pay for it; and they are not called in to control the jerry-builder. In the opinion of the author of "Londoners at Home" roofs are of far more importance to the health of the community than drains, though the latter are regarded as paramount, and have an army of sanitary inspectors to look after them. He says:—

Beginning from the outside, a roof covering should consist of (1) thick slate or tiling; (2) the battens, one inch thick; (3) two layers of asphalted felt; (4) inch close boarding; (5) the rafters; (6) lath and plaster. Below all this should be an open space, a useful loft or storeroom, with (7) inch tongued flooring; (8) ceiling joists; and (9) lath and plaster. For absolute comfort, straw or reeds should be laid upon the lower boarding. With this arrangement, and with walls not less than fourteen inches thick, all under legislative authority and municipal control, our modern houses may be made as wholesome as the thatched cottages designed and built by working men, in which our ancestors rejoiced three hundred years ago, before the architectural profession and the leasehold system had developed miserable building.

In conclusion, it should be known that the ancient and immortal *Quarterly* advocates a periodical "universal stringent survey" of the interior of our houses and homes, and advises the London County Council to promote a Bill in Parliament for the purpose. The beneficence of the traditional grandmother could go no further; but the sympathy of Olympus is more likely to befriend the mortals than those who aspire to everlasting competition with the gods. Of course, when the time is ripe, precedents will be found for this apparent attempt to destroy the liberty of the subject; and there will be Struldbrugs ready to swear that the thing was done in the time of Agamemnon, Charlemagne, or Wat Tyler, as the case may be. But man is a hopeful animal, and there is much nourishment in Hope.

WILLIAM H. WHITE.

ERRATA.—In the Review of Herr Stübgen's Pamphlet, entitled, *Der Bau der Städte in Geschichte und Gegenwart* [p. 591], at the end of the first paragraph, the two final sentences should read:—Careful plans were drawn, due regard being paid to the relative positions of sacred, public, and private buildings, e.g. Piræus, planned by Hippodamus of Miletus, which, according to Hirschfeld's restored plan, may compare with any modern town; and Cnidus, which lies between two harbours, and has, at its rear, a small eminence crowned with a temple.

In the second line of the paragraph which follows [p. 591], for "Democrates" read Deinoerates.

(86.)

ANCIENT ENGLISH HOMES.

Some Ancient English Homes, and their associations personal, archaeological, and historic. By Elizabeth Hodges. With illustrations by S. J. Loxton. Large 8o. Lond. 1895. Price 10s. 6d. net. [T. Fisher Unwin, 11, Paternoster Buildings, E.C.]

In this work the author gives an interesting account of some eleven mansions of departed greatness in the counties of Gloucester and War-

wick. Besides local connection, nearly all are linked together by their associations with the Berkeley family, and in another sense by their fallen fortunes, for several are now ruins, or little more than ruins, while others, though they have not ceased to be homes, are not now occupied by the representatives of the great personages who once lodged in them. The mansions dealt with in these sketches are not famous—the general reader, indeed, would scarce be familiar with so much as the names of many of them—but this, as the author fairly puts it, is only a reason the more why their historic and personal interest should be made known. I am afraid that the author's sentiments, if the following passage fairly represents them, will not wholly commend themselves to the architect. In her introduction to the account of Wotton-under-Edge, the first "home" with which she deals, she says:—

It is the "secrets" of these old houses, their intimate associations with the varied personalities of their sometime occupants, that give them real and lasting interest. The antiquary may describe, with archaeological accuracy, how this arch is of "Anglo-Saxon" date; this moulding of "Norman" workmanship; the clustered pillars "Early English." He may go into archaeological raptures over the groining of the roof, the elegant tracery of the windows; but unless he can tell us something of the men whose martial footsteps or jovial song made the roof ring; or of the women, watching from the traceried windows for the coming of the lord or lover—who, perchance, came no more or came borne on his shield from foray or battle—little emotion is excited within us, little impression registered on the tablet of our brain.

The author, therefore, in her book has "endeavored to clothe with something of human warmth and interest the stony skeletons of a few of these ancient mansions." *Quot homines, tot sententiæ*—to the architect it is probable that the stony skeletons of the mansions may be as full of living interest as the dry bones of the biographies of those who once occupied them.

This, however, means no more than that we must not look here for architectural details or architectural history; realising that this is not included in the author's object, we can better appreciate the way in which that object has been carried out. It is the family and other associations of the various houses to which attention is mainly devoted rather than the actual edifices, of which some may certainly be interesting to the architect, though the greater number would probably scarce repay his study.

Of these associations the author gives a very readable account, though hardly of extensive interest, because the persons who appear in the narrative do not, for the most part, occupy any prominent position in our history; but the book appeals to many who are either well acquainted with the places described, or for some other reason peculiarly interested in its stories. It is a matter for congratulation that books of this nature have ceased to be the products of imagination or credu-

lity which they once generally were; and although the author in the present case does not quote the authorities for her statements or add a list of them, which is a pity, there is every indication that her facts are not given without previous verification by records or other sources of information.

The book is printed in a clear type, handsomely produced, and suitably illustrated with numerous drawings.

H. P. BURKE DOWNING.

NOTES, QUERIES, AND REPLIES.

MM. Perrot and Chipiez, and Mr. Penrose [p. 525].

Monsieur Chipiez, writing from Paris on the 2nd August, on behalf of Monsieur Perrot and himself, cordially thanks Mr. Penrose for the latter's review of the English translation of the sixth volume of their *Histoire de l'Art*, relating to Mycenaean Art, on which subject Mr. William Simpson has since given [p. 611] some of the results of his own researches. M. Chipiez states that the question of the origin of the Doric Order, which has been only touched upon in the sixth volume, will be treated more fully in the seventh.

"Architecture for the Public" [p. 587].

From H. HEATHCOTE STATHAM [F].—

While grateful to Professor Baldwin Brown both for his sympathy and for some of his criticisms, there are some assertions in his article in the last issue of the JOURNAL which, on general grounds and quite apart from the special subject of my own book, I cannot pass without questioning.

He thinks I should have said something as to the probable origin of such a very "un-stone-like" feature as a moulding. I said nothing about the historical origin of mouldings, because I know nothing of it, and no one else does. But I entirely deny that they are "un-stone-like" features, or that they are more easily worked in wood. On the contrary, I think that if Professor Brown endeavoured to work mouldings in wood and in stone with such comparatively rude tools as were probably used in the early days of architecture, he would find that mouldings were much more easily worked in a granular material like stone than in a fibrous material like wood. In the arcades of the early Norman churches, which commenced without mouldings, we have, in fact, the process almost going on before our eyes: the arch first with its simple soffit, then with the angle chamfered off, then with a rude form of moulding. And it is surely rather significant that there is not at this moment an existing moulding, worth calling such, in wood which is not a copy from a stone original.

I suspect that Professor Brown's wooden predictions in regard to the origin of mouldings are unconsciously influenced by his evident adoption

of the theory of the entirely wooden origin of the Greek order. I do not consider that anyone has a right to assume the wooden origin of the Doric column as a matter of fact, and I think there are strong arguments the other way. Professor Brown refers to the Heraion at Olympia. But what is the evidence? Solely the statement of Pausanias that there was one column in the opisthodomus that was of oak. On the basis of this statement it has been argued (as I have seen in print) that all the columns of the Heraion were once wooden, and that the one which Pausanias saw was the last one left, stone columns having been gradually substituted for the wooden ones. There is absolutely nothing in his statement to support such a theory. The wooden column might have been one in the interior of the opisthodomus, made of wood for some special reason.

Whoever supports the theory of the wooden origin of the Doric column has to explain these facts: (1) that the further back we go in the known and approximately dated examples, the thicker the columns get, while the reverse would probably have been the case had the original forms been wooden; and (2) that the characteristic moulding under the abacus of the Doric capital is an essentially stone form, and one which it would not be at all easy to work satisfactorily in wood.

An attempt has been made by Hittorff and others to derive an argument for the wooden origin of the Doric column from the representations of attenuated columns on Greek vases, of such proportions as could not be executed in stone. I was always disposed from the first to reject this evidence from vases as of no value, because (as I have pointed out in my book) a vase painter would probably merely put in a kind of symbol of architecture in the way that suited his composition best, and would feel under no obligation to make it accurate. A recent visit to the British Museum confirmed me in this opinion. There, among the red-figured vases of the best period, is to be found in one of the side cases a representation of an Ionic capital of most clumsy, and what would be generally called archaic, design; and in one of the centre cases is a vase with a crude representation of a quasi-Doric column of about the proportions of a modern street lamp-post, with no fluting and with a lumpy moulding at the top, clumsily designed and as unlike the Parthenon capital as anything could be. These vases are of the same period as the Parthenon and Erechtheion. What, then, is the value of vase evidence in the matter?

Professor Brown seems to assume (and I appreciate his reason for assuming it) that there was no connection between the art of Greece and that of Egypt. I have long ago come to the conclusion that modern archæology has its successive fashions just as much as modern architecture. Not so many years ago it was the fashion to speak of

Greek art as almost entirely derived from Egyptian; an opinion which I never accepted, so that it feels odd to have it thrown at me now. But none the less I think that there is a closer relation between the columnar architecture of Egypt and that of Greece than between any other known remains and those of Greece. The Beni-Hasan columns, once regarded as the predecessors, *longo intervallo*, of the Doric column, are now to be dismissed with costs. But what else comes so near to the Doric column? We have more examples to go upon now, and I cannot understand how anyone could look on the drawings and photographs of Deir el Bahari, recently exhibited at the rooms of the Society of Antiquaries, without thinking of the effect of a Doric colonnade. It is true we lack the intermediate steps between that and the Doric column; but what else is there? And is it not almost logic to give the preference to the only feature, at all events, which we know, which shows some inherent resemblance to the Doric column? It may be observed, too, there is a great resemblance between some forms of Egyptian repeating ornament and some Greek ornaments, which goes to confirm the view of an artistic relationship between the two countries.

Another point on which I must join issue with Professor Brown is in his dictum that, however original an architectural design may be, it must conform to some style. I think that is just the very prejudice we want to get rid of, and that the only excuse for it lies in the weakness of human nature, which finds it very hard to escape from precedent. Every design, to be worth anything, must have *style*, but to have "style" and to conform to "a style" are two very different matters. If a man *can* design a building which has style and is pleasing, though it may be impossible to refer it to any known style, he has achieved something. One of the most powerful and effective things in the architectural room at the Royal Academy this year was Mr. Wilson's study for the exterior of Boscombe Church, but I will defy anyone to say what style it is in.

I think it is to be regretted that Professor Baldwin Brown has thrown cold water on the idea of the compensatory curves, &c., of the Parthenon. I consider that in the main (there may be some doubtful details) Mr. Penrose's measurements have settled that point once and for ever. The opposition to the theory on the part of Professor Durm is merely one of the instances of the passion of all German archæologists for having a theory of their own, more particularly in opposition to an archæologist of another nation. There are as many theories about ancient architecture in Germany as there are German archæologists; for each German thinks it a duty he owes to himself and his country to have his own theory all to himself. The French have not so many theories, but they have a great deal of national vanity; and

that, I believe, was the real reason for the late Le Sueur's pertinacious repudiation of Mr. Penrose's discovery of the Parthenon curves. He would have been content to accept them if a Frenchman had made the discovery, but he could not abide that an Englishman should have done it.

"Sacred Posts" in the East.

From WM. SIMPSON [H.A.], R.I.—

In a notice which lately appeared [p. 456] of Mr. Smither's work on the *Architectural Remains at Anurâdhapura*, the purpose of the tall pillars which surround the Thupârâma and Lankârâma dâgabas was considered, but no definite conclusion could be reached. The idea that Mr. Smither favoured was that they had supported Buddhist emblems on their tops. This explanation may perhaps be fortified by what Dr. Führer, in his last *Progress Report*, reviewed in the *JOURNAL*, p. 592, says about the Sandò Payâ, the largest pagoda in the modern town of Prome. The platform on which it stands is paved with stone slabs, "and all round its outer edge is a continuous series of carved wooden image-houses, and between these and the pagoda are *garuntâings*, or sacred posts, surmounted by *garuda*, with long streamers dependent from their summits." I assume, although he is writing of Burma, that the word *garuda* here means the creature, half-man, half-bird—the *wahan* of Vishnu. So far as my memory goes at the moment, this is the only example, with the exception of the two dâgabas at Anurâdhapura, that I have met with of pillars, or posts—in this case described as "sacred posts"—surrounding a Buddhist stûpa; and here their main purpose is that of supporting emblems.

In the notice of Mr. Smither's book I mentioned the old Buddhist Lâts, all of which were surmounted by emblems, as helping to confirm this explanation; but further evidence may be derived from stambhas, or pillars, existing at Hindu temples. There are two columns at the celebrated rock-cut temple, The Kailasa, at Ellora, on one of which is still visible on its top a fragment of a *trisula*, or trident, a symbol that was common to both Hindus and Buddhists. There is one at the great temple of Jagannâtha at Puri: this pillar, called the Aruna Stambha, stood originally before the Sun temple at Konârak, and had a monkey on the summit. There were others of the same kind in Orissa, and one still stands at Jagepur (see illustration in Fergusson's *Indian and Eastern Architecture*, p. 433), which supported a *garuda*, the same fabulous monster that is borne on the "sacred posts" at the Sandò Payâ in Prome. The practice of erecting pillars for supporting emblematical objects at temples, which was followed by both Buddhists and Hindus, appears to make it highly probable that this was the purpose served by the pillars at the Ceylon dâgabas.



ARCHITECTURAL EDUCATION.

UNIVERSITY COLLEGE, LIVERPOOL.

The School of Architecture and Applied Arts.

The aims of this School are now well known. In the first place, it desires to effect a complete union between the different arts and crafts. To produce this unity, it is necessary that the students in the different crafts should work side by side in the same studios. It is not enough that the students of the three arts of architecture, sculpture, and painting should be together; with them also must be the stone and wood carver, the designer in stained glass and in textile fabrics, the furniture designer, gold, copper, and iron smiths, and workers in other crafts. The men will, by this means, not only get into touch with one another, but will also gain that insight into each other's work which is absolutely necessary if their own is to be brought into harmony with it. Most modern work fails because each craftsman knows nothing at all about his neighbour's craft. The architect should undoubtedly learn how to model; it will do him no harm to try and paint also. The sculptor must know something about architecture and painting, and the painter have an acquaintance with sculpture and architecture. To the stone and wood carver and plasterer it is of course unnecessary to state that modelling is an essential. The stained glass designer and book illustrator may gain much from studying the work of students in other branches, and the latter may also learn much from the former. The second and third aims follow naturally. To establish a course of training for students in the different arts of painting, sculpture, and architecture; and to provide special instruction of an advanced kind for skilled craftsmen and artisans, especially in those crafts allied to architecture. It is with these objects that the studios and classes have been started. It is hoped eventually to start others, but so far this has been found impossible.

The School consists of (1) the architectural studio; (2) the sculpture and modelling studio; (3) the decorative painting studio; (4) the wrought-iron workshop; (5) the wood-carving workshop.

(1) THE ARCHITECTURAL STUDIO.

The course of studies in this studio, intended for those already engaged in architects' offices as pupils and assistants, and also for those who, intending to become architects, pass through a course of architectural training before entering an architect's office, has been fully described in the JOURNAL [p. 601]; and a special pamphlet, which gives full particulars of the scheme of architectural educa-

tion, can be obtained on application to the Registrar, University College, Liverpool.

(2) THE SCULPTURE AND MODELLING STUDIO.

The course of study provided is suitable, not only for students intending to become sculptors and modellers, but also for wood and stone carvers, plasterers, and other craftsmen. The actual copying of casts from the antique or from ornament, which is useful as a first essay, in order to understand the manipulation of clay, is abandoned as soon as the student is sufficiently advanced. He next is set to reproduce in relief a bust from the round, to model the anatomical figure, and to adapt architectural ornament. This leads up gradually to original designing in ornament, and modelling from the living figure. Next session the study of drapery analysis and design will be made a special feature. As an inducement to students to make sketches in wax or clay during their spare time, a Sketch Club will be formed next session. These clubs exist in all the principal art schools in London, and have been found to work most successfully, and to be of immense benefit to all who take advantage of them. Different subjects will be set from time to time, fortnightly or monthly, as found best, the sketches to be sent in by a given day. It will be open to students of all the departments to compete, and each will be at liberty to work out the design as he thinks best, either in the round, or on paper or canvas, in charcoal or in colour. On the evening chosen all sketches will be exhibited, and will be criticised by the instructors before the assembled students. By this means not only will the students see how each has treated the given problem, but also how, according to the medium used, the design differs.

(3) THE DECORATIVE PAINTING STUDIO.

The course of studies is so arranged as not only to provide a thorough training in drawing and painting for students who wish to take up painting as a profession, but also, and especially, to train men in the work generally known as "Decorative Work." Under this heading is included mural decoration, stained glass, book illustration, and headings and borders for frontispieces and book plates, friezes, wall papers, designs for fabrics, &c. No student is allowed to attempt decorative work until he has first shown that he possesses some knowledge of drawing. The amount of knowledge necessary varies according to the work the student intends to take up. For the higher kind of mural decoration, where the human figure is the ruling *motif*, and for stained glass, an absolute mastery over figure drawing is necessary before the student can expect to do good work. But for work where the figure is not introduced at all, and the space to be filled or wall to be decorated, as the case may be, is covered or partially covered with ornament, the standard need not be so high. Next session a special attempt will be made to deal with this kind of work, the study of which has been, unfortunately, too much neglected in England in the past.

(4) THE WROUGHT-IRON WORKSHOP.

The instruction includes practical and theoretical training. A portion of the time each term is set aside for the study of scientific points in the working of iron, and for detailed criticism of old and good modern work. If possible, this will be illustrated by full-size lantern views. Instruction in how to observe lines and curves, light and shades, and especially the different sizes of materials, goes side by side with the practical instruction at the fire and bench. Each student has to draw correctly the curve before he hammers it. A collection of drawings and examples of old work is now being made.

(5) THE WOOD-CARVING WORKSHOP.

All students are taught their craft from the beginning. After they have learnt how to sharpen their tools, they are

set simple designs to carve, which are drawn on the wood, or else are set to work from casts. In the case of more advanced work, students are recommended to first model their designs.

Some Thoughts on the Training of Architects: being an Address delivered by Mr. T. G. Jackson, A.R.A., at the inauguration of the School of Architecture and Applied Arts, Liverpool, 10th May 1895.

The establishment of a School such as this in your midst, under the combined auspices of the City and University, cannot fail to influence, in one direction or another, the current of artistic education, not only at Liverpool, but in the country at large. Efforts to a certain extent resembling yours are being made in other places. Throughout the land technical schools and institutes are rising, and attracting large numbers of students; and are gradually substituting new methods of training for those to which we have hitherto been accustomed. Your scheme, however, has many special features which distinguish it from among the rest, and give it an interest of its own, especially in the eyes of an artist. Yours is to be a technical school, but in the highest sense of the word *τέχνη*. While the ordinary technical school stops short at the attainment of manual dexterity in the handicrafts, or such theoretical acquirements as can be had by studying text-books, and doing exercises on paper about building construction or simple engineering, you go further, and submit your training not only to the canons of utility but to those of beauty. While your students learn the practice of the different handicrafts, and the principles of construction, they will also be trained to consider the æsthetic result of what they are doing, and to design work that is not only strong and well put together, but beautiful; and not only beautiful, but beautiful in the best way—beautiful as expressing outwardly the perfection of the methods by which the work has been produced; the perfect correspondence of the means employed to the end that is attained; and the pleasure of the workman in the success of his endeavours, which finds a natural vent in the grace and comeliness with which, under such circumstances, he is sure to invest his work.

Yours is, in fact, a school of the applied arts, and of architecture as being the greatest of the applied arts; applied, however, not in the sense of being something that can be put on to existing work, or left out at pleasure and according to the means at command: that gives an entirely false idea of it. Indeed, the term "Applied Art" is a very unfortunate one, corresponding as it does very nearly to one of the most fatal misconceptions of the nature of architecture. One popular view is that architecture is a matter of expense; that if a plain house costs so many hundred pounds, a hundred or two more would make it a work of architecture. This reduces architecture to a mere question of ornament. According to this view it is only building ornamented—it is not more than skin deep, and is no intrinsic part of the building whatever, which remains practically the same if you take it away. Hence arises another fatal misconception—that buildings may be divided into two classes, architectural and non-architectural. Architecture is supposed to belong to important structures, large houses, town-halls, churches, and public buildings, and to be out of the question in the ordinary cases of humdrum life under which the majority of mankind exist. In fact, it is supposed to be a luxury, very desirable for those who can afford it, but as much beyond the reach of ordinary folk as a carriage and pair of horses, or vinerias and orchid houses, or footmen and a butler.

Now, if this were a true notion of what architecture is, we might call it an "applied" art indeed, in the sense of being something overlaid or plastered upon something else which could do without it, but in any true sense of

the word "art" it would be not so much applied as *mis-applied*. Architecture, properly understood, is not the art of tricking out plain building with ornament, but the art of building well, and at the same time building beautifully. It is, in fact, nothing else but good construction—inspired from first to last by an artistic motive. Ornament is no necessary part of it. Very often it is far better left out. Ornament is the last resource of an incompetent artist. As I heard it well put by one of your own professors, "when a man can't design he falls back upon ornament." Expense does not enter into the question. Most of our great architectural efforts would have been far better had less been spent upon them; and the best modern work in ordinary domestic buildings is so restrained and simple that a vulgar observer sees nothing in it, and wonders how it can pretend to be architecture at all. Nor is any building too humble for architectural treatment: architecture is no more a luxury than virtue is a luxury. It is within the reach of all; the humblest edifice should be as virtuously and honestly built as the proudest, and architecture is simply the art of doing this well. Ornament she will use with discretion and sparingly, and only of the best kind, welcoming it gladly when it is befitting; withholding it where it would be out of place and unmeaning; building plainly where plainness is proper; splendidly where there is occasion for dignified expression; but always basing design on construction, always proportioning effect to the occasion, and, while cheerfully obeying constructional necessities, still in her turn, from first to last, shaping and adapting the forms suggested by construction into beautiful and harmonious combinations. It is in this way that architecture is truly an applied art, consisting, not in the application of decorative treatment to the mere nakedness of building, but in the application of an artistic motive to the principles of construction, inspiring the process of building with an artistic method, from the laying of the first brick to the driving of the last nail in the fabric.

Now this artistic motive is a matter of instinct. A true artist works unconsciously in a certain way—he could not tell you why—and produces a beautiful thing. Set another man to do the same thing, who has no gift for art, and he will produce something perhaps equally sound and serviceable, but not beautiful. The artistic instinct is born with a man, and cannot be implanted if he is born without it. Most men have enough of it to enjoy art and to appreciate the works of artists; in others it is absent altogether, or exists in so slight a measure that they wouder, with a friend of mine, a well-known professor at Oxford, that any man can continue to trouble himself about art after he is forty. It is only in comparatively few that the poetic instinct—the instinct of *ποίησις*—of creating, of realising, their ideas of beauty in a concrete and expressive form, is so strong that they cannot refrain from giving it vent either in literary composition, verse or prose, or in music, or in the fine arts, as they are generally called, of architecture, sculpture, and painting. These men, and these only, are artists; and unless a man happens to be born with this artistic temperament it is useless for him to attempt an artistic career.

But if no school and no training will convert a man into an artist who has no natural gift for art, it must not be supposed that natural gifts alone will suffice without study and direction. Art has its traditions and its canons, the result of the gathered-up experience of ages, all of which must be learned and obeyed; and though a man must be of the right material to begin with, training and education are required to enable him to use his natural gifts to advantage and to shape him into an artist. This has been done in many ways, at different times, with various degrees of success, and each method still has its advocates and admirers. You, at Liverpool, are now about to try a novel method, and to apply to the training of architects, and craftsmen who are to be in touch with architecture, the

methods which are being applied throughout the country to the training of handicraftsmen. The experiment is a very interesting one, and the result will be awaited with anxiety by all who have the progress of our art at heart. But, like all experiments, it is not without its dangers, which should not be overlooked by those who have the direction of it.

I have called your new school an experiment. The whole system of teaching crafts of any kind in technical schools, indeed, is still in an experimental stage, and we are still in the dark as to what will come of it. In the handicrafts it seems to have sprung into existence to fill the void left by the decay of the old system of apprenticeship. Trades were learned in olden time, and down to our own day, by binding lads to serve under an experienced master, who undertook to impart to them the mystery of his craft. Why this system has fallen suddenly into disuse we must not stay to inquire—enough that it has done so. The labour market is stocked with men of whom perhaps the majority would, in former days, be said to "have stolen their trades," or, in other words, picked them up, more or less imperfectly, as they could, without the regular training of an apprenticeship. It is to repair this deficiency that technical schools have been founded; but experience alone can decide whether the teaching in a technical school, where the scholar's work must consist of exercises and not of real productive work, can ever bring about so good a result as the personal influence of a master on an apprentice working under his own eye, and on things that are really to be used and paid for by an employer. Apprenticeship, however, in the handicrafts is practically at an end, and technical schools, whether for good or for evil, seem destined to give it its death-blow.

Now, in our craft of architecture, apprenticeship has hitherto survived. It is still thought a necessary part of the training of an architect for his calling that he should be apprenticed to a practising architect, and learn from him how buildings are designed and carried out. Of course, no one supposes that he can get all his training in that way. He must read for himself, and study for himself as well; he must form his taste by observation of other men's work, both modern and ancient, and he must take every opportunity of being on the works that are going on under his master's direction, so as to see in process of execution the designs which he has known, and perhaps himself worked out on paper. But if he chooses his master wisely, and if the master acts conscientiously by him, that part of his training which will most influence his after career is that which he gets in his master's office. No training in schools will ever give him the same insight into the proper conduct of an architect's work, nor will any amount of exercises in working samplers, as they may be called, teach him a tithe of what he learns from work to which responsibility is attached—work that has really to be carried out, work that is intended to endure for generations, and which must therefore be right, sufficient, and practicable, under the penalty of failure and retribution.

The best proof of the superior educational value of training the student on real work to that of training him on samplers and exercises in a technical school is to be found in the greater avidity which it inspires for acquiring skill and knowledge, and the greater rapidity of the student's progress. Those architects who are in the habit of taking pupils will, I feel sure, confirm my own experience in this respect. What is the method we employ when a man comes to us to learn his craft? He has to begin by learning the use of his instruments, and next proceeds to draw out elementary lessons in architecture. He learns how to set out the classic orders, how to set out and construct traceries, how to bond his masonry and brickwork, the principles of framing roofs and floors, doors and panelling; but long before he has got very far into the mysteries of construction, and of making such drawings

as will explain the intended construction to workmen, his master, if he is wise, will have begun to set him to the simpler work of the office, and take him away from mere exercises. And if the pupil is really in earnest, it is remarkable how gladly he flies from the unreality of drawing imaginary work, or copying things out of books, to the responsibility of making working drawings of anything, however simple or humble, that has really to be made from his own representation of it. He works with three times the relish and ardour, and learns more in less time.

This illustrates one difference between being trained as an apprentice and being trained in a technical school. Another very important point is that the apprentice is trained by an individual and not by an abstraction. He is under the influence of a personal master, whose ideas he has to carry out and follow intelligently; and in that way he carries on, when he comes to work for himself, something of a tradition, something that corresponds to the schools of artists in former days, whose work grouped itself round the style and methods of some artist or group of artists in sympathy with one another, whose ability was sufficient to impress its influence on the young men whom they trained to follow in their steps. Something of this certainly results from our system of pupilage. The influence of a well-known architect can often be detected in the work of his pupils after they have begun to originate for themselves, however far they may deviate from the precise style of their master, as it is inevitable, and indeed to be desired, they should do, if they are to contribute their fair share towards the advancement of art. It is only by this system of succession, by the transmission of an art from master to apprentice, that the traditions of art are kept alive. They stand or fall together. All the handicrafts till one hundred years ago had their traditions: skilled workmen had certain rules and proportions for setting out doors, and windows, and other details, based on sound principles which had passed into axioms. There was no need in the days of Wren, Hawksmoor, Gibbs, Kent, and Flitcroft for the architect to make half the detail drawings without which, nowadays, the result would be a failure. Traditions have for the most part gone, and they have gone because, with the decay of apprenticeship, the system by which they were passed on from one generation to another has almost ceased to exist. No traditions can ever attach to a technical school directed, governed, and supported by boards of persons who are not themselves craftsmen, and instructed by teachers whose whole time is necessarily occupied in training others, and not in producing any actual work of their own.

In what I have ventured to say, not, I hope, too positively, on the value of the system of apprenticeship which, fortunately, survives in the training of architects, I believe I may claim to have on my side those who have been instrumental in establishing this new School of Architecture and the Applied Arts in Liverpool. I believe that they fully recognise the importance of maintaining the present system of apprenticing the student to a master, and are alive to the danger of interfering with it by anything they may do. That there is some danger is indubitable, and it will need all their vigilance to guard against it by framing their courses of instruction in such a way as not to supersede the final stage of training in an architect's office, but to prepare the student for it, and to supplement it in those particulars in which it is deficient and requires to be supplemented.

For although it is of supreme importance that the old traditional habit of apprenticing architectural students should remain, and though I hold that no school training can be substituted for it without irreparable loss, still I am far from saying that it will give the student all he wants to qualify him for his career. It needs to be supplemented in a thousand ways, many of which the student must dis-

cover for himself, and will go on discovering to the end of his life, and many in which such a school as this of yours at Liverpool may be of infinite service to him.

DEFECTS IN AN OFFICE TRAINING.

One deficiency in the training of an architect's office results from the fact that a modern architect is shut up in an office, away from physical contact with the work he directs. This isolation of the architect is a matter of comparatively recent date. Of old, in the palmy days of our native art, it was not so. If we wish to understand how those masters learned their craft to whom we owe the cathedrals, churches, palaces, and mansions which adorn our land throughout its length and breadth, we must picture to ourselves a very different system from that of the present day. The modern "office," with its draughtsmen and drawing-boards, its clerks and office-boy, and its principal, sitting in a comfortable chair, in a broadcloth coat, interviewing those whom it is the fashion to call his clients—a title more suggestive of law than of art—all this impressive scene vanishes like the "baseless fabric of a vision," and a much humbler picture takes its place. We shall find the mediæval architect, with his tools in his hand, among his workmen, in the building yard, or on the scaffolding, not in a snug office, on a well-stuffed chair; in his shirt-sleeves, if he has a shirt, not in professional costume; directing masons and handicraftsmen, instead of clerks and draughtsmen; and setting out his work on the ground, on the paved floors, on the rough stones and timber, and not on paper at a distance of perhaps a hundred miles from the scene of action. The architects of those days, whom we accept and reverence as our masters, and whom it is our ambition to rival and our dream to surpass, were nothing more than the master workmen, the foremen of their craft; men who not only designed the work, but put their hand to it, and worked manually as well as intellectually in bringing it into shape. The difference between the architect and his workmen was then only one of natural gifts and acquired skill. The workshop was the common training ground of them all, and apprenticeship was the only schooling by which a lad learned to imitate and take his place among the masters of his craft. No doubt, some lads of superior fortune and standing may, from the first, have aspired to be leading artists. There is in existence an indenture of 1472, by which a widow binds her son apprentice for eight years to a famous architect, who was then building the cathedral of his own city, and also working upon it as a sculptor with his own hands. This student was, no doubt, intended for an architect in his turn, but he, like the rest, had to go through the workshop and learn his trade as a stonemason at the banker. The architect rose from the ranks of the artisan, and purely by merit of his artistic qualifications. Some workman, during the progress of a building, would have an opportunity of showing capacity for original design, of which his employer would be glad to make use. He would be promoted to direct as well as to execute; his help would be sought in some new work, and so he would rise gradually to have the direction, perhaps, of some great minster, or some vast cathedral, on which he would continue to work with his own hands and those of his apprentices, often, in fact, being both architect, and also contractor to carry the work out for a certain stipulated sum. Over other trades than his own he would have little or no authority. The general mass and proportion of the whole building would be his; but subject to this condition the masonry and carpentry would very likely be contracted for and carried out independently by different men, each according to his own ideas. He who was really the architect, to whose invention the building owes its character, stood out so little from the other workmen that, in most cases, his very name has failed to reach us; and while we talk of the buildings of the seventeenth, eighteenth, and nine-

teenth centuries as the work of this great master or that, a long silence oppresses the fame of those great artists who so rarely put their names to their works, and whose unknown names it is the triumph of the antiquary to turn up now and then as he delves among the mouldy archives of treasuries and muniment rooms.

ANCIENT AND MODERN ARCHITECTS.

So deep is the obscurity in which the architect of the middle ages is veiled that it has become the habit of some critics who dwell upon the shortcomings of modern architects to talk of the cathedrals and architectural monuments of our ancestors as if they had come into being without an architect at all. They are represented as the product of a style, of a school, and not of any one personage; the outcome of their age, the fruit of the combined efforts of a group of workmen trained in the same habits, methods, and principles. Now this, of course, is pure extravagance; a violent reaction from the modern ideal of professional architecture. Our ancient buildings did not grow of themselves without an author: somebody must have designed them, and that individual character which each possesses could not have been impressed by more than one individual mind. The working together of schools of workmen would produce a harmonious, consistent effect in detail; it could never evolve such a grand, simple conception as the west front of Peterborough, or the central towers of Gloucester and Canterbury, any more than it could have produced the dome of St. Paul's. Each of these artistic conceptions, so distinct, so individual, must have sprung from a single brain. Call him architect, master-craftsman, head-mason, or what you please, he and none other is the author of it, however large a part his colleagues may have played in filling in his outline and carrying out his ideas in detail. A work of architecture without an architect is no more possible than a tale without an author, however much the architect of the past may differ from those of us who call ourselves architects nowadays, in his method of work, and in the position he held as regards the building he was engaged upon.

Now this difference, as I have endeavoured to show, is mainly in this broad distinction, that while the modern architect resembles a professional man, and designs his buildings on paper, and directs them from a distance, only visiting them personally for a few hours at a time, and at considerable intervals, the ancient architect lived on the building, worked on it with his own hands, and designed it in the actual material, with no drawings to speak of, and with such setting out only as could be done in the mason's shed or on the walls and floors. The modern buildings, in fact, are designed on paper; the old were designed in brick, and stone, and timber.

Now the advantages of the ancient method are obvious. Success in architecture, sculpture, and the applied arts, as they are called, depends on the right treatment of material, no less than on brilliancy of design. Material must be used to the greatest economical advantage; it must be used strictly in conformity to its natural properties; the design must express those properties so clearly that it would lose its charm if translated into a different material; no matter how beautiful the design, it becomes bad art if it is unsuitable to the material employed. In modern work one sees the proof of this every day: mouldings that were designed for wood are worked in stone; and more frequently stone details are translated into woodwork, with the result of an indescribable coarseness and vulgarity of effect. The same may be noticed in nine instances out of ten of the use of marble in this country, a material which of all others requires to be treated respectfully and in accordance with its natural properties, but which modern architects often cut and undercut as if it were common stone, wasting thousands of pounds in spoiling a fine material which will only display its full beauties when

tenderly and delicately treated. Instances might easily be multiplied were there time to dwell on this part of the subject: suffice it to say that mistakes such as these, which so commonly disgrace our practice, could not be made except under the modern system of isolating the architect absolutely from all touch of the materials for which he designs. An architect who had worked at the banker himself would not set his masons to work in stubborn granite, or adamantine marble, the deep-sunk hollows suitable to a soft stone; nor would he apply the forms of arched construction to woodwork, which naturally consists of a framework of posts and rails filled in with thin panels; nor if he had been familiar with the use of honest material would he, I think, treat it disrespectfully like those who disguise it by fictitious modes of construction, and pretences of being finer than it is. We should not have plain useful sashed windows pretending to be mullioned lights, with useless half mullions masking the wooden frames; we should not see honest brick walls bedizened with thin boards nailed on and plastered between, to try and make the world believe the building a half-timbered house like Speke Hall, and many more in the neighbourhood of this great city. We should not be offended by three or four storeys made apparently to rest on a stone lintel across an open shop-front of twenty feet span, which would not carry its own weight in reality, and is, in fact, held up by the iron girder behind, which does all the work. All these are the sins of men who have only a distant acquaintance with material; who know it only as it appears on paper, where they can treat it as they like, and take any liberties they please.

But, again, the habit of handling material would not only save a man from many absurdities, such as those of which I have given instances, but would be full of suggestiveness for design. If proper use of material is one main condition of good design, it follows that those men only who understand the properties of material are fit to make designs; and a man can only learn what can be done in any material by being familiar with it, and, best of all, by handling and working it himself. Now, under the present system, we architects are seldom brought into contact with the materials we have to use in our buildings, at all events during our education, and afterwards, though we pick up some knowledge of them in our practice, and by observation of the building operations which we direct, we are in fact learners when we ought to be teachers; and we are in the false position of having to direct workmen who know how to do the thing better than we do. We are called upon to design and superintend carving without perhaps ever having had a chisel and mallet in our hand; we have to design wrought-ironwork without ever having "drawn out" a rod of iron, or shut a weld; and to construct wooden framing without ever having made a tenon and mortise, or fitted a door-panel. The consequence is that we often set workmen to do things in roundabout and difficult ways which might be done much more simply and yet quite as well or better; sometimes we give them impossibilities which they have to get round as well as they can; constantly we make them bestow work where it is quite thrown away, uselessly, if not worse, and miss the opportunity of employing labour where it would really tell with good effect. The knowledge of the deficiencies in our technical training comes to us through failure and disappointment, and too late to be repaired; and we look back in middle life on a record of money wasted, workmanship thrown away, material spoiled, and opportunities of artistic effect missed, which can never be recalled, and of which we are now only too painfully conscious.

Now, all this results from the fact that architects are trained on paper, and on paper only; and as long as this continues things will be no better. It is important that we should face this fact, and see what can be done to remedy it.

Let it be admitted at once that, except in the case of very simple buildings, we cannot go back to the old practice of dispensing with drawings altogether. The complex conditions of modern life and the amount of elaborate planning they involve forbid it. Of old the plans of all buildings were simple and conventional. Churches remain so to this day, and it would be easy enough, and a very delightful task to a modern architect who knows his craft, to build a great church without a single drawing if he could live on the work and direct it himself from first to last. But in olden time the house was almost as simple as the church. As it outgrew the mere two-roomed hut, the cellar below, the solar above, in which, with the help of a few outbuildings, those families lived after the Conquest who were beneath the dignity of a castle, and as fresh rooms were added for retirement and comfort, till the complete type of the English manor house was developed, every building was arranged very much in the same way; the great hall in which the family ate, servants and masters together, and where the retainers slept round the fire; the withdrawing room at one end of it for the private use of the lord and his family; the kitchen and buttery at the lower end, as may be seen still in our old colleges at Oxford and Cambridge, and in those old mansions which have escaped alteration—all this was arranged on an accepted type, with little variation but such as was called for by peculiarities of situation. Ventilation was a matter of doors and windows, which fitted so badly that more care was bestowed in keeping fresh air out than letting it in; drainage there was none, and sanitary science was as yet undreamt of. In the case of large buildings, such as the town-halls of the great communes of Italy, Germany, and the Netherlands, the same simplicity of plan obtained. It was merely a question of adding more rooms for public offices, and making the big hall bigger. And in the great English mansions of the reigns of Elizabeth and James I. so little was planning considered that the long ranges of rooms which then came into fashion were generally accessible only by making one apartment serve as a passage to that beyond it.

Compare with this the ingenious planning of a modern mansion or town-hall: the careful seclusion of the offices, the provision for ready access and prompt service; the disposition of the several departments, each complete in itself, and yet each in direct communication with the rest, and with the centre or heart of the building; the artfully contrived approaches for public, private, official, and domestic use, all separate, yet all converging on the proper points; and then the provision for warming with hot air and hot water, for ventilating by inlets for fresh air and extraction shafts for pumping it out as soon as it has been used, for drainage and for protecting the interior of the building against its own drains; and it is obvious that there is no other way of proceeding than that of drawing everything out beforehand on paper to ensure that one necessity will not clash with another, that everything has been foreseen and provided for, and that the whole scheme will work out without difficulty. And this amount of planning on paper is not confined to large buildings. The habits of modern life and the spread of luxury downwards make it quite as necessary in small buildings. A little house requires quite as much good planning as a large one, sometimes even more when space is confined and means are contracted.

But though this is so, and the architect's drawing office must be recognised as a necessity of modern architecture, and of the future as well, for there is no chance of society returning to the simplicity of ancient life, still it does not follow that the architect should shut himself up in his office with his pupils and draughtsmen in the present fashion. It would be a hard case indeed if he alone among artists were never to know familiarly the materials he deals with, but only to prescribe from a distance how

they are to be employed by other persons who know better than he what can be done with them. It is not so with any other artist; painters and sculptors handle their own materials; Pheidias and Apelles, Michelangelo and Raffaello, Ghiberti and Verrocchio, Peter Vischer and Albrecht Dürer, were handicraftsmen; and so were those master-masons who live for us by their works rather than by their names, to whom we owe the mighty monuments of Northern Gothic art. Never till modern times were planning and building, designing and executing, so absolutely dissociated and ranked apart as separate arts; and never, so long as this divorce continues, can we hope for a resurrection of that true method of design and that steady progress of style which spring from the suggestions afforded by work done.

Here, then, is a defect in the training of architects which your new school is admirably suited to repair. By means of your workshops and studio you can bring the student into contact with those materials which he learns in his master's office to arrange and combine, but never has the chance of handling. You can make him something of a handicraftsman, and send him back to his drawing-board with such a knowledge of the stone or timber or iron which he has to work into an architectural design as will enable him to treat it correctly and therefore economically. It is not to be expected, of course, that an architect should be trained into a first-rate workman, but it is certain that if every architectural student were to spend a year, or perhaps more, during his training in the mason's yard and at the carpenter's bench, working with the workmen and as a workman himself, he would come to the task of original design furnished with a stock of ideas and capacity for invention not to be got in any other way, and would be saved from those absurdities of abused material and dishonest construction which disgrace our modern practice. Some such scheme as this will, I hope, form part of your programme, either by opening workshops of your own, where masonry, brick-cutting, carpentry, joinery, plastering, and plumbing might be taught, or else by arranging with the building trade at Liverpool that your students shall have the opportunity of seeing these trades carried on in the workshop and of putting their hands to them themselves. This, indeed, would be by far the better way of doing it, and I am glad to see that your Board of Governors has upon it representatives of the Master-Builders' Association and the Building Trades' Federation, who may, I hope, be induced to help forward and give effect to the suggestion I have made.

ISOLATION OF THE ARCHITECT FROM THE OTHER ARTS.

There is yet another evil in the seclusion of the architect's office: it shuts him up, not only from practical acquaintance with the building trades, but also from all intimacy with the sister arts, and, what is as bad, it shuts out the painter and sculptor from all chance of establishing a sympathy with the architect with whom they are inevitably from time to time called upon to co-operate. The consequence is that, when that occasion arises, it is impossible for artists so imperfectly acquainted with each other to produce any harmonious result. More especially is that the case with the architect and the sculptor, whose crafts were once not two but one, and are from their nature so closely related that it is impossible to draw a line of distinction between them. For what is architecture but the art of dealing with form on a grand scale, as sculpture is that of dealing with it on a smaller scale? The same faculties of line, proportion, and scale are required in one as in the other. Of all the arts these two are the least separable without mischief; and of all artists it is most essential that these two should be trained together, and trained exactly alike, till the happy consummation is attained when, as in the olden time, they will form once more a single art in which

the same man may work indifferently. We are far enough from that at present. What is commoner than to find a sculptor hopelessly at sea when he is called upon to go beyond pure sculpture; in small work, in figures, in details of ornament he may produce the most charming work; but when he has to combine them into some great monument he crosses the line of architecture and fails miserably. This is because he is unused to deal with form on a grand scale; his architectonic sense is not wanting, but undeveloped. Take, again, the case of a statue requiring a pedestal. Till lately the sculptor seems to have given up the pedestal as a bad job, and to have been satisfied to make any sort of stand do that was of suitable height. Now he is beginning to see that something more should be made of the pedestal; but this, again, is a question of architecture, and as likely as not the pedestal he designs is to an architect's eye abominable. And the architects fare no better. It is not necessary to speak of those who, conscious of their incapacity, and indifferent to the finer expressions of art, wash their hands of the whole thing, and turn the carvers into their building to do their own pleasure, and even to choose their own subjects, irrespective of the building, which, perhaps, they cannot spoil, whatever they may do. But an architect who loves his design and desires to do the best for it necessarily forms in his mind some idea of the kind of decoration he would wish to bestow on it; and when he takes the sculptor into his confidence and tries to explain his ideas he finds their mutual inexperience and deficiencies in each other's crafts so great that nothing results but disappointment and vexation.

Now this embarrassment is not necessary; if architects and sculptors were trained together and trained alike there would be none of it. And here in your new School you have a ready remedy. Under one roof—and that is a matter of the greatest consequence—you propose to carry on instruction in the three great arts, and you can easily gather the students together and group them as you please. It will, I hope, be an understood thing that every architectural student shall, as a necessary part of his training, pass through the modelling school, and learn to finger the clay. This will teach him to fix in a concrete form the ideas of sculptured ornament that float through his mind as he designs his buildings, and to satisfy himself by experiment how far they are suitable and practicable, and how far they require to be modified. And, in the same way, I would have every young sculptor thoroughly trained in the School of Architecture, so that he may understand what is before him when he is called upon to adorn a building with his own special art; that he may develop what I have called his architectonic sense, and learn how to deal with form on a large scale when he is called upon to design work which lies more within the field of architecture than that of sculpture; fields, however, which lie side by side, and which have, as I said before, no fence or boundary line drawn between them.

THE SCHOOL OPEN TO ALL, NOT ONLY ARCHITECTS.

But it is not only to the sculptor and the painter—for what I have said of the sculptor applies, though not to the same extent, to the painter also—that you will throw open your School of Architecture. It will, I trust, be open to all who are concerned with building in whatever degree. It has been the defect of most schemes hitherto started for educating architects that they have had for their object the advancement of the architect rather than that of architecture; and the ideal architect whom they are designed to produce is not an artist with comprehensive views and sympathies, in touch with his brother artists and the handicraftsmen whose works he directs, and whose labours he shares, but a respectable professional man with clients and clerks, who shuts himself up in his office and manages his architecture through the penny

post. The efforts of these idealists are directed, not to throwing down the barriers of convention which separate the building-artist from his natural brethren, but to building up the walls of seclusion higher, and closing the gate more firmly against the profane vulgar who may strive to enter in, but can only do so by the door of examination and diploma, of which the chiefs of the profession will keep the key.

Now, if the pursuit of architecture is to come to this—if architecture, to use the old battle-cry of this controversy, is to cease to be an art and to become a close profession—then all I have said this afternoon is beside the mark, and your new School of Architecture and the Applied Arts is started on a wrong basis. Your object is to train men to be artists in their several crafts, not to coach lads for the examination of the Royal Institute of British Architects, or whatever other body may seek to enclose all who practise architecture within its fold. Your desire is to train their hand and eye, to form their taste, to direct their observation, and to give them practical experience of the operations they will have to control, not to enable them to answer with credit a paper of questions of which the answers may be learned from books and prints without any experimental knowledge of *things*. Your object is not to promote the seclusion of architects into a snug privileged profession, but the formation of a school of artists who may do something to revive and carry forward the architecture of the day. Yours will be, in fact, not a school of architects, but a school of architecture.

Now though the development of better architecture must be the work mainly of architects, men of higher artistic training whose influence dominates and secures a following, still architects by themselves will never bring about that general revival of sound taste in building which it should be our aim and object to effect. For nine buildings out of ten no architect is ever employed, and they are designed and carried out by men who have had no artistic training whatever. It is idle to complain of this state of things, and to say that if people want good houses they ought to employ an architect to design them. In the majority of cases the price will not afford it, and in that of very simple suburban houses there is really no occasion for his services. This class of work is now, and will always be, left to the builder. But it does not follow that simple buildings should be ugly, or unarchitected buildings hideous, as is too frequently the case. This is a matter of which the importance cannot be overestimated. Most of us at one time or another have to live in houses of this kind, all of us have to suffer from them as we walk the streets; and it is of as much consequence to our happiness to raise the standard of architecture in common things such as these, so that we may walk about our towns and suburbs without a perpetual sense of disgust, as it is to raise a few beautiful buildings here and there amid a wilderness of mediocrity or ugliness. It is, then, essential that builders should have some architectural training, as well as architects, in order that the work they turn out may be in good taste. At present most of the faults of builders' architecture lie on the side of commission rather than omission. What offends is not the plainness of their work—that we should welcome—but the attempts it makes at splendour. Were the builder trained to a knowledge of true principles in art he would learn to appreciate restraint, to see that ornament is not necessary, that simplicity has its own charm, and that proportion should rule supreme; not only proportion of parts to a whole, but proportion of means to the object, and proportion of style and of detail to the purpose of the building. I trust, therefore, that the advantages of the Liverpool School of Architecture and the Applied Arts will be largely made use of by builders as well as architects, and that those representatives of the building trade who are on your council will do what they can to induce their younger brethren to

go through the training they will get there. The distinction between builder and architect has always seemed to me purely conventional and absurd. Every man who designs a building is an architect, whether he carries it out himself or employs someone else to do it; and as builders are in the habit of designing what they build, and therein act as architects, so I see no reason why an architect, if he pleases, should not turn builder and carry out his own designs as a builder would.

THE STUDY OF THE HISTORY OF ARCHITECTURE.

But besides the practical side of the study of architecture it has also what may be called its literary and historical side. Your course of studies includes attendance at lectures on the History of Architecture, a subject of which, of course, no student should be ignorant. At the same time it is a subject of which too much has been made in time past, and of which too much may easily be made in the future. There was a time which many of us remember when it was thought that knowledge of bygone styles, mouldings and details, and a familiar acquaintance with old buildings, accompanied by plenty of sketching, was enough to furnish an architect with his stock-in-trade. Latterly sounder views have been advanced, and people are now beginning to feel that archæology is not art, and that memory cannot take the place of invention. A man may be an admirable archæologist without a spark of that creative instinct which makes the artist, and which no amount of archaic law will implant in his bosom if it be wanting. The reverence with which we have been taught to regard old work has misled us into a slavish worship of precedent, and an abject craving for authority by which to shape our own work. Close imitation of old work has been regarded as the only safe course, deceptive imitation of it the highest measure of success. Novelty has been regarded with suspicion, and reference to ancient example a sufficient reply to criticism.

This is not the proper use of the bygone art of our ancestors, nor is it to bygone art alone that our students should be taught to look. The art of all ages, past and present, is open to us to study and to learn from. We should admire a thing not because it is old but because it is good, and old work should be criticised as freely as new. Above all it should be the student's object to discover the principles of design by which the successive styles were governed, and in tracing their history he should trace the influence of circumstance and accident which modified the current art of the day, until the style passes into a new phase, the page is turned, and a new chapter of art opens. In most cases it will be found that these changes were brought about, not so much by any mere æsthetic impulse, as by suggestions of construction, of economy of material, of increasing skill in the working of stone and wood. Consequently the history of architecture, and of the development of style out of style, should never be taught without incessant reference to the constructional methods which were employed, and which played the principal part in the changes resulting from their employment. Architecture is a logical art; scarcely any change has taken place in it without a sufficiently obvious reason: there is little room in it for caprice, none for the mere imaginings of wilful fancy; and it is of no use to study its outward forms and shapes without going deeper and finding out the root from which they spring. It is with these underlying principles alone that we are really concerned: they are true for all time, and when we have discovered them and traced their influence on the development of the bygone styles of our own or other lands, we shall have got from our study of ancient example nearly all the lesson that it is calculated to teach us. Not all, for the architect will rise from the study of fine work, be it ancient or be it modern, refreshed with a sense of its power and beauty, and inflamed with the passion, not, indeed, of

imitating it—that would be but a poor result of his lesson—but of emulating it. Looking back on the work of his predecessors, like Michelangelo on the dome of Florence, as he left that city to build the cupola of St. Peter's at Rome, he may be constrained to say, "*Meglio di te non posso*," but he must also add, with him, "*Come te non voglio*."

PARLIAMENTARY.

A Teaching University for London.

In the House of Lords on Thursday, the 15th August, Earl Cowper called attention to a question which, he said, as it had not assumed a party character, was not so much discussed as many other matters. He referred to the establishment of a great teaching University for the great metropolis of London. Everybody was agreed that it was a positive disgrace that the great population of London was not possessed of that which almost every capital in Europe was possessed—a great teaching University—because they could not call by that name the University of London, which was merely an examining board, and which, in spite of its name, had no more to do with London than it had to do with the rest of the United Kingdom. What was wanted was that which for years thinking people had been striving for—namely, that there should be a proper and economical system of teaching which would apply to poor as well as to rich, and which would conduct the student from point to point up to that final examination which could only be considered as the crowning of the whole, and by which the stamp of a completed education would be conferred. The plan proposed by the Commission, of which he had had the honour to be Chairman, had received the support of all the bodies interested in the question, and he urged the Government to act on the report of that Commission without any further delay. If in that first Session a Bill had been brought forward to carry out the recommendations of the Committee, it would have slipped through utterly unopposed and with as little difficulty as an ordinary private Bill. Even last Session a Bill would easily have passed if Parliament had not come to an untimely end, and the Bill, which he was grateful to the late Government for bringing in, would have become law. He could not, of course, hope that in the present short Session anything would be done, although he wished that it could. But if an expression of opinion could be elicited from her Majesty's Ministers to say that they were disposed to regard this subject favourably, that declaration, together with the fact that the late Government brought in a Bill on the subject—showing that both sides were unanimous—would have the effect of preventing those new differences of opinion arising which he deprecated, and would encourage the hopes of those who now for many years had been striving under every kind of difficulty for this end, and who would be assured that the question would not be again indefinitely postponed.

The Duke of Devonshire, in reply, said: My noble friend was good enough to inform me of his intention to call attention to this question, and I was obliged to tell him that, although this would perhaps be the most convenient opportunity, if he desired to say anything on the subject during the present Session, there was only one answer which could possibly be given to him on behalf of Her Majesty's Government. It has been stated in the Queen's Speech itself, and repeatedly in the course of this debate, that under the present circumstances Her Majesty's Government intend to proceed with no legislative measures whatever, except such as are absolutely necessary for carrying on the business of the country. My noble friend is perfectly well aware that it would be quite impossible to carry out a settlement of this question without legislation. As he has stated, a Bill was introduced by the late Government for the purpose of carrying out the recommendations

of his Commission, but was not proceeded with, even to the second reading. It would be quite impossible to make an exception from the general rule, which has been universally acquiesced in, and now to introduce legislation on this subject, which cannot be said to be of first and most urgent necessity. I may state that, like our predecessors, we are strongly convinced of the desirability, and even of the necessity, of meeting the views which have been expressed in favour of the establishment of a teaching University for London, and I am sure that Her Majesty's Government and the country are deeply indebted to my noble friend and his colleagues for the immense amount of labour and trouble which they have expended in examining this question. But while we are entirely at one with our predecessors in desiring the establishment of such a teaching University, my noble friend is rather under a misapprehension as to the degree of unanimity which exists in regard to the mode by which that teaching University shall be established. My noble friend has mentioned the unanimity with which the present scheme has been received by many important bodies in the country, but he has passed over somewhat lightly the strong objection taken to the scheme by a large and not unimportant section of Convocation. It has not been possible for any of my colleagues to look into this matter very closely, and I am afraid that, as it is impossible to legislate at present, it would be premature on my part to commit the Government wholly to the scheme in the shape proposed by his Commission. I can only assure my noble friend that the subject will receive careful attention on the part of Her Majesty's Government before Parliament meets again for legislative business; and that we are fully aware of the deep obligations under which the country has been placed by the very large amount of trouble which my noble friend has given to the discussion of the question.

LEGAL.

The Building Line.

ALLEN AND ANOTHER v. THE LONDON COUNTY COUNCIL.

On the 22nd July the Court of Appeal (Lords Justices Lindley, Lopes, and Rigby) delivered judgment in the appeal of the plaintiffs against a Divisional Court (Mr. Justice Wills and Mr. Justice Wright) upon a special case stated by a metropolitan police magistrate, who had made an order for the demolition of a certain building in the metropolis as being beyond the building line. The question was raised upon the construction of section 73 of the Metropolis Management Act 1862—viz. whether the decision of the superintending architect of the Metropolitan Board of Works (now of the London County Council) is binding, not only as to the general building line in a street, but also upon the question in which street or road a particular house, situate at the corner of two streets or roads, is situate for the purpose of the determination of the building line by which it is to be regulated.

The facts of the case, with the judgment of Mr. Justice Wills in the Court below, are fully reported *ante*, at page 603.

Mr. Channell, Q.C., and Mr. Maemorrnan were for the plaintiffs; and Mr. Avory and Mr. Daldy for the London County Council.

Lord Justice Lindley, in delivering judgment dismissing the appeal, gave as his opinion upon the construction of the certificate that it did decide that the plaintiffs' house was situate in Birchington Road. The question was whether, under section 73, this point was to be decided by the superintending architect or by the magistrate. His Lordship continued:—The following circumstances must co-exist in order to justify an order for demolition under section 73, viz. :—(1) There must be a building, structure, or erection of some sort. (2) That building, structure, or

erection must be erected with the written consent of the Metropolitan Board of Works (or now of the County Council). (3) That building, structure, or erection must be in some street, place, or row of houses. (4) That street, place, or row of houses must have a general line of building. (5) This line of building—*i.e.* the line of building of the street, place, or row of houses in which the building complained of is situate—must be decided by the superintending architect appointed by the Metropolitan Board of Works (or now by the County Council). (6) Lastly, the building, structure, or erection must be erected beyond the line so decided. What is left to the decision of the architect is the existence and exact position of the general line of building of the street, place, or row of houses (if any) in which the building &c. complained of has been erected. In case of dispute the magistrate must decide all the other matters referred to—*e.g.* whether the building &c. complained of is one to which section 75 applies, especially having regard to section 74; whether the necessary consent has been given; whether the building &c. is in a street, place, or row of houses, "street" being interpreted as directed in section 112; whether the building &c. has been erected beyond the general line of building for that street &c., as decided by the superintending architect. Such is, in my opinion, the true construction of the section, and of the decision in *Spackman v. Plumstead Board of Works* (10 A. C., 229), which set at rest the doubt whether the magistrate could review the architect's decision as to the general line of building. So far the interpretation of the statute is reasonably plain. But then it is said that the question still remains, who is to determine whether the building complained of is in the particular street, place, or row of houses to which the architect's certificate is applicable? This is the point on which Lords Watson and Bramwell differed in *Barlow v. Vestry of St. Mary Abbots* (11 A. C., 257). A careful perusal of Lord Herschell's judgment has led me to the conclusion that he agreed with Lord Watson, and that Lord Fitzgerald took the same view. There is much to be said for this interpretation of the Act; for, the object of the Act being to regulate lines of building, the architect, rather than the magistrate, seems naturally to be the person to say to what line of building a particular house should conform. The general line of building which the architect is to decide is "such general line," and by "such" is meant the general line for the street &c. in which the house in question is. The architect might no doubt assume, without deciding, that the building complained of was in a particular street, place, or row of houses, and simply certify the general line of buildings of that street &c., leaving the magistrate to determine whether after all the building was in the street &c. to which the certificate applied. But this would be to deprive the architect's certificate of half its value, and the interpretation which leaves him to decide what building line is to be conformed to seems to be preferable to an interpretation which leaves that question to the magistrate. For these reasons, and thinking, as I do, that this view of the section is more in conformity with the decision of the House of Lords in *Barlow's Case* than the interpretation contended for by the appellants, I have come to the conclusion that this appeal ought to be dismissed. The architect's certificate here, taken with the plan, supplies the omission which led to the decision in *Barlow's Case*, and does certify, with sufficient clearness, that the appellants' house is not only in Birchington Road, but is in the row of houses the building line of which is defined.

Lord Justice Lopes and Lord Justice Rigby delivered judgment to the same effect.

Ancient Lights.

LORD BATTERSEA v. THE COMMISSIONERS OF SEWERS OF THE CITY OF LONDON.

This was a motion for an injunction which was heard by Mr. Justice North on the 26th July. The plaintiffs

were the lessees of premises at Weavers' Hall, Basinghall Street. They sued the Commissioners of Sewers to restrain the erection of new offices adjoining the other Corporation buildings, on the ground that such erection would interfere with access of light to the plaintiffs' ancient windows. The defendants' premises occupy the site of four old houses, formerly numbered 72, 73, 74, and 75 respectively. The houses were pulled down in the year 1875. The evidence showed that the house No. 75 was pulled down by July 16, 1875. The other three houses were not pulled down till October 1875 at the earliest. The plaintiffs now moved for an interlocutory injunction to restrain the defendants from erecting their new buildings so as to darken the plaintiffs' premises. The plaintiffs claimed their right to access of light under section 3 of the Prescription Act of 2 & 3 Will. IV., ch. 71, as affected by section 4. The third section provides that the owner of premises shall have a right to access of light after twenty years' uninterrupted enjoyment; and section 4 provides that "no act or other matter shall be deemed to be an interruption within the meaning of this statute unless the same shall have been or shall be submitted to or acquiesced in for one year after the party interrupted shall have had or shall have notice thereof, and of the person making or authorising the same to be made." It has been held in the well-known case of *Flight v. Thomas* (8 El. and Fin., 231) that by reason of the interpretation given to the word "interruption" in the 4th section of the Prescription Act that, where access of light to premises has been actually enjoyed for a period of nineteen years and a fraction of another year, the right will have become certain, for no interruption for the space of a year can take place before the expiration of the twenty years. Among other objections to the motion on the part of the defendants it was urged that, so far as the premises formerly numbered 72, 73, and 74 Basinghall Street were concerned, the plaintiffs' right of action had not yet commenced, because twenty years had not quite expired since the old buildings were pulled down.

Mr. Swinfen Eady, Q.C., and Mr. J. G. Wood appeared for the plaintiffs; Mr. Samuel Hall, Q.C., and Mr. John Henderson for the defendants; Mr. C. E. E. Jenkins appeared for the landlords (the Weavers' Company), who had also commenced an action.

Mr. Justice North granted an interim injunction to restrain the erection of buildings on the site of No. 75, so as to obstruct the access of light to the plaintiffs' premises. He also granted an interim injunction to restrain the defendants from carrying their new buildings on the site of the other three houses higher than the buildings that were pulled down in 1875.

House—"Drain"—Combined Drain—Sewer.

KERSHAW v. TAYLOR.

This case came before the Court of Appeal (Lord Esher, Master of the Rolls, and Lords Justices Kay and Smith) on the 29th July, on appeal from the decision of a Divisional Court upon a case stated by a metropolitan police magistrate (noted at p. 574).

The magistrate had dismissed a summons under the Public Health (London) Act 1891 against the respondent for permitting a nuisance—*viz.* a foul and defective combined drain and house drains connected therewith. The appellant, Kershaw, a sanitary inspector, proceeded by direction of the Wandsworth Board of Works, the sanitary authority for Streatham. The respondent, Taylor, was owner of a house known as "Avon." In August 1885 the respondent's predecessor in title gave, as building owner, written notice to the board of his intention to build six semi-detached houses, with a plan showing the system of drainage proposed—*i.e.* that each pair of houses should possess a combined system of drainage. In August 1887 the board by resolution decided not to object to the plan, subject to the drainage works being executed to the satis-

faction of the surveyor. The six houses were completed, including a semi-detached pair called "Clyde" and "Avon" and another semi-detached pair called "Wye" and "Severn" respectively. In October 1894 a nuisance, owing to defective drainage, was discovered at "Avon," and the appellant served notice on the respondent to abate it. The respondent caused the ground to be opened, and for the first time ascertained that his premises "Avon," together with "Clyde," "Wye," and "Severn," were all drained by the drain belonging to "Avon." He refused to proceed with the work of repairing the drain beyond the point where it received the drainage of "Wye" and "Severn," contending that from that point the drain was a sewer vested in the board which he was not liable to repair. The appellant contended that the premises "Clyde," "Avon," "Wye," and "Severn" were drained by a combined operation within the meaning of the Metropolis Management Act 1855, and the Amendment Act 1862, under an order or direction of the board, and that the resolution of August 1887 was in point of law an order or direction to that effect, so that the respondent could not be heard to say that the drain was a sewer, and repairable by the board. The respondent contended that there was no order or direction of the board for draining the premises by combined operation within the Acts, and that the drain was a sewer from the point where it received the drainage of the premises known as "Wye." The learned magistrate was of opinion that the resolution of the board of August 1887 was not an approval of the existing system of drainage by reason of the variance between that system and the plan attached to the resolution; that in law the existing system was a sewer from the point where it received the drainage of the premises known as "Wye." The question was whether he was right in his decision.

The Divisional Court gave judgment for the respondent, holding that where a combined system of house drainage under section 74 of the Metropolis Management Act 1855 (18 & 19 Vict. c. 120) has not been carried out in the manner sanctioned by the district board of works, but the system is discovered, after a lapse of time, to be actually a sewer and not a drain, a successor in title of the building owner, who has failed to carry out the system originally sanctioned, when called on to abate a nuisance under the Public Health (London) Act 1891, is not estopped from saying that it is a sewer which the district board are liable to repair.

Kershaw appealed.

Mr. A. M. Channell, Q.C. (Mr. G. F. Marwood with him), appeared for the appellant, and Mr. E. Bray (Mr. Rignald Bray with him) for the respondent.

Their Lordships dismissed the appeal, being of opinion that the drain in question was not a "drain" within the meaning of section 250 of the Metropolis Management Act 1855, but was a "sewer" within the meaning of that section, which the district board were liable to repair.

The London Building Act 1894.

CROW v. REDHOUSE.

This was an appeal from the judgment of a Divisional Court upon a case stated by a metropolitan police magistrate on an appeal by Samuel Redhouse, under section 150 of the London Building Act 1894, against a decision by Mr. Arthur Crow, the district surveyor for the Whitechapel Spitalfields district. The proceedings before the magistrate (Mr. Dickinson) are reported at page 440, and before the Divisional Court (Mr. Justice Wills and Mr. Justice Wright) at page 603. The present appeal came before the Court of Appeal, consisting of Lord Escher, Master of the Rolls, and Lords Justices Kay and Smith, on the 29th and 30th July.

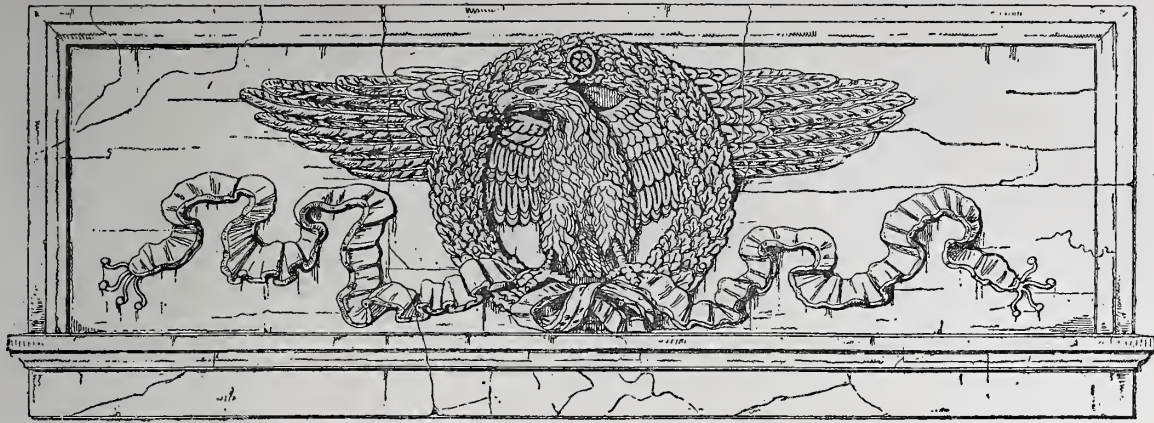
Section 150 of the London Building Act 1894 provides

that where it appears from the building notice served on the district surveyor under this Act that it is proposed to erect any building which will be in contravention of the Act, the district surveyor shall serve upon the builder or building owner a notice of objection, and it gives an appeal to a magistrate from this notice. Redhouse proposed to rebuild a six-storey warehouse, No. 3 Church Street, which in consequence of a fire was taken down as dangerous in November 1894 for more than one-half of its cubical extent, so that the proposed building would be a "new building" as defined by section 5, subsection 6, of the London Building Act 1894, which defines the expression "new building" as "any building which has been taken down for more than one-half of its cubical extent, and re-erected, or commenced to be re-erected, wholly or partially, on the same site after the commencement of this Act." A notice of objection was served by the district surveyor on Redhouse. The matters in the notice were, however, remedied, with the exception of the objections made to the use without thickening of a wall, forming the west boundary of the site, as the party-wall between the reinstated warehouse and the adjoining warehouse No. 1 Church Street, the said wall not being in conformity with the provisions of the Act as to new party-walls. Before the fire the party-wall had been the party-wall between Nos. 1 and 3. So far as the party-wall concerned No. 1, which had not been seriously injured by the fire, it had been reinstated in the course of the reinstatement of No. 1. These reinstatements had not amounted to the erection of a "new building" at No. 1. Redhouse appealed to the magistrate on the ground that he was not compelled by law to make the party-wall conform to the provisions of the Act of 1894. The extent to which the party-wall had been burnt and taken down in consequence of the fire amounted only to one-third of its superficial area. The remainder was safe. The party-wall had been erected in conformity with the previous Building Acts, but was not of the thickness required by the Act of 1894. Redhouse contended that as the party-wall had not been taken down, burnt, or destroyed to the extent of one-half thereof, by virtue of section 208 of the Act of 1894, the proposed use by him of the party-wall was not in contravention of the Act. Section 208 enacts that "unless in any case the Council otherwise allow, where a party-wall or external wall not in conformity with this Act has been taken down, burnt, or destroyed to the extent of one-half thereof (measured in superficial feet), every remaining portion of the old wall not in conformity with this Act shall either be made to conform therewith or be taken down before the rebuilding thereof." The surveyor, Mr. Arthur Crow, contended that the proposed re-erection being a "new building" within section 5, subsection 6, of the Act of 1894, the party-wall should be so erected as to comply with the provisions of the Act, and that there was no exemption enacted or implied in section 208. The magistrate held that Mr. Redhouse's contention was correct, and that he could not be compelled to take down, rebuild, or thicken the party-wall [p. 440]. In the Divisional Court Mr. Justice Wills held that the magistrate's decision was right, Mr. Justice Wright dissenting [p. 604]. The magistrate's decision was accordingly affirmed. The surveyor appealed.

Mr. Dickens, Q.C., and Mr. Daldy appeared for the surveyor; and Mr. R. Cunningham Glen for Redhouse.

The Court dismissed the appeal, the Master of the Rolls saying that they could not find any section in the Act which enabled the surveyor to deal with this wall. Section 10 of the former Act (the Metropolis Building Act 1855) seemed to have been dropped out of the present Act, and the Court could not read it in. As to section 5, that section merely defined the expressions used in the Act, and it was clear that it was not an enacting clause.

The Lords Justices concurred.



MAPS, PLANS, AND VIEWS OF THE CITY OF ROME,
WITH ESPECIAL REFERENCE TO A DRAWING, OF THE SIXTEENTH CENTURY,
IN THE BURLINGTON-DEVONSHIRE COLLECTION.

By Professor the Commendatore R. LANCIANI [*Hon. Corr. M.*], D.C.L.Oxon.

THE perspective view of Rome, reproductions of which are given on subsequent pages, ranks among the best documents for the study of monumental Rome about the middle of the sixteenth century (1562). I have seen the original, in the Library of the Institute, with the drawings of Andrea Palladio and others collected by the great Earl of Burlington, but I cannot avail myself of the notes I was kindly allowed to take at the time (September 1894), having left them behind in Rome; and as there are no reference books in this solitude of Vallombrosa, I must confine myself to a few remarks of a general character.

Before the publication of de Rossi's *Piante icnografiche e prospettiche di Roma anteriori al secolo XVI.*, which took place in 1879, the oldest map of value known to topographers was that of Leonardo Bufalino, edited in 1551. There is a mutilated copy of it in the Barberini Library, most negligently engraved on wood, which had been seen before the mutilation, and engraved on copper to a reduced scale by Nolli in 1748. In 1877 a perfect copy of it, in pen-and-ink, was discovered in the convent of the Cappuccini at Cuneo, the reproduction of which in fac-simile was entrusted to my care by Giuseppe Fiorelli, then Director of the Department of Antiquities for the Kingdom of Italy. Finally, in 1893, I succeeded in discovering a complete and unique copy of the original in the British Museum. I have not yet had occasion to speak of this valuable find.

De Rossi's work opened up a new field of inquiry. It proved beyond doubt that the periodical reproduction of maps of Rome was not interrupted, even in the darkest periods of the Middle Ages; and that they all followed an old Roman prototype of the fourth century, which in its turn descended from the great *Forma Urbis* engraved on marble in the time of Severus and Caracalla (Heinrich Jordan, *Forma Urbis Romæ*: Berlin).



It would be very interesting to follow the evolution of the prototype as it passed from hand to hand of copyists and illuminators at an age when even the fundamental notions of topography and cosmography were ignored. The irregular course of the city walls is transformed first into an oval, then into a circle; the monuments placed, not according to their site, but at regular intervals, and symmetrical with the meridian line. The written indications, however, had a better fate. We have the evidence of it in the *Itinerarium Einsiedlense*, which is not an abridged description of Rome for the use of pilgrims of the eighth century, as generally thought, but an index of names written on a map of the city, a copy of which,

engraved on silver, was offered to Charlemagne. The names are the same as on the old classic Roman maps, with the addition of those of some Christian churches and suburban places of pilgrimage.

Since 1879 the series inaugurated by de Rossi has received many valuable additions, the list of which can be found in Huelsen's article on the panorama of Rome now at Frankfort.* Among them I must mention "une vue inédite de Rome en 1459," discovered by the late Auguste Geffroy (in MSS. cc. 12 of the Library of Sainte-Geneviève, Paris), which contains the book *De Civitate Dei*, copied on vellum by Johann Goebel of Linz, and illuminated by Niccolò Polani for Nicolas Fortiguerra, Bishop of Teano. The view dates from 1459, and has been published by Geffroy in vol. xii., 1892, of the *Mélanges de l'École française de Rome*. Dr. Josef Strzygowski has given us a photographic copy of Cimabue's fresco in the upper Church at Assisi in his *Cimabue und Rom* (Vienna, 1888). A view of Rome painted in an oval of the chapel of the Palazzo Comunale at Siena, and dating from 1414, has been illustrated by Henry Stevenson in the *Bull. della Comm. Arch.* 1881. It is the work of Benozzo Gozzoli.

Besides the fresco of Siena there are other panoramic plans of the beginning of the fifteenth century: that of the *livre d'heures* of the Duc de Berry, published in the *Antiquités de la ville de Rome* (Paris, 1886); that of Leonardo da Besozzo, contributed by Ferdinand Gregorovius to the *Memorie della r. Accademia dei Lincei* (vol. xi. 1883); that of MSS. 104 of the private library of King Humbert of Italy at Turin, entitled *Figure Storiche* (1433); that of MSS. 9673 of the Bibliothèque Nationale, Paris; and that of Bicci di Lorenzo in the cloisters of San Bernardo at Arezzo. The celebrated fresco of Il Sodoma, in the cloisters of Monte Oliveto Maggiore, dates from 1505; and at that time the artist had never set foot in Rome. Above the mausoleum of Gregory XI., in the Church of Santa Francesca Romana, there is a bas-relief by Pietro Paolo Olivieri, representing the arrival of that Pope from Avignon, in which the view of the city is very interesting.

Dr. Thode, late Director of the Museum of Frankfort, purchased, in May 1890, from the Paulis Collection at Cologne, two panels representing the history of Mucius Scævola and of Horatius Cocles. The value of these paintings, attributed without reason to Filippo Lippi, and even to Paolo dell' Uccello, consists in the view of Rome, which runs through the background of both, from Santa Croce in Gerusalemme in the extreme left to the bridges of the Tiber on the right.

These conventional panoramic views mark the last stage in the evolution of the *Forma Urbis* before the art of investigating and directly measuring the ground came into fashion again. Classic Roman maps were simply ichnographic, as shown by the one engraved on marble at the time of Severus and Caracalla, now in the Capitoline Museum. Towards the fall of the Empire perspective or pictorial elements began to creep into them. In the map of the time of Charlemagne the site of the gates is not marked by an interruption in the line of walls, but by the orthographic sign , and the site of obelisks and pyramids by the sign . In course of time the geometrical form was entirely superseded by the perspective, and while the representations of the city became thus more intelligible to illiterate travellers and pilgrims, they gained in picturesqueness what they lost in exactness. Once this was adopted, each reproduction was evidently modified and altered according to the feelings or interests of the draughtsman. A map for the use of pilgrims would bring into evidence churches in preference to classic ruins, and give to the shrine of a martyr more space than to one of the great temples of the gods; but those inserted in books on cosmography were more honest in representing the truth. Under the German representatives

* *Buletino della Commissione Archeologica comunale di Roma. Serie Quarta.* 1892, p. 38. Professor Ch.

Huelsen's article treats of a perspective plan of Rome in the fifteenth century, with illustrations.

of the Holy Roman Empire a new type was adopted, indicating the site of the city by a group of its leading edifices—Pagan, Christian or Mediæval—massed together without any regard to their real location, and to their respective size. The oldest productions of this class are the vignettes of the Imperial seals, with the legend AVREA ROMA, from which are derived those illuminated in the *livres d'heures*, or painted as a background to historical frescoes.

The edifices which appear in documents of this sort are always the same: the Pantheon; the Mausoleum of Hadrian, with the mediæval fortifications around and above it; part of the Colosseum; one or two temples; the funeral pyramid near Santa Maria Traspontina, known as the Meta di Borgo; the obelisk of the Vatican, with the gilt globe on the pinnacle, containing, as tradition went, the ashes of Augustus; the torre delle Milizie, the torre dei Conti, and the columns of Trajan and Hadrian. If the artist had never seen Rome, his work amounted to a replica of the same conventional type; but if he had actually visited, and, perhaps, sketched its Pagan and Christian edifices, he improved the type by adding here and there some characteristic detail. Thus, in the miniature by Johann Goebel, dating from 1459, and in the view by Hartmann Schedel, dating from 1464, we see for the first time the figure of the angel on Hadrian's mausoleum, in its typical attitude of sheathing the sword. And when the tradition about the Pantheon being a temple of Cybele, the mother of the gods, is accepted by the learned men of the age, we see the dome crowned by a pine cone, as in the fresco of Benozzo Gozzoli in the Campo Santo di Pisa, in the *Pilgerfahrt* des Ritters Arnold von Harff, and in other contemporary sketches.

We come now to a far more important set of documents—to the panoramic views of the city, sketched from nature with or without the help of a compass or a goniometer. I shall not speak of the many I have met with in various European libraries, an account of which has not yet been before the public; but, in order to make this preliminary notice complete, I will mention the few already available to students.

First of all comes the circular view designed in pen and sepia by Martin Heemskereck, the original of which, formerly in the Destailleux Collection in Paris, is now owned by the Kupferstich Kabinet of Berlin. The artist has placed himself on the western summit of the Capitoline Hill, among the ruins of the temple of Jupiter Optimus Maximus, now covered by the Palazzo Caffarelli and by the garden of the German Embassy. The foreground shows the aspect of the historical hill in 1534, when the Palazzo dei Conservatori had not yet lost its mediæval outline at the hands of Michelangelo and Giacomo del Duca, and when the Palazzo Senatorio was still flanked and crowned by the battlemented towers of Boniface VIII. The western summit, where Heemskereck had seated himself to sketch, appears like a wilderness grazed by goats; a fact confirmed by the name of *Monte Caprino*, which still remains attached to it. Heemskereck's panorama was published in fac-simile by the German Archæological Institute in 1891, with a brief description by the late Commendatore de Rossi.

In the library of the Escorial there is a sketch-book of sixty-three leaves with drawings from the antique by an artist contemporary with Giuliano da Sangallo and Fra Giccondo da Verona. He must have visited and studied the monuments of Rome at the end of the pontificate of Innocent VIII. or at the beginning of that of Alexander VI. A sketch in sheet 39 is dated ROMA MCCCCLXXXI.; while in another we find a drawing of the pyramid known as the Meta di Borgo, destroyed by Pope Borgia in 1499. Eugène Müntz [*Hon. Corr. M.*] has contributed to the *Mélanges de l'École française de Rome* (vol. xii. 1892), two specimens of panoramic views by this unknown artist: one represents the Leonine city, as seen from the lower slopes of Monte Mario; the other represents the banks of the Tiber as seen from the Aventine, near Santa Sabina.

The panorama designed in pen-and-ink by Anton Van den Wyngaerde, the Antonio de

las Viñas of the Spaniards, the original of which, two metres long, I found among the 19,224 drawings and prints of the Sutherland Collection in the Bodleian, has been reproduced in facsimile in the *Bullettino della Commissione Archeologica*.* Anton Van den Wyngaerde has represented himself sitting in the centre of his panorama on the top of Constantine's Baths, which at that time (1560) towered on the Quirinal Hill, on the site of the modern palaces Rospigliosi and della Consulta. It would be out of place here to enter into a detailed account of this magnificent document, which has thrown so much light on the aspect and general state of the city about the middle of the sixteenth century.

What has been said in these introductory lines will enable the reader, I am sure, to appreciate to its full extent the value of the illustrations, in the present issue of the JOURNAL, reproduced from an original drawing in the Burlington-Devonshire Collection, now entrusted to the Royal Institute of British Architects. The drawing bears the following title:—

LA CITTA DI ROMA DELINEATA NEL PONTEFICATO DI PIO IV. L'ANNO MDLXII 1562.

The artist has placed himself east of the city, exactly above San Lorenzo fuori le Mura, on the road to Tivoli. The same point of view was selected by Leon Battista Alberti for his panorama of Mantua, and also by the author of the Frankfort panels. The topographical maps of the Romans were always oriented from north to south—that is to say, in the opposite direction to our own charts. The point was shifted from north to north-east and due east at the beginning of the cinquecento. Bufalino went to the other extreme, his celebrated plan being oriented from west to east, with the Janiculum at the foot of the sheet, and the Prætorian Camp above. Bufalino's innovation lasted for over two centuries because topographers and paysagists could not find a more suitable and commanding point of view than the Janiculum near the Porta San Pancrazio.

The author of the Burlington-Devonshire drawing has simply transformed into a *vue à vol d'oiseau* the geometrical map of Bufalino, of which two editions had already appeared in 1562. Every characteristic detail of the latter has been faithfully copied, even in cases of manifest blunders, when a glance at the ground surveyed would have made it so easy to detect them. Enough to quote one instance, concerning the branch aqueduct of the Aqua Julia, which supplied the fountain now called I Trofei di Mario. According to Bufalino this branch did not originate and detach itself from the main channel at the Porta San Lorenzo, but came straight in from the Campagna east of the city, skirting the eastern corner of the Prætorian Camp. This topographical fancy, which rests on no foundation whatever, which is not corroborated by the slightest vestige on the ground, is followed in the drawing. Its author, therefore, whoever he may be, has not sketched it from nature, nor has he represented what actually did fall under his eyes—he has simply given an orthographic form to Bufalino's planimetry. The two works complete each other: they made the topography of Rome intelligible even to illiterate pilgrims; they show us, not only where its monuments were located, but their aspect, their height, their architecture.

Documents like the present one cannot be illustrated without entering the *mare magnum* of the monumental history of Rome in its Classic, Mediæval, and Renaissance manifestations. The only practical comment possible is to point out those specialties which are not to be found in other contemporary works, like the network of roads which we see crossing the high grounds of the Esquiline, the Cælian, and the Viminal, and the suburban belt, each one of which marks a classic line of communication. We can single out the *Via Merulana*, connecting the Churches of San Matteo, SS. Pietro e Marcellino, and the Lateran, abolished by Gregory XIII. in 1575; the *Viens Longus* in the valley between the Quirinal and the

* *Anno XXIII.*—*Serie 4a*, 1895, p. 81, Plates VI.-XIII.: forming part of an article, by Professor Lanciani, entitled “Il Panorama di Roma delineato da Antonio Van den Wyngaerde, circa l'anno 1560.”

LA CITTA DI ROMA DELINEATA NEL PONTEFICATO DI PIO IV. L'ANNO MDLXII. 1562



COPYRIGHT

ENG. PHOTO SPRAGUE & CO LONDON

THE CITY OF ROME IN 1562

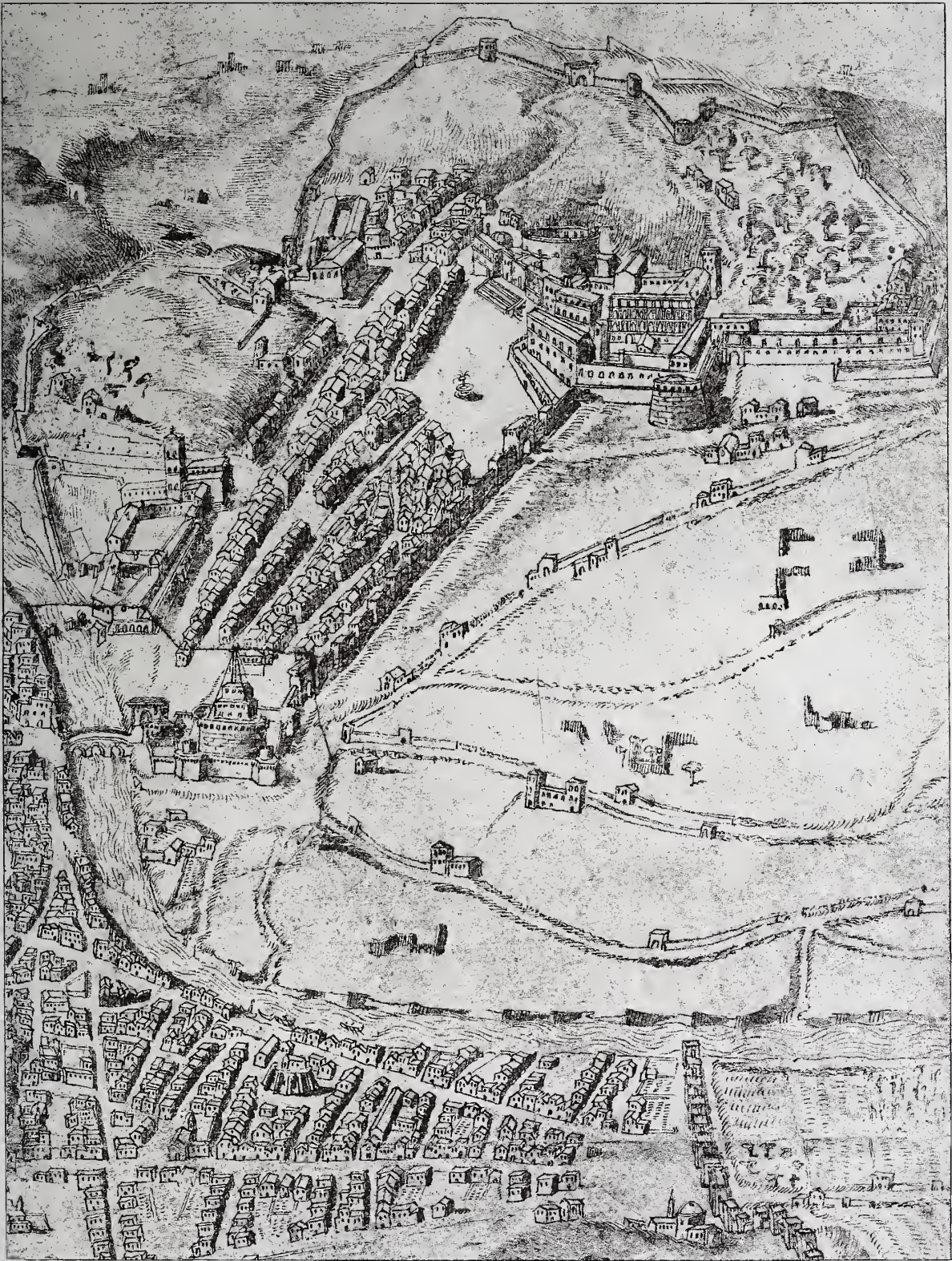
REPRODUCED FROM AN ORIGINAL DRAWING IN THE BURLINGTON-DEVONSHIRE COLLECTION



COPYRIGHT.

INK-PHOTO. SPRAGUE & CO LONDON.

PART OF THE CITY OF ROME IN 1562-A
REPRODUCED FROM THE ORIGINAL DRAWING IN THE COLLECTION.



COPYRIGHT.

INK-PHOTO. SPRAGUE & CO LONDON

PART OF THE CITY OF ROME IN 1562-B.
REPRODUCED FROM THE ORIGINAL DRAWING IN THE COLLECTION.

Viminal, suppressed in the time of Urban VIII.; the *Via Collatina*, issuing from the Porta San Lorenzo, which has disappeared since 1870; the *Alta Semita*, the *Vicus Patricius*, the *Via Cornelia*, the *Salaria Vetus*, and scores more.

The two sheets, A and B, reproducing parts of the drawing on a larger scale, are better suited for the study of details. At the bottom of sheet A we see the fountain of the Aqua Julia facing the Arch of Gallienus, with the "trophies of Marius" not yet removed from their niches to the Piazza del Campidoglio; the Church of Santa Maria Maggiore with the Apostolic Palace (by Baccio Pontelli) attached to it; the Churches of Sant' Andrea in Catabarbara Patricia, of San Vito in Macello, of Sant' Eusebio, of San Matteo in Merulana, of SS. Pietro e Marcellino with their cloisters and bell towers *alta tedesca*, and cemeteries.

The Church and Hospital of San Giacomo del Colosseo, destroyed during the Napoleonic invasion, stands near the amphitheatre at the corner of the Via dei SS. Quattro, which is marked by a cross. The Septizonium had not yet been overthrown by Sixtus V. and his accomplice Domenico Fontana; the Monastery and Church of San Gregorio in Clivoscauri had not yet been disfigured by Cardinal Borghese and Francesco Soria.

Other points which claim the attention of topographers in Sheet A are: the *Forum Boarium*, the area of which still remained free from modern erections; the *Turris Chartularia*, near the arch of Titus; the Church and Hospital of Santa Maria in Portico, now succeeded by that of La Consolazione; the *Pons Æmilius*, still in its perfect state; the Torre dei Conti, two storeys high; the Piazza del Campidoglio, undergoing its slow transformation; the arched passage of the *Forum Transitorium*, near the Church of SS. Quirico e Giulitta, called in the Middle Ages the Arch of Noah; the Cesarini palace and garden, near San Pietro in Vincoli, &c.

Sheet B is of extraordinary value for the study of the Borgo, of the Vatican group in 1562, and of the many lines of fortifications which protected them from local and foreign enemies. The walls of Leo IV. start from the Castle of Sant' Angelo at the Porta Castello, and run in a straight line to the Porta di San Pellegrino, transformed by Pius IV. into the Porta Angelica. They appear again on the other side of the Belvedere of Innocent VIII., and enclose the Pope's gardens as far as the Porta Fabbrica, which spans the old Via Cornelia. The polygonal fortifications, begun after the sack of 1527, form an outer line of defence. The basilica of St. Peter is half ancient, half modern; and while we see the drum of the cupola already towering above the roof of the Constantinian Church, the front part retains its old outline, with the marble steps leading to the Porta Argentea, which is flanked by the Loggia della Benedizione, built at the time of Pius II. by Maestro Aristotile, with columns removed from the portico of Octavia. The dome of the imperial mausoleum, then called the chapel of Santa Petronilla, and the pinnacle of the Vatican obelisk appear above the Presbytery on the left of the Silver Gate. The Castle of Sant' Angelo is most carefully sketched, with the four polygonal bastions built between 1492 and 1495 by Alexander VI., with the round tower raised by Antonio da Sangallo at the entrance to the Ælian Bridge, and with the Porta di Borgo, otherwise called the *Porta Sancti Petri*.

In the sketch of the city on the left bank of the river we notice but one classic monument, the Mausoleum of Augustus, with the garden of the Soderini family above it. There are four main streets: the *Via Leonina*, now Di Ripetta, opened by Leo X., between the Churches of Sant' Ivo and Santa Maria di Monte Santo; the *Corso*, following the line of the ancient Via Flaminia; the Via del Babuino, just traced through the orchards and gardens at the foot of the Pincian Hill; and lastly the *Via Trinitatis* (Condotti, Fontanella di Borghese, Tor di Nona of the present day), which connects the three arteries just mentioned with the Piazza di Ponte and the Borgo Vaticano. Few churches and palaces appear in the sketch, as this extreme

northern portion of the city had only just begun to be inhabited. We can trace out the Churches of Santa Maria del Popolo, of San Giacomo in Augusta, with the hospital attached to it, and of Sant' Ambrogio (now San Carlo al Corso), in the centre of the district inhabited by the Maestri Comacini and Lombardi, masons, carpenters, stonecutters, contractors, architects, from the Lakes of Como and Lugano, and from the banks of the Olona, who had flocked to Rome in quest of work. Among the prominent private buildings are the Palace of the Ruccellais (later Caetani and Ruspoli), at the corner of the Corso and of the *Via Trinitatis*; the Palazzo di Portogallo, now Fiano, near San Lorenzo in Lucina; the Palazzo di Baldovino del Monte, now di Firenze; and the house and bank of Bindo Altoviti.

One question remains to be answered, that of the authorship of this panoramic view of Rome in 1562. The fact that it has been preserved among the drawings of Palladio collected by the Earl of Burlington is not conclusive at all, because the Collection contains specimens by various hands, beginning from that of Raphael. I cannot even say whether Palladio was in Rome in 1562, though I remember that he is stated to have been present at the discovery of the *Fornix Fabianus* (a memorial arch to G. Fabius Allobrogicus, the conqueror of Savoy, which Palladio mistook for a sacred enclosure to the temple of Antoninus and Faustina); and that must have taken place about 1543.

Vallombrosa, 10th Sept. 1895.

OVERHEAD WIRES IN LONDON.

THERE were good reasons why the question of the removal of overhead wires should have been ignored when the London Building Act 1894 was in preparation. The task was of such magnitude, the opposition to be expected from interested sources too formidable to risk. No practicable scheme was forthcoming—or, if there was, it seemed too costly to carry into execution. Yet the difficulty will have to be faced, and the longer the delay the more difficult and costly must be the remedy. The complicated network of wires over the streets and buildings of the metropolis goes on increasing in ever-thickening density. It is more than ever a source of danger, though the possibilities of mishap are too little realised. Take, for instance, a building on the Viaduct approach by Holborn Circus. Its roof supports a structure to which are attached some fifteen to twenty score wires, radiating in seven or eight different directions. A fire in such a building is not so very remote a contingency. Conceive the effect of the sudden collapse of the structure, and three or four hundred red-hot wires crashing among the crowd a London fire never fails to attract. As long ago as 1886 representations were made on the subject generally to the Government by the Metropolitan Board of Works. Nothing, however, was done. The municipal authorities doubtless await a tardy sacrifice of Bishops to stimulate them to initiative action.

New York, Chicago, and other cities of the United States have long since abolished overhead wires. There the telegraph, telephone, and electric light wires are conducted underground, either in conduits or in tunnels beneath the pavement. Week by week Londoners have an opportunity of inspecting the crude method adopted of laying electric-light wires, and most people will agree that the system does little credit to the fag-end of this century. Miles of paving—wood, stone, and asphalt—have had to be raised, trenches dug, the wires laid, covered up with loose soil, and the road made good again. In a few days something is found to be wrong, and a large section of the work has to be done over again, at infinite cost of money and labour. Gas and water mains, which must be constantly under repair, can only be reached in a most awkward manner, at considerable cost, and often to the discomfort and inconvenience of the public.

It is idle to say that no remedy for such a state of things can be found. Money is cheap enough; millions of capital seek an outlet, thousands of men employment. A satisfactory return on the original capital sunk might be assured. But, after all, the financial aspect of the question is not the point. The interests of public safety demand an Act to regulate the fixing of overhead wires, which is as necessary to-day as was the Sky Signs Act a few years ago. The latter now forms part of the London Building Act 1894, and it should be supplemented, at the earliest opportunity, with an Overhead Wires Act. Here, at least, is practical work for the London County Council.



9, CONDUIT STREET, LONDON, W., 19 September 1895.

CHRONICLE.

THE ARCHITECTURAL ASSOCIATION.

Its Revised Curriculum.

The time-tables of 1895-96 [printed on pp. 671-75] of the courses of study organised by the Architectural Association for the respective use of Probationers and Students of the Institute have been expressly prepared in the interests of such of them as are eligible to apply for admission to the Intermediate and Final Examinations in 1897. These courses consist of instruction by competent teachers, both paid and honorary, in drawing and design in the Studio, and of Lectures and Classes; and the whole of the work is arranged to be done in the evening after half-past six o'clock. By this means an articulated pupil may attend to the duties of his master's office in the daytime; and may be often, it is to be hoped, encouraged by that master to prepare for his evening's studies during office hours. It must not, however, be forgotten that though the Studio Instructor, Mr. W. G. B. Lewis, only attends between 6.30 and 9.30 p.m., the Studios, both upper and lower, are open during the day, and always available to members of the Architectural Association. It may be assumed also that the Studios are also open to members on evenings when the Instructor does not attend; and that the newly arranged Classes of Design will assemble therein—that is to say, the Elementary Class of Design will meet in the Lower Studio, and the Advanced Class in the Upper.

The time-tables referred to are prepared in view of a complete two years' course of study for *Probationers*, and another entirely distinct two years' course for *Students*. There is nothing, however, to prevent gentlemen, who are preparing for the Institute Examination by means other than those provided at the Architectural Association, from taking one year's Studio instruction, either upper or lower, the fee for which includes the Class of Design, Elementary or Advanced. In the same manner a *Probationer* who is being trained elsewhere in drawing and design may take one year's complete course of Lectures and Classes in the A.A. Division I.; while a *Student* similarly circumstanced may take one year's complete course of

Lectures and Classes in the A.A. Division II.—as described in the *Brown Book* just issued.

But neither Probationers nor Students of the Institute should allow themselves to be misled into the belief that preparation for the Intermediate or for the Final Examination can be accomplished in the space of one year, even under the auspices of the Architectural Association. If they attempt this, no matter how clever they may be, they will most assuredly fail to pass. Year by year, from 1882 to the present day, the examination tests imposed by the Institute Board of Examiners have steadily developed, and increased in force and efficacy. The "testimonies of study" alone demand the unremitting attention and continuous labour of many months; and some idea of the character of the Intermediate and Final Examinations of the Institute may be obtained by outsiders from an inspection of the several series of testimonies of study which were rejected last year and this by the Board—to the dismay of too confident applicants for admission to those examinations. Whatever of laxity may have been permitted in the early years after candidature for the Associateship depended upon passing an examination, there is none now. To pass the "Intermediate" or to pass the "Final" at the present time is a far more serious ordeal than the opponents of examination, or even some Probationers and Students, are willing to believe; and the sooner the fact is known and understood, the better for all the parties concerned.

Following up a recent article [p. 577], entitled "The Examinations: Session 1895-96," it may be assumed that a youth, resident in London, having had a so-called good education, and possessing tastes, capacities, and worldly position which fit him for the art, profession, and business of an architect, is articulated, say, for three years to a metropolitan practitioner. Say, moreover, that he is fifteen years of age, and that he then claims and obtains full or partial exemption from sitting for the Preliminary Examination; or that he sits and passes it. His name is at once entered in the register as a Probationer. He then applies for admission to the Architectural Association, and is duly elected a member. At sixteen he takes the first year's study as laid down in the time-table [p. 671] for *Probationers*; and at eighteen has completed the two years' course, having made some, if not all, of his "testimonies of study" in the A.A. Lower Studio. He submits his testimonies, and if these be approved he sits at the Intermediate Examination, passes, and becomes a "Student R.I.B.A." at the close or a little after the termination of his articles. Another year elapses, during which he may have travelled, or entered another office as a junior assistant or "Improver"; he may have attended lectures on Modern Design (Mr. Statham's course), on Practical Design (Mr. Beresford Pite's course),

on Materials (Professor Kerr's course); or he may have taken up Quantity Surveying (Mr. Leaning's class), to his and his clients' ultimate advantage. All of these and several others are described as "Extra Subjects." Again, he may have availed himself of the facilities for acquiring technical knowledge offered by the class for Sketching and Measuring, and by the Discussion Section. But, whatever he may have done in an interim of freedom, he is now between nineteen and twenty years of age; and he should proceed to take the first year's study as laid down in the time-table [pp. 673-74] for *Students*. He will thus complete his second two years' course at twenty-one years of age, or at least during his twenty-second year; and before he is twenty-two he can enter for the Final Examination, qualifying for candidature as Associate, and on election for the certificate or diploma of "A.R.I.B.A." As in the former case, his testimonies of study will have been made under the eyes of competent instructors and well-known visitors of artistic distinction, in the Upper Studio; and there ought to be few, if any, of such testimonies below the standard of excellence required by the Institute Examiners.

Education in Edinburgh and Glasgow.

The Glasgow Chair of Architecture, established this year [p. 420] by the Governors of the Glasgow and West of Scotland Technical College, and filled by Professor Gourlay [A.], will probably be followed, ere many more years have passed, by the establishment of a similar Chair in the University of Edinburgh. The Chair of Fine Art in that University, filled by Professor Baldwin Brown [H.A.], has existed for some time; and it is gratifying to learn that the Senatus Academicus and the University Court have recently sanctioned the delivery during the next Summer Session of a Special Course of twenty Lectures upon Architecture, to be given by Mr. S. Henbest Capper [A.], M.A. The Course will cover the work required from Probationers in Divisions III. and IV. of the Intermediate Examination, and also in the Testimonies of Study (Science Section) required from Students for admission to the Final Examination.

An innovation of the Curriculum at Glasgow [p. 676] is the establishment of Day Classes, to be held twice a week from 9.30 until 12.30, in addition to the Evening Classes, which have been long in existence, and are now increased in number and importance.

The "Curves" of the Parthenon.

In the interesting communication [p. 633] from the author of *Architecture for General Readers* on the review of his book by Professor Baldwin Brown [H.A.] in the *JOURNAL* [p. 587], and in the Reviewer's reply [p. 671], reference is made to the "discovery" by Mr. Penrose of the Parthenon

curves; and in a fashion which, though only a slip of the pen by the accomplished writers, is likely to mislead many who know less of the facts relating to it than they. It would be more correct to state that optical refinements in the architecture of the Greeks were "discovered" by John Pennethorne, author of *The Geometry and Optics of Ancient Architecture*, a great work produced in 1878, with the assistance of Mr. John Robinson. The former left England in 1830, and, having spent a winter in Rome and a few months at Naples and in Sicily, embarked for Athens in 1832. After a minute study of the buildings on the Acropolis, especially of the coloured decorations remaining upon them, he left for Thebes in Upper Egypt, for the purpose of comparing the Egyptian and the Grecian temples—a comparison which convinced him that the origin of the ornaments employed in Grecian architecture and the Grecian ideas of colour were derived from the same Egyptian source. John Pennethorne, a brother of Sir James, returned to England in 1835. On his way home he stayed at Athens to study the entasis of Grecian columns, the curved profiles of the capitals and of the mouldings; and then he "saw no reason to doubt the assertion of Vitruvius, that the "horizontal lines were all convex lines." He paid a third visit to Athens in 1837, when he learnt that a German architect, resident there, had also observed a certain amount of convexity in the upper step of the Parthenon, which the French architect, J. B. C. Lesueur, attributed in his *Histoire et Théorie de l'Architecture* [80. Paris, 1879] to a sinking of the foundations at each extremity. Suffice it that Pennethorne first published the result of his Athenian investigations in a pamphlet entitled *Elements and Mathematical Principles of the Greek Architects and Artists*, 80. Lond. 1844. To that result Mr. Penrose referred on receiving the Royal Gold Medal in 1883, when he said: "It was my fortune to have "lighted upon what might be called an unworked "mine in Greek architecture. It was surveyed, "indeed, by Mr. John Pennethorne, who had been "two or three years earlier than myself in Athens, "and through whom I heard in the first instance "of this most remarkable feature." It was in February 1848 that Mr. Penrose, who was in Athens in 1845, read his first important Paper before the Institute, on the "Geometrical Lines "and Optical Corrections of the Greek Architects." Furthermore, he referred in the first edition of his *Principles of Athenian Architecture*, fo. Lond. 1851, to the matter thus: "There is a long interval between the time of Vitruvius and that of "the first notice of the fact upon the spot, and it "was not until the year 1837 . . . that the curvature was discovered by Mr. John Pennethorne, an English architect, then at Athens." That, at the present time, there should be any

misunderstanding of the position would be a cause of regret to the President, Mr. Penrose, with whose concurrence this is inserted.

The Old Cathedral of Geneva.

The story of the Cathedral of Saint-Pierre of Geneva is told, in a most interesting publication, in three *fascicules*, admirably illustrated, issued by the Association for the restoration of that edifice. These, with some sixteen photographs showing the state of the Cathedral prior to 1889, the course of the restoration, and the finished work, were presented a short time ago by Monsieur Viollier [*Hon. Corr. M.*], of Geneva, the architect of the Cathedral. A short account of the building, given in a letter received from him, may induce members to look at the photographs and the three *brochures* accompanying them. M. Viollier's letter is as follows:—

L'Eglise de Saint-Pierre de Genève, par ses relativement petites dimensions et la simplicité de son architecture, ne peut pas prendre place à côté des grandes cathédrales dont le moyen-âge a couvert l'Europe. Elle offre cependant un vif intérêt architectural pour celui qui est appelé à la voir de près. Son histoire est presque inconnue ou très-problématique. Les documents authentiques font défaut presque jusqu'à nos jours, et les archéologues risquent d'y user leur science en cherchant à lire son histoire sur ses murs.

Tant de causes diverses en ont troublé la conception primitive, tant d'époques et d'artistes différents ont dû y mettre leur influence et leurs mains, qu'il est très-difficile de suivre la marche de sa construction et de ses reconstructions. Et cependant le sentiment que l'on éprouve en entrant dans la nef est celui d'une excellente harmonie de lignes et de proportions; on subit une impression de grandeur et de tranquillité qui ne se retrouve pas dans beaucoup d'églises gothiques qui inquiètent souvent plus qu'elles n'élèvent par leurs hardiesses. Actuellement l'intérieur est dans un bon état de conservation, mais l'extérieur de l'église, nef, abside et tours, ont souffert au plus haut degré des injures du temps et plus encore des réparations des hommes.

Depuis la Réformation jusqu'au milieu du siècle passé les seuls travaux d'entretien ont consisté à enlever ce qui tombait en ruine. Au milieu du dix-huitième siècle la façade principale menaçant de s'écrouler, on la reconstruisit sous la forme d'un vaste portique corinthien. Les façades latérales ont été consolidées par des contreforts et des arcs-boutants, genre romain qui faisaient le plus triste effet combinés avec les fenêtres romanes et ogivales de la nef et des bas-côtés.

Notre siècle est en architecture un siècle de "Restaurations," une période archéologique; partout on relève les vieux monuments et on le complète tant bien que mal dans le style et l'esprit des anciens constructeurs. Genève n'a pas voulu rester en arrière: une société s'est formée pour conserver et faire revivre le monument le plus intéressant de notre passé. En dépit de difficultés techniques et financières, une notable partie du travail est déjà derrière nous.

Il vous a été transmis quelques photographies de l'état ancien de l'église et des travaux exécutés. Si ces travaux intéressaient les membres de l'Institut, je serais heureux de les tenir au courant de ce qui est fait et se fera dans l'avenir.

The Modified Reservoir at Philæ [p. 621].

L'Architecture, the Journal of the Société Centrale des Architectes Français, publishes in its

issue of the 14th inst. the reply of the French Minister of Foreign Affairs to the memorial of the Société Centrale on the subject of the Nile Reservoir at Philæ, or, to use the words of the Paris journal, "au sujet de la destruction dont étaient menacées les admirables ruines antiques de l'île de Philæ." The letter of the President of the Society, M. Charles Garnier [*Hon. Corr. M.*], to M. Hanotaux was duly published in the *JOURNAL* [p. 621], and the Minister's reply to him is here given:—

Paris, le 3 septembre, 1895.

MONSIEUR,—Vous avez bien voulu me faire part de la protestation formulée par la Société centrale des Architectes français contre le projet attribué au gouvernement égyptien d'autoriser la création sur le Nil de barrages qui pourraient entraîner la submersion de l'île de Philæ.

Je n'ai pas manqué de prendre bonne note de cette communication et d'en envoyer copie au gérant de l'agence et consulat général de France au Caire.

Je crois devoir ajouter que les études préalables nécessaires pour l'exécution des barrages dont il s'agit sont encore fort incomplètes et ne paraissent pas être sur le point d'aboutir. On ignore, par suite, sur quels points du fleuve seraient éventuellement construits les travaux projetés. De plus, on ne sait pas encore avec quelles ressources cette entreprise pourrait être exécutée.

Quoi qu'il en soit, le ministère des affaires étrangères ne perdrait pas de vue, le cas échéant, les préoccupations légitimes dont vous m'avez fait part au nom de la Société centrale des Architectes français.

Agréé, Monsieur, les assurances de ma haute considération.

G. HANOTAUX.

The late James Piers St. Aubyn [*F.*].

At the General Meeting of the 20th May last, Mr. J. P. St. Aubyn's death, which had occurred at his residence at Marazion, Cornwall, on the 7th of that month, was announced. He was the second son of the Rev. Robert St. Aubyn, and was born at Powick Vicarage, Worcester, on 6th April 1815. Several of his early years were passed at the Vicarage House of Perranuthnoe, a small parish in the west of Cornwall, about five miles from Penzance. He was educated chiefly at Gloucester, and began his professional career in that city as a pupil of Mr. Fulljames. On the completion of his articles he came to London, and in 1851 was appointed to the Surveyorship of the Middle Temple, an office he held until his retirement in 1885.

Numerous churches in various parts of the country were erected from his designs and under his supervision, including All Saints' and St. Luke's, Reading; St. Mary's, St. James's, St. Stephen's, St. Paul's, and St. Barnabas', Devonport; St. James-the-Less, Plymouth; Christchurch, Erith; St. Mark's, New Brompton; St. John's, Penzance; All Saints', Marazion; St. Anne's, Gunnislake, and Halsetown St. Ives', (Cornwall); St. Peter's, Revelstoke (Devon); St. Mary-the-Virgin, Clifton, Bristol; St. Clement's, Notting Hill, and many others. The church of Kilmaloda, County Cork, and the English church

at Dresden are his work, and he was responsible for a large number of restorations and additions to churches in all parts of the kingdom. Of the restoration of the Temple Church, London, which he carried out in conjunction with the late Sydney Smirke, he gave a description in a Paper read by him before the Institute in May 1864, entitled "An Account of the Repairs lately effected at the Temple Church, London," printed in the *TRANSACTIONS*, 1863-64. His domestic buildings include new Chambers in the Temple and precincts, and several country houses. He carried out for Lord St. Levan the extensive alterations and additions to the Castle at St. Michael's Mount; and designed numerous schools, school chapels, parsonage houses, and minor buildings of various kinds. In 1885 he gave up the active pursuit of the profession which he had followed with unremitting energy for upwards of fifty years, and retired to Marazion. His connection with the Institute dated back nearly fifty-nine years. He was one of the earliest members balloted for under the original Charter of King William IV., having been elected an Associate on the 27th February 1837. In 1856 he became a Fellow, and served on the Council during the years 1858 and 1859, and again from 1870 to 1872.

St. Aubyn was buried in the little churchyard of St. Michael's Mount. According to his wish, his body was carried over the causeway from Marazion to the Mount by eight carpenters and eight masons in relays of four of each trade.

Mr. Robert Williams [*A.*] sends the following personal recollections of Mr. St. Aubyn:—

Others have known and worked for and with the late Mr. St. Aubyn far longer than I have, yet I would fain be permitted to pay, in some humble and grateful fashion, my tribute to his memory.

One day, early in our acquaintance, it was my fortune to accompany my chief in a drive from a work in the country, and our conversation turned on architecture. Perhaps because of ignorance, I uttered a somewhat bitter complaint, to the effect that in this country there were no opportunities for the study of architecture save to those who, rightly or wrongly, were put to such studies by parents or guardians who could pay heavy premiums; in short, I complained that the Institute, as representing architecture, closed its doors to students of architecture as such alone. Whereat my old master fired at me in effect, and with true Cornish vigour replied:—"The way in England is open to all. The Institute is not unwilling to recognise merit. Its library is open to students on the recommendation of members; and, if you like, I'll recommend you."

To all who regard architecture from the five-per-cent. standpoint, the above words may mean little, but they meant much to me; and, later on, when within reach of Conduit Street, the kind offer

was gratefully acted upon. The great charm of working for Mr. St. Aubyn lay in the fact that he himself knew his work—blacksmiths, masons, bricklayers, carpenters, &c., often bore testimony to this. He was as much at home when taking up three tiles and putting them in position to explain "lap" and "margin" as he would be in arranging the details of a hammer-beam roof, and explaining why, for an optical reason, the beam should have a slightly upward inclination from the wall. He took a keen interest in the studies at the Art School, and when a certificate or prize was obtained his congratulations were always warm and kindly. Then there were the studies in planning and design. As time permitted, my chief would always criticise these, sometimes ruthlessly enough, and would occasionally improve the fine pencil lines of one's elevation with bold strokes made with a "B" pencil, a particularly black one, which, I half suspected, he kept on purpose for criticisms of that kind.

It is not for me to describe Mr. St. Aubyn's works, although I may say that I have been with him in several counties, have visited churches of his forty or fifty years old to make sketches of some detail as a guide. In his work will always be found strength, good detail, suitable material, and that which seems to me to be a good interpretation and translation, without servility, for modern purposes and usages, of our own unequalled and indigenous architecture. He would frankly confess to a fault. I remember his pointing out a feature which he considered faulty in an earlier work, and explaining why he would not do it again in the same way.

During a severe illness I saw another and a pleasing side of my old master's character. Unable to be at my post, he would come to my bedside, when his kindness and cheery talk about the work did more to help me get well than whole jorams of doctor's stuff. It is not easy to give expression to one's heartfelt thoughts without seeming to exaggerate. Could my thoughts shape themselves into words, I would say that I was drawn to Mr. St. Aubyn because he was strong enough and far enough above pride to repel all that was of mere professionalism.

The late John Colson [*F.*].

John Colson, who died at his residence in Winchester on the 21st ult., at the age of seventy-six, had been a Fellow of the Institute since 1858. He was the son of John Colson, of Hall Court, Shedfield, and served his articles with the late Owen Carter, of Winchester, having as a fellow-pupil the late George Edmund Street. On the completion of his articles he was engaged for a time as assistant in offices in London, and subsequently entered into a partnership at Norwich, which, however, turned out a failure. Returning to Winchester he started practice on his own

account; and, fortunate in securing the goodwill and influence of Dr. Sumner, the then Bishop of Winchester, soon laid the foundation of a very successful business. His practice lay principally in church architecture, and he designed and carried out the building and restoration of over 120 churches in Winchester and neighbouring dioceses, including new churches at Awbridge, Herriard, Fair Oak, Morestead, Ovington, Portsdown, Ramsdale, Sholing, Shalden, Stockbridge, Swanmore, Soberton, Bradley, Shedfield, Lockerley, St. Paul's (Wyke), and Hedge End, and extensive alterations and additions at Highfield (Southampton), Micheldever, &c. Other important works of his were the Diocesan Training College, Bishop Morley's College, and additions at Hoddington House for the late Lord Basing, besides many schools. He was appointed architect to the Dean and Chapter of Winchester in 1855. His chief work upon the Cathedral fabric consisted in the restoration of the west front about thirty years ago, and of the roof of the south transept.

Additions to the Library.

From Messrs. Crosby Lockwood & Co. has been received a useful little work, published by them in 1886, entitled *Trusses of Wood and Iron*: being practical applications of science in determining the stresses, breaking weights, safe loads, scantlings, and details of construction, with complete working drawings, by William Griffiths, Assistant Master of Tranmere School of Science and Art.

Der Zustand der Antiken Athenischen Bauwerke auf der Burg und in der Stadt, by Professor Dr. Josef Durm [Fo. Berlin, 1895: Wilhelm Ernst & Sohn], has been received from the publishers. The author, Signor Luca Beltrami [*Hon. Corr. M.*], has contributed a well-illustrated little work, *La Certosa di Pavia: Storia (1896-1895) e Descrizione* [Milan: Ulrico Hoepli, 1895], together with another recently published work of his, *Ambrogio Fossano detto il Bergognone* [Milan: Tip. Lombardi, 1895]. *Le Louvre et son Histoire*, by Albert Babeau, containing 140 illustrations, has been purchased.

Mr. John Hebb [*F.*] has presented to the Loan Library *Shottesbrooke Church, Berkshire*, being a series of illustrations of the church and its monuments, together with descriptive notes by Arnold Bidlake Mitchell [*F.*] [London: David Low, 1885]; and to the Reference Library a small pamphlet, entitled *A Short Account of Spring Gardens, and a List of Documents and other Objects Exhibited. Plaxtole: a Kentish Borough*, by J. Tavenor Perry [*A.*], the second pamphlet of the "Bye-Way" series [London: B. T. Batsford], has been received from the author. A Paper, *On the Discovery of some Remains of the Chapter-House of Beverley Minster*, communicated to the Society of Antiquaries by Mr. John Bilson, has also been received from the author [Westminster: Nichols

& Sons]. Mr. E. H. G. Brewster has sent a Paper on *Patents for Inventions*, read by him before the Civil and Mechanical Engineers' Society on the 18th January 1894 [London: Published by the Society]; the Executive Council of the Imperial Institute the *Supplement* to the Year-book of that Institute, comprising a Statistical Record of the Resources and Trade of the Colonial and Indian Possessions of the British Empire, compiled chiefly from official sources.

In accordance with the testamentary directions of the late Ewan Christian, a selection has been made from his books of such as were not contained in the Institute collections, and forwarded by Mr. C. H. Purday [*A.*], one of his executors. The following among them have been added to the Reference Library:—

Christian (E.) *St. Peter's Church, Wolverhampton.* Pamph. 8o. Wolv. 1852.
 Wilson (W. C.) *Helps to building Churches, &c.* 8o. 1842.
 Hall (F.) *St. Peter's Church, Wolverhampton.* 8o. Wolv. 1865.
 Gwilt (J.) *Equilibrium of Arches.* 3rd ed. 8o. Lond. 1839.
 Reid (D. B.) *Ventilation.* 8o. Lond. 1844.
 Billings (R. W.) *Kettering Church.* 4o. Lond. 1843.
 Dart (J.) *Canterbury & York Cathedrals.* Fo. Lond. 1755.
 Dart (J.) *Westminster Abbey (plates).* Fo. Lond. 1755.
Archæologia Cantiana. (11 vols.) Vols. viii., ix., xi.—xix. 8o. Lond. 1872-92.

The following to the Loan:—

Wilson (F. R.) *Churches of Lindisfarne.* 1a. 8o. Newc. 1870.
 Paley (F. A.) *Baptismal Fonts.* 8o. Lond. 1844.
 Neale (J. P.) and others. *Westminster Abbey.* Fo. Lond. 1856.
 Boutell (C.) *Monumental Brasses.* 1a. 8o. Lond. 1849.
 Hadfield (J.) *Ecclesiastical, Castellated, and Domestic Architecture of England.* Fo. Lond. 1848.

The following have been received from their respective Societies: *The Journal of Hellenic Studies*, vol. xv., part i. (Society for the Promotion of Hellenic Studies); *Transactions of the Edinburgh Architectural Association*, vol. iii. No. 1; *Transactions of the Essex Archæological Society*, vol. v. part 3; *Journal of the Sanitary Institute*, vol. xvi. part ii.; and *The Sanitary Inspectors' Journal*, being the first number of a new series.

Examinations at Allied Centres.

Should there be, as appears probable, a sufficient number of applicants, a Preliminary Examination qualifying for Registration as Probationer, and a Final Examination qualifying for candidature as Associate, will be held in Liverpool this November under the charge of the Liverpool Architectural Society. The "Preliminary" is timed to take place on the 12th and 13th, and the "Final" on the 22nd to the 30th November. Applications for admission to the former will be received in London not later than the 19th prox.; and the Testimonies of Study required from *Students* applying for admission to the latter must be submitted in London on or before the 1st November.

The Northern Architectural Association will also hold an Examination in Newcastle, this

November, if the number of applications made by residents in the locality, and accepted by the London Board of Examiners, justify it.

REVIEWS. XXXI.

(87.)

COLOGNE, NEW AND OLD.

WITH A COMMENT ON LONDON'S IMPROVIDENCE.

Köln und seine Bauten. Festschrift zur VIII. Wanderversammlung des Verbandes deutscher Architekten- und Ingenieur-Vereine in Köln vom 12. bis 16. August 1888. Herausgegeben vom Architekten- und Ingenieur-Verein für Niederrhein und Westfalen. Roy. 8o. Köln, 1888.

Not the least agreeable incident of the too short and hurried visit to London in May last of members of the Architects' and Engineers' Society of the Lower Rhine and Westphalia occurred on the occasion of the architect-members being entertained at dinner by the Council of the Institute [p. 505], when Herr Stübben, Vice-President of the Society, presented to Mr. Penrose for the Library, beautifully bound and suitably inscribed, the handsome volumes the subject of this notice. The value of the presentation is enhanced by the fact that these volumes are not published for general circulation, but are the sole property of the Society, and therefore not otherwise obtainable.

The volume relating to Cologne was produced on the occasion of the Eighth Congress of the United Architects and Engineers' Societies of Germany, which met in that city in 1888. Towards its production the co-operation of some thirty-six writers on special subjects has been made available, under the editorial direction of Herren H. Wiethase, K. Schellen, and J. Stübben, to whom, and probably especially to the latter, great praise is due for the manner in which the merits of the ancient and modern city have been displayed in the 806 pages of this portly volume, the concise and practical text being supplemented by no fewer than 599 illustrations and 8 plans. In this volume of the JOURNAL [pp. 506-508] a notice has already appeared of *Strassburg und seine Bauten*, which was produced by the Architects and Engineers' Society of Elsass-Lothringen on a similar occasion of a meeting at that city. These volumes do much honour to the civic and patriotic spirit of the Societies, and form extremely valuable records of the history and development of these monumental cities.

In *Köln und seine Bauten* Cologne is dealt with in a manner similar to that adopted in the more recent work on Strassburg, and divided broadly into two parts: (1) the architectural history from the earliest period; (2) the buildings, work, and situation of the present day.

The first part, which occupies 242 pages, with some 150 illustrations, is subdivided into six sections, dealing with the site and position of the city,

its Roman settlement, and Colonia Agrippina, or more fully Colonia Claudia Augusta Agrippinensis, the Carolingian period to 1220, the Gothic period, the Renaissance, and the modern period 1800-1880. The second part, in five sections, deals exhaustively with all that relates to the modern development of the city, its public monuments, private and commercial buildings, described in twenty-six chapters by specialist writers on each head—as the city plan and its enlargement; street construction, lighting, water-supply, drainage, public gardens, and monuments; wharves, railways, street tramways; postal buildings, schools and parsonages, museums, military edifices; law courts, &c.; infirmaries, bath establishments; abattoirs and markets; theatres, &c.; club houses, hotels and restaurants; private dwellings; business premises; commercial buildings, and factories.

To those who recollect the old city of some forty-five or more years ago the change and development, especially within the last twenty years, are indeed astonishing. The closely walled city, strongly fortified, entered only by winding roads across deep ditches and through narrow portals, has assumed a very different aspect. The old walls have disappeared, and a new enceinte has been formed. A belt of new town has been added, 700 yards in width and nearly four miles in length from north to south, around the western side of the city from Rhine shore to Rhine shore, which constitutes the Stadterweiterung, and forms the most interesting feature of its recent development.

This creation of a virtually new city has been attained through the happy circumstance of the old fortifications having become obsolete, and the construction of a new enceinte. In 1881 the city authorities arranged for the purchase from the German Government of the military works which then encircled the city, to be handed over to them in four sections, for a total price of 120 million marks—say £600,000. The demolition of the first section was commenced on 11th June 1881, and the fourth section was handed over to the city in June 1885.

On the site of these demolished works has been constructed a noble boulevard, or Ringstrasse, $3\frac{3}{4}$ miles in length—or rather a series of ten boulevards, or Rings, varying in width from 104 feet to the extreme of 370 feet, in which broad pleasure-grounds form the central feature. These splendid Rings are laid out in a varied manner, each having its special individuality, with double, triple, and quadruple rows of trees, central promenades, ornamental gardens, and pleasure-grounds. The buildings bordering them are similarly varied, those on the southern sections being villas set back with gardens in front.

The expenditure on laying out the Rings and incidental works has amounted to another twelve million marks—or, together with the cost of pur-

chase, about £1,200,000. The wisdom of the bold scheme adopted is amply shown by the fact that not only does the city derive incalculable benefit from the demolition of the old walls and the construction of the new Rings, public gardens, &c., but by the sale of the sites created by the work no less than twenty million marks—£1,000,000—had been obtained by 1888, and probably the plots unsold would fully make up the balance. Thus the city has gained the benefit of the improvement practically without cost.

Besides the land, the site of the military works acquired by the city, there was a wide zone nearly three times the area outside these works, and extending up to the new enceinte, which had been subject to the military law forbidding the erection of buildings thereon. Under the new condition of things this became valuable building land, and it has been laid out, under the direction of the city authorities, in broad and direct tree-planted streets with ample open spaces; and, with the land acquired from the State, it forms the great belt of new city, 700 yards in width, surrounding on the land side the old city.

Three of the chief gates of the old city have been preserved, and incorporated with the design for laying out the new zone: the Severinsthor on the south, the Hahnenthor on the west, and the Eigelsteinthor on the north. There have also been preserved the Ulrepforte, the Bayenthurm, and the Cunibertsthürmchen, and three lengths of the ancient wall, each from 70 to 120 yards in length, with the Bottmühlenthurm, the Ulredenkmal, and the Gereonsmühle, which together formed the most interesting features of the old works.

The contrast between what has been done in Antwerp, Strassburg, Cologne, and almost every city of Europe within the last twenty years, and what has not been done in London, which claims to be the metropolis of the civilised world, is indeed disheartening. The greatest aim of the Metropolitan Board of Works appears to have been to construct more or less "convenient cab routes"—laid out without the slightest regard to the beauty of the city, and so restricted in scope that only mean, unprofitable buildings could be erected on the cleared sites bordering them. Through apathy or ignorant indifference, they allowed the great boulevard of the New Road—a road protected by an Act of Parliament they permitted to be repealed—to become degraded to the mean, sordid, and miserable condition of the present Euston Road, Pentonville Road, and City Road, which constitute for the most part a disgrace to the metropolis. The Board and their predecessors thus sacrificed an opportunity of embellishing London never to be regained. The like policy of indifference has led to the destruction of the fine open roads on the south side of the river and generally around the metropolis, the same spirit

of mean greed having been allowed full swing without restraint.

Happily, the London County Council have now appreciated the evil permitted or encouraged by their predecessors, and credit is due to them for the steps taken to prevent its continuance. As regards real improvements, however, little has been done. The ratepayers' money has been squandered in seeking to establish principles of taxation—an imperial rather than a local task—to impose systems of betterment areas tending to the further spoliation of the ruined victims of the districts bordering on improvements. Necessary improvements—one at the least of which so unwisely abandoned may have now become practically impossible—they have declined to proceed with unless their political doctrines received the authority of the Legislature. The insane folly of the sacrifice of the Coal Duties has no doubt cramped the financial position, but it does not justify the waste of public and private money on the persistent but happily always defeated endeavour to attain political ends.

Meanwhile district after district is being added to London, and covered with mean tenements, which are erected without any regard to the convenience or beauty of the city. Each landowner does simply what seems right in his own eyes, controlled only as regards the width of the streets, and the very minimum of necessity of construction required by the Building Act. The rapacity of the greedy speculator covers every possible foot of land. His houses in 40-foot streets are built close up to the edge of the road, his land is laid out without regard to anything but his own profit, and no provision is made for open spaces for the recreation or health of the occupiers of the tenements out of which he makes his profit.

The London County Council, by their excellent work as regards parks and open spaces, have shown that they can do much for the health and pleasure of the inhabitants of this overcrowded metropolis. Might they not divert some of the energy expended on betterment, taxation of land values, the attempt to intercept the unearned increment and the like, and devise means by which they could obtain power to control the laying-out of building land within their limits, so as to prevent the continuance of the mischief now going on? Might they not secure that all new roads are made part of a general system; that sufficient open spaces are dedicated by the speculator to public use; and, generally, that the owners of estates to be laid out for building, and the speculators concerned therewith, shall be brought under stringent control? Might they not compel owners and speculators, by submission to such regulations, to contribute towards the amenities and convenience of that city by whose existence alone they are enabled to realise their profits? The result of such control would probably be an enhancement

of value exceeding the "sacrifice," as it would be termed, which would be rightly exacted from the owner.

To the great landowners, whom it is now the fashion to decry, London is deeply indebted for having, by their generous wisdom, saved it from becoming a meaner city than it is; and the suggestion now made is simply that a proper control should compel land speculators to make similar sacrifices for the benefit of their fellow-citizens.

In the interests of London it is of urgent importance that speedy measures should be taken to protect it in its suburban regions, and no better work could be done by the London Council than attempting thus to secure convenience and beauty in the laying out of all future building lands.

There is much to be learnt from the experiences of the Continental cities which have in recent years made such rapid advance, leaving London far behind; and, besides collecting this information from abroad, the London Council would do well to inquire what has been done in some English towns—Plymouth, for example—and then apply themselves to formulating a general scheme of control over building operations in London which may help towards the end all good citizens desire—that the metropolis shall no longer lag behind in the course of progress, nor be left still a victim of the greedy speculator.

Cölner Thorburgen und Befestigungen, 1180-1882. Herausgegeben von dem Architekten- und Ingenieur-Verein für Niederrhein und Westfalen, 1883. Oblong folio. 60 plates and 25 pp. of text.

When in 1881 the necessities of State doomed to destruction the fortifications forming the north, west, and south enceintes of Cologne, and led to the laying out of the new city, as described in the preceding article, the Architectural Society, to whom we are indebted for the important monograph on the city, desired to preserve a record of works so swept away, and on the sixty plates they have, by general plans and elevations, and by detailed drawings to a larger scale, represented those fortifications, and in particular some eighteen of the old gates and towers.

The reproduction in little of Reinhard's plan of 1752, showing the comparatively small area of the land within the walls then covered with buildings, is interesting, as is also the Plan No. 31, prepared by Herr H. Wiethase, showing the walls of (a) the chief town of the Ubii (oppidum Ubiorum), (b) of the Roman period, (c) of A.D. 950-1150, (d) from A.D. 1150 to 1300, (e) thence to 1880, (f) the new enceinte.

The contributors to this volume have been aided in their work by documents preserved in the city archives and otherwise accessible, of which the earliest is a bird's-eye view drawn on parchment, and dating from the fourteenth century; the next authority is also a drawing on parch-

ment, dated 1570; and so on to 1880, through some twenty-one authorities and collections.

The position of the city on the Rhine, and as a frontier settlement, gave it great importance, and the successive developments of its defences are exhaustively dealt with in six chapters describing the works constructed in successive periods from A.D. 1 to 1882, while the gates and towers occupy eighteen chapters of not less exhaustive historical and technical description. As the new wall built around the city in 1180 was the line of circumvallation cleared away in 1881, this history is, in fact, the history of the development of the defences of a city during this long period.

To Baumeister H. Wiethase, who has edited this work, great credit is due for the admirable manner in which he has fulfilled his labour of love, and utilised the contributions of great authorities and the materials placed at the disposal of the Society by the high officials of the State, and thus produced a monograph of considerable value as an historical record, and honourable in a high degree to the Society under whose auspices it has been produced.

ARTHUR CATES.

(88.)

THE MUNICIPAL BUILDINGS OF EDINBURGH.

The Municipal Buildings of Edinburgh: A Sketch of their History for seven hundred years, written mainly from the Original Records. By Robert Milner, Lord Dean of Guild. With an Appendix suggesting Improvements and Extensions to the present buildings in the Royal Exchange. Fo. Edin. 1895. Printed by order of the Town Council.

As the annals of an ancient city are in the main but an epitome of the history of the country of which it is the capital, so in like manner the history of its municipal buildings becomes that of its civic life, the record of its corporate existence, and the buildings themselves the outward and visible symbols of its dignity and power. It was so with the Curia of Rome, the Palazzo Vecchio of Florence, the Guildhall of London; though in neither of them, perhaps, is this more strikingly the case than in the Tolbooth of Edinburgh. Within an area of some 20,000 square yards, traversed by one of the most famous streets in the world, and nearly every inch of which is historic ground, in one kind of building or another the government of "Edina, Scotia's darling seat," has been carried on for over seven centuries, and still maintains an honourable administration worthy such a distinguished tradition.

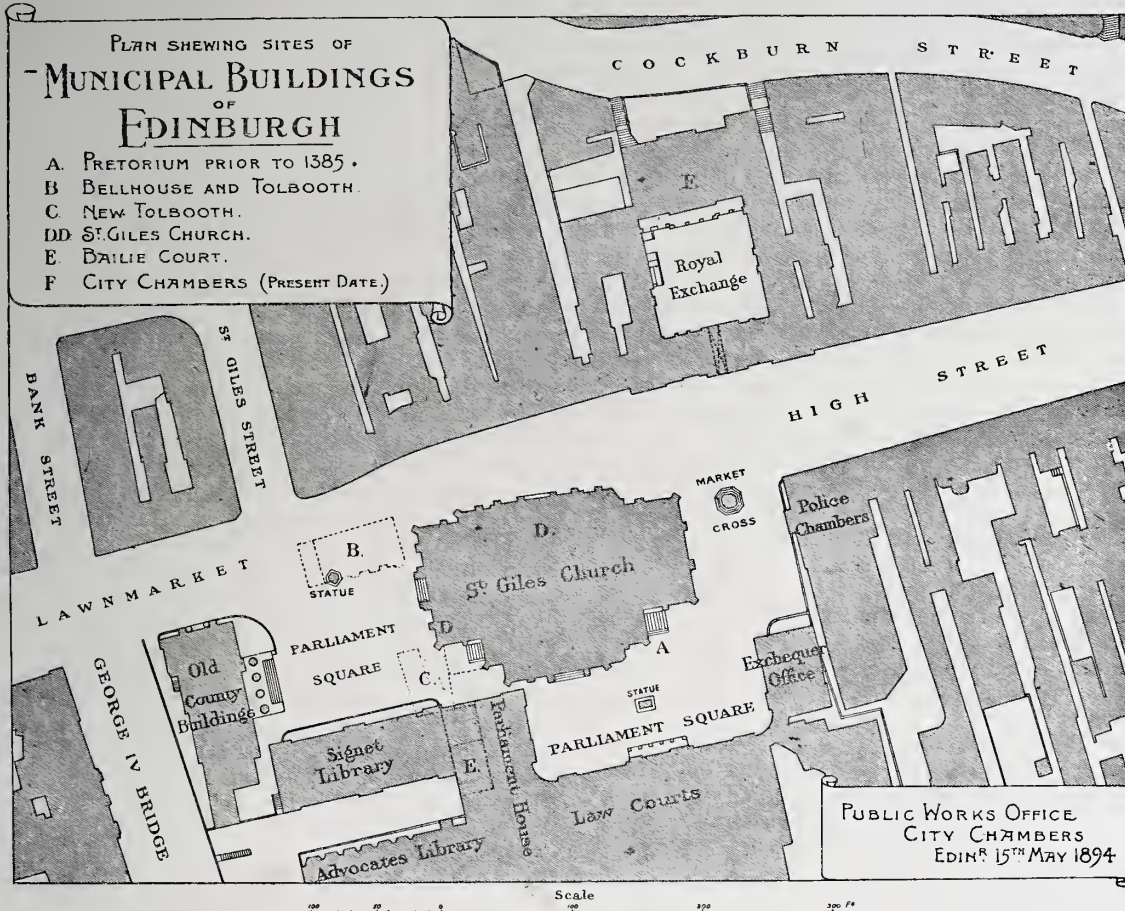
The Lord Dean of Guild—whose very title carries us back some 500 years—out of his abundant knowledge and with the assistance of the original records, sketches in this volume the story of the civic halls of Edinburgh. Beginning with a grant of David I. in 1145, he traces their varying fortunes till he foreshadows the "proposed

“improvements and additions to the present “municipal buildings” contemplated by the Corporation in this year of grace 1895.

The record is so full and circumstantial that to designate it a “sketch” savours of that dry humour his countrymen have always at their service. The book is full of local colour: it meets us on the very threshold, where, on the first page, the distinctive name of “tolbooth,” by which Scottish municipal buildings were generally known, is explained to originate in the tol-booth,

for the first time, when John de Quhitness held that office in 1377. In like manner, the “Bailies,” or magistrates of the burgh, though now peculiarly Scottish, was not always so. The Bailies were originally the bailiffs or stewards of the King, who collected the dues payable by his burghs, and as the King’s representatives became naturally his magistrates to administer justice to the people.

Of the first Tolbooth of Edinburgh little is known beyond its site. It stood at the south-east



or tax-house, the office where the rates and taxes were paid. This office and a room for the deliberations of those entrusted with the government of the town is the starting point of all municipal buildings as such.

Again, the origin of the titles of the chief magistrate and his council is full of interest. It will be a surprise to many that the title of “Provost” was not specially Scotch in the earliest period. “Mayor” seems to have been in general use by the end of the thirteenth century, and in Edinburgh “alderman” was used continuously till 1373. Four years after this “Provost” appears

corner of St. Giles’ Church, and is frequently referred to in the early deeds of the latter as the “Pratorium.” It perished in the burning of the city by the English in 1385, and nothing seems to be known of it architecturally. Its successor, the famous Tolbooth of Scottish history, and immortalised by Sir Walter Scott in his *Heart of Midlothian*, stood at the north-west angle of the same church, its site being granted to the town by Robert II. in 1386. It must have been built slowly, and probably at uncertain intervals, for apparently the tower was not completed till 1501. It had become ruinous by 1561, and was after-

wards largely rebuilt; but it lived on, though with many changes and renewals, through the storm and stress of four centuries: now as a market and council house, then as a home for the parliament and for the courts of justice, and lastly as a prison, till, long after its glory had departed, it was demolished as late as 1817. Its old entrance door found a resting-place at Abbotsford: the site was cleared, and is now marked by a heart worked in the street pavement.

Mr. Miller gives two views—an exterior and interior—of the building as it appeared during the eighteenth century, when, what with one alteration and another, but little of any architectural interest was left. It is shown as a gloomy, though picturesque, pile of four storeys in height, with a couple of circular staircase turrets and a crow-stepped gable on the south front. The north front, facing the historic High Street, is said to have been more ornate—to harmonise with the adjacent Church of St. Giles. The ground floor was mostly used for booths or shops, and a more modern projection of two storeys high towards the west was from 1785 to 1817 the common place of execution. The interior view shows the hall or guard-room. Architecturally it is of the poorest, but over the fireplace is the following inscription:—

A prison is a place of care—
A place where none can thrive,
A touchstone true to try a friend,
A grave for men alive.

When, in the year 1561, the old Tolbooth became inconvenient for the various purposes to which it was put, and sadly out of repair, Queen Mary ordered the Municipality to build a new Tolbooth, or council house, for the better accommodation of the courts of justice, under threat of their removal to some other town. But, as Mr. Miller says, the history of Edinburgh's municipal buildings for the next seventy years or more is "very confused and perplexing": nevertheless, he does his best to make clear the intricate story. The Town Council were most reluctant to comply with the Queen's orders, and little progress was made with the erection of the building. The works were stopped for want of money; stones "hewn and ready dressed" were taken from a dismantled chapel and used for chimneys and windows; money was borrowed and levies were made, until at last, on Christmas Day, 1564, it appears for the first time as the meeting-place of the Council.

The ruinous condition of the old Tolbooth, moreover, was made good, and it was practically converted into a prison; but during the building of the new Tolbooth we find the astonishing fact that "accommodation was found in the Church "of St. Giles both for the Town Council and the "Courts of Session." So that for many years after the new Tolbooth was finished and in use,

the portion of the church thus appropriated "formed practically one building with the edifice "that had been erected at its south-west corner, "with which it was connected by a doorway, so "that both church and council house were at "different times referred to by the familiar name "of Tolbooth." This tendency to cling to the skirts of the church, as it were, is remarkable—first at the south-east angle, then at the north-west, and afterwards at the south-west. The state of things above noted really continued until the "Parliament House" was built to relieve the church of the courts of justice, and Mr. Miller contends that St. Giles' was as much a municipal building as the old Tolbooth, and that all ecclesiastical arrangements were municipal duties. Nor were the clerical and the civic powers above exchanging obligations, for when, in 1633, King Charles commanded the Town Council to prepare St. Giles' as the cathedral church of the newly created diocese of Edinburgh, the congregation of the south-east parish were ordered to meet in the new Tolbooth. So things went on till in its turn the latter, never at any time a great success, was found wanting, and once more the worthy Corporation set about the business of providing themselves with a suitable habitation. Collections were made and subscriptions opened, with the result that the building still standing, and known as the "Parliament House," was erected between the years 1632 and 1640, at a cost of about £10,600.

Tradition says, as in the case of Heriot's Hospital, built during the same period, that its architect was Inigo Jones; but there seems to be about as little ground for the one as the other, with this to the contrary concerning the Parliament House, that in February 1633 the Town Council granted to one James Murray, Master of Works to the King's Majesty, the sum of £1,000 "for drawing "up the model for the works of the Parliament "and Council House presently intended." This looks remarkably like the architect; and, if so, there must have been fewer of them, or they were much better paid in those days, as at this rate Mr. Murray's commission was 10 per cent. on the outlay. The Dean of Guild gives a plan of the building and a view of the east front, from which we see that it was designed in a late type of Scotch Gothic, with square turrets at each corner, and a circular stair turret at the internal angle of the two wings. No roofs are visible externally, the walls being finished with an ornamental pierced parapet. The principal entrance was from the east, by a handsome doorway surmounted by the Scottish arms, supported by two figures of Mercy and Justice. In plan the building is in the form of the letter L, the main stem containing the famous Parliament Hall, 123 feet long by 42½ feet broad, the interior of which with its fine open timber roof is well known. Though originally divided it is now all in one apartment, and forms

the entrance hall to the Law Courts, as Westminster Hall did to those recently removed. Mr. Miller claims that it was always a municipal building, as it was built and maintained for nearly two centuries by the contributions of the citizens and out of the municipal funds, and that for a similar period it "was the public hall of the town."

Historically it equals in interest the old Tolbooth itself.

The Scottish Parliament Hall was the scene on which most of the history of Scotland was acted for the next seventy years, or found an understudy when the prominent performers were summoned elsewhere. Covenanters and Cromwellians, Jacobites and Williamites, Unionists and Anti-Unionists, held the stage in succession, until Scotland gave up her separate existence in 1707. Each overcame and suffered in turn, and when the steps of counsel had supplanted the steps of statesmen, it was here again that the wisest and strongest and acutest heads in Scotland won their laurels in a less tempestuous strife. Could the stones of the old Parliament Hall of Scotland speak, what a roll of matchless names they could number who have spoken within its walls! Here Montrose plotted and spoke in favour of liberty; here his old comrade Loudoun condemned him to death after his gallant struggle for his king. Here Cromwell's troopers lectured the people; here the Commonwealth leaders were feasted; here, also, after the Restoration, a banquet was given to the Royal Commissioner, the Duke of Albany and York. The "bluidy Mackenzie" was master here; and the Duke of York and the King's Advocate, as Mackenzie was then, tortured the unfortunate Covenanters in the halls below with thumbscrew and boot. The eloquence of Belhaven failed to prevent the Union that had been consolidated by English gold, when, in the brutal jest of the Chancellor, Seaforth, there went "the end of an auld song."

We pass over the first forty years of the eighteenth century, when Mr. Miller tells us the Town Council of Edinburgh occupied premises for municipal purposes in the south-eastern portion of Parliament Square, which are referred to in the Records by the name of the "Burrow-Room" and Council Chamber," and come to the erection of the present city chambers. The ever-growing requirements of the city demanded still further accommodation. After the suppression of the Jacobite rebellion of 1745 the trade of Edinburgh seems to have revived in a remarkable degree, and a project was started for erecting a Royal Exchange, the first stone of which was laid in September 1753. "But," as Mr. Miller quaintly observes, "as was usual with buildings of the kind in Edinburgh, some delay seems to have intervened." He gives us the terms of the contract for the erection of the building, from which it may be gathered that John Fergus was its architect. In the matter of a site the Corporation, this time, seem to have shaken the dust of the church from off their feet, and gone to the other side of the street. By various degrees the Quadrangle on the north side of the High Street was completed, very much as it has come down to our own time. The cost was about £20,000, but we are not enlightened on this occasion as to the

amount of the architect's commission; on the contrary he seems to have been mixed up with the contractors in some extraordinary manner, as one of the "undertakers for the building of the said Exchange," and as far as we can learn it turned out a very unprofitable "undertaking" for them all. By a somewhat curious arrangement the "undertakers" were allowed to dispose of various portions of the new building to private buyers, except that on the north side of the square intended for a Custom House and an office for the Chamberlain, which the magistrates retained in their own hands at a valuation—a creation of vested interests for which, as the sequel shows, the Corporation have since had to pay pretty dearly. Neither the Exchange nor the Custom House was a success as such. The merchants could not be induced to congregate in the one, and in 1809 the Court of Exchequer gave notice that the other would be required no longer. Next year it was resolved to convert this Custom House portion into a New Council Chamber, City Courts, and other offices, and in May of the following year, 1811, the Corporation took formal possession of what has ever since been known as the "City Chambers," and there we may conclude they intend to remain. Whether owing to the non-success of the project financially to the "undertakers," or to difficulties about the acquisition of the ground, "the square was never finally completed, as a building in Writers' Court now more than 200 years old was incorporated into the western side," and there it still stands, but practically the Quadrangle remains as it was built 140 years ago.

Architecturally it is of considerable interest, being in that phase of eighteenth-century Renaissance we may call Scottish Classic. The north side of the Square has an open rusticated arcade or loggia on the ground floor, built for the benefit of the merchants, who would not use it, with a pediment supported by four Corinthian pilasters in the centre of the front above, its tympanum being enriched with the City arms. The Dean of Guild gives a view which shows this, and the old house in the north-west angle above referred to. In proportion and detail it is a very fair specimen of the style of the time; for this reason, as well as historically, we are glad to hear it is to be preserved. A plan of the original Exchange is also given, showing the low arcaded range of shops on the south side, over the top of which a picturesque view of the Square is obtained from the High Street. Internally the Grand Staircase is plain almost to commonplace, appropriate enough, no doubt, to the business of a Custom House, but quite out of keeping as an approach to the City's Council Chamber. The latter is a handsome apartment of good proportions, though architecturally hardly worthy the capital of Scotland.

The long history of seven and a half centuries

is related by the Dean of Guild with great clearness and detail, notwithstanding he facetiously chooses to call it a sketch. It is full of references to authorities and documents, bewildering almost in their profusion, not to speak of the old Scottish dialect of many. It is relieved, moreover, by numerous historical notes, with stories of notable events and famous personages: Scott and Chambers are both laid under contribution to add interest to the tale. Mr. Miller is fortunate in his subject; it is not often such romance clings around the dry bones of civic history and musty records. The old Tolbooth lives again as in the pages of *The Heart of Midlothian*. And what a history it is! Among the stirring events that crowd each other during its existence none have a more tragic interest than the departure from it of the magistrates and the citizens to fight and die with the chivalrous King James IV. on the fatal field of Flodden, or the return to it of Randolph Murray bringing back the war-worn city banner when all was lost save honour. From it to his death went the great Marquis of Montrose, to be followed eleven years later by his enemy Argyll—"his heid affixt upone the heid of the "Tolbuith quhair the Marquis of Montrois wes "affixit befor." When we leave grim history and come to romance,

The real heroine of the Tolbooth is Effie Deans, whose name, with that of Captain Porteous, is well known to all from the pages of the Wizard of the North. . . . Every one who is interested in the legends of Edinburgh has felt the charm of a glamour stronger even than fact by which Sir Walter Scott has interwoven their fates with the history of the Tolbooth; every one has read, and can read there again, the narrative of the attack upon the Tolbooth in 1736 by the mysterious Porteous mob, the burning of its outer door when the iron-studded oak and the iron bars that guarded the gaol refused to yield to force, the snatching of Captain Porteous from the hole by which he had vainly hoped to escape, and the hurrying of the victim to his doom. It is part of the history of Edinburgh and of Scotland at the time.

One could almost wish that Mr. Miller's "sketch" had ended with that auspicious May Day in 1811 when the Lord Provost, magistrates, and Council "walked in procession to the new "council chambers and city chambers in the "Royal Exchange, of which they took possession, "and where all the city business will now be "transacted." What more fitting epilogue could any historian desire? But the mantle of authorship is not so easily laid aside, and the Dean of Guild, having called up the historic past, gives us also a glimpse into the future. The old grievance of inconvenience and want of room is as strong now as ever; the city's requirements again outrun the city's halls; consequently the inevitable "alterations and additions" have begun afresh. Yet the City Fathers, seemingly, have not learnt by long experience to do their enlarging thoroughly and be done with it. Just as in the seventeenth century, so it is at the end

of the nineteenth. Before the Parliament House was begun the Council contemplated a much larger design than was ultimately carried out. Says Mr. Miller, with his dry humour: "Large designs "with little performance are quite a feature of "Edinburgh history." Once more, in 1886, the Council contemplated a "larger design," nothing short of a "structure entirely new," and the Dean tells the story of the architectural competition that was the consequence. Nothing came of it except hard work to a number of architects and premiums to three of them. The Council apparently got alarmed at their own enterprise, or had not counted the cost. There were no "undertakers" this time to help them out of their difficulties, so, falling back on the "little performance," they have set about adding and altering here a little, and there a little, piecemeal fashion as circumstances and probably funds permit. One cannot but be thankful, in view of such indecision or vacillation of the corporate mind, that in the process the characteristic north side of the old Square is to be preserved as a connecting link between the old and the new; but the municipal courage evidently fails at making a clean sweep of the rest, and building a Quadrangle worthy of, and in harmony with, this central front. Mr. Miller generously furnishes plans and views of what is in contemplation, and truly, except in the matter of height towards the north, it is not a "large "design," or a scheme at all worthy of the historic capital of Scotland. One most sincerely commiserates their City Architect, who is carrying out the work, in being hampered with shops, and public-houses, and branch banks, when it is found as a consequence he is obliged to poke the proposed new Council Chamber away to one side in an internal angle, with anything but a stately approach, and to waste the magnificent north front on a refreshment room, hats and coats, lifts, and a couple of committee-rooms!

But with every word in favour of retaining the present site those who love the old city will cordially agree. To desert the historic High Street would be little short of sacrilege. It is truly said that it would be to the citizens "turning their backs "on their past," as if all the old associations were as nothing compared with some questionable increase of convenience. The regret is that what the Lord Dean of Guild calls "my proposals" are not conceived with that largeness of design, that dignity and breadth of view, demanded by such a site and such traditions. One expects to see the Council Chamber, the real Heart of Midlothian, a noble apartment in a central and distinguished position, not stowed away in an awkward corner, and the Quadrangle treated as an architectural whole, with the order of the centre carried along the east and west sides, and not cut up into vertical sections, as shown in the view of the "proposed building." At the same time Mr.

Miller is right, from "the architectural point of view," in his feeling for the arcade towards the High Street, only the arches that were probably good enough for some little fifth-rate shops are utterly unworthy as a dignified approach to such a Quadrangle as this might be made. Let us hope the City Architect will yet be given a freer hand, and full advantage taken of an opportunity as unique as it is rare.

The book is extremely well got up. It is printed by order of the Town Council, on excellent paper with large margins, and from clear, finely formed type. The illustrations, all full-page, are most interesting, the plans—emanating from the Public Works Office of the Corporation—being exceedingly well drawn. In the view of the Parliament House, reduced from a Dutch print of 1646, the building is called the "Curia." An interior view of the Parliament Hall might have been added with great advantage. One would commend the perusal of this work to all those interested in the development of municipal government and of the buildings in which it is carried on. The sum of the whole matter, as far as Edinburgh is concerned, cannot be more tersely put than in the closing remarks of the Dean of Guild:—

The present Municipal Buildings in the Royal Exchange have served the City of Edinburgh for nearly three quarters of a century; they succeeded a building, the new Tolbooth or Council Chambers, which had done duty for two centuries and a half; its predecessor, the old Tolbooth, had been the centre of the life of the burgh of Edinburgh—as it then was—for nearly two centuries before; before the old Tolbooth had been erected, another "Prætorium" or Tolbooth had existed, close to the present site, for we know not how many years. With these proposed additions and alterations the new City Chambers should outlive even the longest-lived of its predecessors, and hand down to generations to come the uninterrupted memories and traditions of a burghal and civic life whose headquarters have stuck tenaciously throughout the history of the town to that quarter of the High Street which is the centre of the Edinburgh of to-day, as it was also of the restricted Edinburgh of old.

J. M. BRYDON.

(89.)

PUBLIC WORKS, NEW SOUTH WALES.

Legislative Assembly, New South Wales: Report of the Department of Public Works for the year 1893-94. Fo. Sydney, 1894. Price 10s. [Charles Potter, Government Printer, Sydney, N.S.W.]

The Report of the Department of Public Works in New South Wales for the year 1893-94 in no way falls behind in interest those of previous years. The information contained in it and the photographs and plans with which it is accompanied make it very instructive reading. The first thing one notices in the Report of the Under Secretary for Public Works to his chief is a very large reduction in expenditure compared with that in former years, owing, as he points out, "to the "previous year having been one of unparalleled "depression in every department of the country's

"monetary" transactions." The Department of Public Works is divided into six branches—viz., Railways and Tramways; Harbours and Rivers and Water Supply; Government Architect's; Roads, Bridges, and Sewerage; Water Conservation and Irrigation; and Land Valuation. Of these, Railways and Tramways, Roads and Bridges, and Harbours and Rivers, are the chief items of expenditure.

In the Report there is a very complete and an interesting supplementary Report by one of the Assistant Engineers, Mr. E. B. Price, M.Inst.C.E., on the working of light railways of 3-feet gauge in Ireland. Some of these railways were constructed under old Acts of Parliament and some under the Act of 1883, but the results are not encouraging from a financial point of view, the working expenses being very high—as much as 106 per cent. in one case and 74 per cent. in another. But Mr. Price shows that where electricity has been generated by water-power, an electrically worked line costs only one-third of a line worked by steam propulsion, and that where steam-generated electricity is used the cost per mile is only one-half that of steam locomotives. The net result for the year of the working of the railways and tramways in the Colony, in spite of some as yet unproductive lines, shows a profit of 3.46 per cent. for the former and 4.07 per cent. for the latter on the capital cost.

In the Architect's Department much seems to have been done, of which the large and handsome buildings of the Lands Office and the Sydney Hospital are proofs. But the question whether less should be done in new buildings and more in repairs to the works already in existence is becoming one of serious consideration.

A great deal has also been done in the department for the supply of water. The photographs show a large aqueduct formed of two 6-foot wrought-iron tubes upon stone arches across Walli Creek. One would have thought that steel plates would have been lighter and cheaper, but no doubt there is some reason for the use of wrought iron. It is interesting to observe the success which has attended the boring of artesian wells, yielding large supplies of water. Not only has sufficient been found for the respective towns, but a surplus remains for irrigation and other purposes. This success seems to open up a hopeful prospect for Australia, many parts of which are so unapproachable for want of water.

Altogether the Report indicates the growth of the Colony, and the activity which prevails in the promotion of works tending to civilisation; and, although it is passing through a time of severe depression, we may hope that in time the extension of works of the kind will find occupation for their own growing population, as well as for some of that of this country.

RICHARD F. GRANTHAM.



ARCHITECTURE AT THE EXHIBITIONS OF THE ROYAL ACADEMY.

By R. F. CHISHOLM [F.],

FELLOW OF THE UNIVERSITY OF MADRAS.

THE fact that members of the Royal Institute of British Architects, formerly exhibitors at the Academy, have frequently had drawings, the work of their own hands, rejected, while room has been found for "picturesque" draughtsman's work, and such things as designs for Christmas cards, would seem to indicate that architects have a grievance—a grievance which gains in importance the more closely it is studied; for it touches directly the very existence of Architecture as a profession, apart from pure draughtsmanship and building—a combination already sufficiently strong to absorb a large quantity of actual work, and to diffuse a considerable amount of questionable taste. I venture to think that no professional man should delegate his work to others; whether he be lawyer, physician, painter, sculptor, musician, or writer, up to the last the man himself must be the executant. The profession of architecture should form no exception. The actual designing, the planning and arranging, and finally the accentuation of the useful and necessary in the elevations, must be done by *some one*; and if that some one is not the architect, the architect has ceased to be a professional man, except in a consulting position. Architecture becomes then a *business*, not a *profession*.

The simple questions connected with the treatment of architectural drawings might be met by hanging all works exhibited at the Royal Academy under the names of their respective authors, and not, as at present, under the names of the respective authors of the work portrayed: thus architectural drawing, being a fine art, would be exhibited under conditions in all respects similar to those under which the other fine arts are exhibited. Paintings, statues and engravings must each bear the name of the actual producer of the work, whereas an architectural drawing may be executed from beginning to end by an artist whose name may be entirely suppressed: that is to say, the painter of the portrait of the house is suppressed, so to speak, in favour of the name of the father of the portrait! Further, if this portrait conforms to

preconceived and, as I hope to show a little later, erroneous ideas of what an architectural portrait should be, the genuine work of a Fellow of the Royal Institute of British Architects is set aside, to honour a gentleman who never put pencil or brush to the work which bears his name! It would be difficult to invent any system more calculated to reduce the walls of the architectural room of the Royal Academy to the level of a hoarding for building advertisements—the most serious phase of the matter being that this position arises, not so much from a fair and impartial consideration of the actual merits of the works submitted, as an academical bias in favour of picturesque treatment. This line of action opens a wide door for thought and discussion, because if persisted in, and consistently carried out, architectural designing, the crown of an architect's labours, will in time be annihilated. If architecture be a fine art, there must be something of his own which the architect can exhibit to the public. What is that something—the building itself? Assuredly not, for the architect probably never laid a finger on it. Is it a *picture* of the building when finished? Let us hope not, or the unfortunate architect would have to take a back seat in favour of any accomplished artist. What, then, is that something?

Let us follow carefully the architect's work, from the time he receives his commission to the time when he signs his completion certificate. We see that his work is good, in direct proportion to his powers of invention; the manifestation of his inventive faculty is geometrical designing—a fine art. When we arrive at a clear conception of this, the futility of laying down laws to govern the mental processes becomes apparent; for, while inventing, the mind is much too absorbed to note the procession of thought, even if the operation could be subsequently rendered intelligible to others—which seems doubtful. We see, further, that the making of plans and sections does not constitute a fine art, although these may be necessary, within certain limits, to explain the restrictions and conditions imposed on the inventor, much in the same way as conditions of shape, size, &c., may influence a pictorial representation. A painter may gaze at an empty canvas until he mentally covers it with the composition he invents and afterwards portrays. In like manner an architect looking at the simple lines of a geometrical elevation, the development of well-thought-out plans and sections, invents the treatment he proposes to adopt, which he in his turn eventually portrays. He may think out the whole design in "two dimensions," or three dimensions, or a combination of both; but when he renders his design manifest, he must communicate it in *two dimensions only* to be useful to others—that is, in geometrical projection. This, as I said before, is the manifestation of his

inventive faculty; it constitutes the fine art—architectural designing. It is the only work of his own hands which the architect has to show, and it must be done in some form—let us hope by himself—before the picturesque perspective is “cooked” out of it.

Much misunderstanding might be avoided if we divided architectural work into two distinct classes, calling the pure draughtsman’s work architectural *drawing* and the architect’s work architectural *designing*, for there is as great a difference between the two as exists between painting and engraving. To produce an architectural *design*, the executant must bring to the task a knowledge of architectural style and command of detail, as well as a knowledge of construction and strength of materials; whereas to produce an architectural *drawing*, a knowledge of drawing and artistic effect is alone necessary. Indeed, the successful architectural draughtsman may be absolutely ignorant that a strut and a tie-beam are subjected to different strains. It by no means follows, however, from these considerations that an architect should not be an accomplished draughtsman; for, other things being equal, it is not too much to say that a man’s architectural ability is in direct proportion to his artistic knowledge. If the two forms of art be clearly kept in view, the draughtsman’s perspective will no more injure the architect’s elevation than a “Devonshire Lane” injures an allegorical picture. When an architect with the requisite ability takes the pains to finish an elevation for public exhibition, avoiding competition with professional draughtsmen’s work (which he can best do by avoiding picture-making), it is bad policy to set his work aside, as it discourages the particular aptitude which makes a good architect—artistic knowledge and ability.

If we compare the perspective and the elevation from a purely artistic standpoint we shall find the balance of advantages in favour of the elevation. The perspective exhibits truth of aspect from one particular point of sight, but the highest artistic efforts in this line are limited to monotone, for the following reasons. The nature of architectural work demands the use of the line, a purely conventional method of drawing; and having started with this form of expression, harmony is best preserved by continuing it to the finish. The general tendency, from the number of descriptive lines employed, is to produce a *grey* drawing, and the greatest artistic judgment is demanded to avoid grey without at the same time obliterating architectural detail. When this is successfully accomplished, the technical effort is as fine in its way as anything to be seen within the walls of the Royal Academy. Now colour on perfect work of this kind would be as offensive as colour on an engraving, like Macaulay’s painted eyebrow on the bust—the added truth which makes the whole a lie. Truth of colour is antagonistic to truth of line, and line

work so treated becomes more pleasing as we subordinate or obliterate the lines, and most pleasing when we have arrived at the truly picturesque with no lines at all—that is, when we have effaced the architecture and left a picture! Architecture is essentially an art of lines, and the attempt to picturesque it will lead to no better result than the attempt to suppress the leading of a stained glass window—to convert an art which must always remain decorative into a pictorial art.

Geometrical drawing, on the other hand, starts with the fundamental truth of the flat surface of the paper, and although we are living in days of impressionism, realism, and colour values, there are still artists who regard a picture more as a decorative object than as a framed hole cut in the wall; and if the highest forms of art find expression in decorative treatment, a purely decorative form of art, like geometrical drawing, would, in skilful hands, attain a higher point of artistic excellence than the purely realistic perspective. The flat surface favours boldness and beauty of line, purity and contrast of colour, and dexterity of execution; and if truth of aspect be valued, it may be adequately shown in a corner, by a perspective drawing not more than three inches square.

It has been said that an elevation misleads the outside public to imagine it a correct idea of the appearance of the building when finished. But this is exaggerating the importance of one appearance only—truth of aspect—for the elevation not only conveys a perfectly correct idea of what the building will be like when executed, but practically puts invisible scaffolds and ladders all over the façade, enabling the observer to reach and inspect every part of it, and to weigh and compare the harmony and proportion of its several features. He who is incapable of understanding an elevation is a man destitute of an educated eye, and it is obvious that the opinion of such a one on the architectural merits of a design depicted in perspective would be valueless. The competition system has done much harm in this direction, by attempting to popularise architectural drawing, and so to gain the approbation of men as incapable of judging design as persons without an ear are incapable of distinguishing one air from another. Educate the public in every way possible and raise the general standard of good taste, but do not lower art until the ignorant imagine they possess an understanding of it. We might, on the same principle, re-write the overture to *Lohengrin* in fat chords, to suit the ears of people devoid of musical education. The excellence of the exhibits in the architectural room of the Royal Academy can never be measured by the extent of its popularity. The section of the public which it is desirable to influence must always remain a small one, as architecture is as much a matter of

education as anatomy or botany, and the present "picturesquing" of the subject at the Royal Academy would find a parallel were a room devoted to botany filled with flower paintings, to the exclusion of those diagrams found necessary to explain the structural part of the science.

Let it be conceded that *architectural drawing* and *architectural design* are two distinct arts, to be treated on their respective merits, it may still be asked what connection exists between architectural design and building. On this point I think we may get some gleams of light by analogy, by considering the work of the constructor, either engineer or builder, with the work, say, of the physician. The labour in both professions may be conveniently divided into three processes—first, the planning, which corresponds to the diagnosis; secondly, the written directions, the prescription; and thirdly, the execution. There is not a vestige of fine art either in the one series or the other; but, if the builder or the engineer happen to be an artist, he adds as much fine art as he is capable of imparting to the second process, the prescription. It is easy to see now how a man may be an architect without being a builder, and *vice versa*. Modern practice and the curriculum of the Institute are both based on the assumption that the artistic aptitude already exists, and to this aptitude is added the knowledge necessary for a sound diagnosis, a scientific prescription, and skilful execution. If, to continue the parallel, physicians were compelled to come before the public, an exhibition of their patients would be as impossible and as futile as an exhibition of architects' houses, for neither made neither! The only thing the physicians could show would be their prescriptions, and provided these are legible—that the chemist can read the prescription, and the artisan the builder's drawing—it matters not a brass farthing how either the one or the other is prepared. Now let us suppose that the physician possessed another power, that he could not only make the patient well, but beautiful in addition, in direct proportion to the beauty of his calligraphy; then the writing of prescriptions would be a fine art! Of course it is as impossible in architecture, as in the sister art of painting, to draw a line and to say, Here building ends and architecture begins, or here daubing ends and painting begins. On the other hand we can say with certainty of many modern works, "Magnificent buildings, but execrable architecture," and of many ancient works (to wit, alas! Salisbury Cathedral), "Exquisite architecture, but very ignorant building." Now the tendency of the present policy of the Royal Academy, in encouraging draughtsman's work to the exclusion of architectural designs, is to lower the position of the physician, so to speak, to such a degree that the public will gradually learn to discard him altogether, and to divide their patronage between

another Madame Rachael and the chemist—the draughtsman and the builder. In saying this, I wish most emphatically to state that I possess the greatest possible admiration for pure draughtsman's work, which is really beyond the scope of the present remarks: it stands on its own merits; it occupies a distinct place in the graphic arts—beside still life studies and fruit and flower painting—and it is as capable of affording the beholder pleasure. It is equally remote from architectural design.

To conclude. The Royal Academy authorities would do well in the first place to rigidly exclude from exhibition, models, photographs, and objects which it is impossible ever to raise to the level of fine arts; secondly, to insist on the actual artist's name being entered on the catalogue as the producer of the work exhibited; and thirdly, to encourage, by fair treatment, the artistic efforts of *bona fide* architects, bearing in mind that if the executive excellence of these gentlemen fail to reach the high level attained by the professional draughtsman, the difference between the two, in artistic merit, is not greater than the difference sometimes found between pictures by Royal Academicians and their less conspicuously hung brethren of the brush.

NOTES, QUERIES, AND REPLIES.

EDUCATION IN THE HOME DISTRICT.

Not the least gratifying pronouncement made by Mr. T. G. Jackson, A.R.A., in his "Thoughts on the Training of Architects" [p. 636] is the opening sentence that "Throughout the land technical schools and institutes are rising, and attracting large numbers of students"—a statement repeated, in a description, by Professor F. M. Simpson, of the Liverpool School of Architecture and Applied Arts, and echoed in all parts of the country by critics and inquirers. Furthermore, it is now easy to detect the beginnings of a curriculum of architecture in most of the local museums and science and art schools originally established in a great measure by private enterprise and now assisted by funds at the disposal of municipalities. The change in popular feeling as regards education is everywhere discernible, and in the most unlikely places. Even the capital town on the Medway is alive—nay, enthusiastic—for the cause of science and art, in their most practical forms! Maidstone that, years ago, in the infancy of steam, forbade the South Eastern Railway to approach its walls—and was shunted into a siding for its folly—has established a school which is likely to exercise no little influence over a part of Kent more remote from the metropolis than Oxford or Cambridge, and yet but thirty miles off, as the high road tells. The rise of this school, and the possibilities of its future—

especially as a centre of architectonic instruction—cannot fail to interest both professional men and craftsmen; while the example thus offered to other towns more favoured by position and local industries than Maidstone is manifest. Hence a description of it, kindly furnished by a correspondent, is here given.

A Short Account of the Foundation of the Science and Art School, Maidstone.

This School is an example how great things grow out of very small and insignificant beginnings. The first suggestion to form art classes in Maidstone was made by the wife of the present Vicar of St. Philip's, the Rev. H. Collis, who, in his curacy of Banwell, Cambridge, had been Hon. Secretary of the National Schools. A warm supporter of education, and from very early life a great lover of art, he heartily adopted the suggestion to make an attempt to form an art class. Circulars were sent out to the neighbours, and the use of the Picture Gallery at the Museum obtained. The class opened on 29th January 1867, and an evening class was also held the same night. The number of students so increased that it was necessary to obtain larger premises; and in September 1867, through the kindness of the Earl of Romney, the Refectory of the old Benedictine College was hired at a low rent. The light was bad, and only one large room was available, but some very good work was done here. Several ladies and artisans showed considerable artistic taste, and one young man—the son of a local blacksmith—after a few years' instruction, adopted the calling of an artist, some of his oil paintings of Welsh scenery finding their way more than one year into the Exhibition of the Royal Academy.

In 1887, the townsmen, headed by the then Mayor (Mr. W. Day), were very anxious to mark the Queen's Jubilee by some gift to the town. The idea was warmly adopted of raising a sum of money to purchase the ancient palace of the archbishops, then standing vacant, and adapt one side of it for art and science purposes. In a very short time the money was obtained, and the Rev. H. Collis, Honorary Secretary of the School of Art, obtained by subscriptions a sum of £150, which was used to alter and adapt the rooms for the purpose of a school. Science classes were commenced in 1884, and science was greatly developed under the advantages of more accommodation. The number, too, of the students greatly increased. Here the work continued down to the summer of 1894.

It is of interest to say that until the year 1889 these classes had been entirely self-supporting, and were carried on by a general committee. The Technical Instruction Act was passed that year, and the Corporation responded to an application for assistance by an annual grant of £75: this gave a stimulus to the Committee and to the School. Representatives from the Corporation

joined the Committee, and the School became acknowledged as a town institution. The Town Council were urged to use the large help now obtainable from the new-formed County Council to erect a suitable building as a permanent home for science and art, and where both subjects might be pursued under the favourable circumstances of good light and all needful accessories. After long debates the Town Council decided in 1892 to devote the whole grant (except £100 for cookery) derivable from the County Council to art and science.

The needs of the School were sketched out by the Hon. Secretary, and it was decided, after much controversy, that the new building should be erected on ground belonging to the Corporation, and adjoining the Museum in St. Faith's Street. The first stone of the new School was laid in May 1893, and the new buildings were opened by the Duke of Cambridge in October 1894.

The ground floor of the building is devoted to science, and has an electricity lecture-room, Master's workroom, and physical laboratory; a store-room and Science-Master's room, two good-sized lecture-rooms, a large chemical lecture-room, with a laboratory accommodating twelve students at one time; also a room for wood-carving. Over the science rooms are the rooms devoted to art. First there is the Master's private room, then a large elementary art room. Beyond this is the Antique room, then the Modelling room and stores for models; the Painting room and the Life room. All these rooms have an aspect nearly direct north. In the basement are the Engineers' workroom, a large room now used for cookery by the County Council, and the heating apparatus. The whole building is most successfully lighted by electricity.

The effect of this larger and well-adapted building upon the technical education of the town may be estimated by the fact that this first year has seen the number of students more than doubled both in science and art, and it may be hoped that important and excellent work will be done in the years to come. The Honorary Secretary, the Rev. H. Collis, is now assisted by a permanent Assistant Secretary. It is possible that a like history of how some of our great science and art schools have grown to their present importance may be forthcoming, but, perhaps, it seldom happens, as in this case, that the original founder lives to see the results of his efforts. It should not be omitted that the architect and builders of these schools have been students in the early days when the classes were less favourably situated. There were many doubts about the building being too large, and likely to prove expensive, but so far these prophecies have not been realised. The tide of interest is rising in favour of such institutions, and they undoubtedly do much to raise the taste and the moral tone of

young men and women, and to enable England to take her place amongst other nations in these great and developing subjects of science and art.

University Extension College, Reading.

From CHARLES STEWARD SMITH [*F.*]—

I am sure that the College in Reading can be made very useful in preparing architects' pupils. It has been formed by the amalgamation of our schools of Science and Art with the University Extension Association. The development has been extraordinary. In a few years, thanks to the earnest co-operation of Christ Church, Oxford, and of the County Councils of Reading, Berks, Oxford, and Hants, a considerable centre of education has been evolved. Our course of study includes drawing, modelling, perspective, the principles of ornament (junior and senior), design, mathematics (junior, intermediate, and senior), practical geometry, mechanics (junior and senior), physics, construction (junior and senior), architectural design (two courses), and architectural historic ornament.

The College buildings, which date in part from the fifteenth and sixteenth centuries, have recently been adapted to their present use. In addition to lecture and class rooms, they contain a students' library, art studios, and biological, chemical, and physical laboratories. The staff consists of thirty lecturers and assistant lecturers; and, in addition, there are, in each year, courses of public lectures in science, history, and literature by well-known men. The students number about 600, and, for the convenience of those not residing in Reading, there are halls of residence or licensed lodgings under the supervision of the College. The position of Reading, midway between London and Oxford, gives to resident students two advantages: (1) That of having lectures from eminent lecturers who can easily get to Reading from either place. (2) The advantage of being able to pay visits to the public buildings, museums, and galleries both at London and Oxford.

The Technical School, Bedford.

From GEORGE HIGHTON [*F.*]—

There are no courses of architectural study in Bedford or Bedfordshire except such as are afforded, in some sort of way, at the Technical School, under the head of "Design." Not very much is being done in the town of Bedford, one of the greatest educational centres in England; and I often regret the lack of courses of elementary and advanced building construction, in conjunction with drawing, modelling, and design, when we find that there are 850 boys at The Grammar School; 600 boys at The Modern School; 1,475 boys at Elementary Schools.

A paper [*Education and the Arts*, in the Library] which I read a short time ago will give some idea of what I consider would be a step in the right direction; and if only the Institute could forcibly impress this upon the Head Masters, by

representation or otherwise, something might be done to embody an elementary curriculum of architecture with the several studies of the schools. The expense might be a drawback. Still, I think, in an important centre like Bedford, the Institute might well direct its influence and assistance to advance such a result.

Société Académique d'Architecture de Lyon.

The late Casimir Echernier, Président d'honneur.

From CHARLES LUCAS [*Hon. Corr. M.*], Paris—

Né à Albi le 16 février 1818, M. Casimir-Julien-Charles Echernier vint fort jeune à Lyon, où il fut élève de l'École des Beaux-Arts et d'Antoine-Marie Chenavard, le maître incontesté de toute l'école d'architecture lyonnaise du milieu de ce siècle et un professeur émérite autant qu'un architecte des plus complets, que l'Institut de France et l'Institut royal des Architectes britanniques ont tenu à honneur de compter parmi leurs membres correspondants.

Nombreuses sont les constructions dues à M. Echernier pendant le grand mouvement qui renouvela et transforma la ville de Lyon sous le second Empire, de 1859 à 1888, et il faut citer parmi elles tout un groupe de treize maisons, rue de la Bourse à Lyon; puis des hôtels et des villas à Lyon et dans les environs de cette ville, dans le département du Rhône, à Saint-Etienne et dans tous les départements voisins; on demanda même à notre confrère des résidences à Wiesbaden et dans le duché de Nassau; aussi la Société centrale des Architectes français couronna-t-elle la carrière d'artiste et de praticien de M. Echernier en lui décernant, au Congrès de 1888, sa grande médaille pour travaux d'architecture privée.

Cependant une grande partie, et peut-être la plus intéressante, de la carrière de M. Echernier fut celle qu'il consacra à administrer et à développer, à Lyon et dans le département du Rhône, les institutions d'enseignement et de beaux-arts, institutions auxquelles il donna le meilleur de son temps. C'est ainsi que M. Echernier était membre du Conseil des bâtiments civils du département du Rhône, conseil qui a une réelle importance; vice-président de la Commission des Musées et des Beaux-Arts de la ville de Lyon; président de la Commission administrative des Écoles municipales et de l'École nationale des Beaux-Arts de Lyon, et ancien président du Conseil d'administration de l'École professionnelle supérieure de La Martinière.

Les nombreux services, entièrement gratuits, rendus par M. Echernier dans ces diverses fonctions lui avaient valu les palmes d'Officier d'Académie et la croix de Chevalier de la Légion d'Honneur. Mais, plus encore, M. Echernier se dévouait à nos sociétés confraternelles d'architectes. Il fut le véritable fondateur, et était, avec

M. Gaspard André, président d'honneur de "l'Union Architecturale de Lyon," vaillante société de jeunes architectes encore parfois des élèves ; société datant des grands travaux de Lyon vers 1886-1887, et que nous ne saurions mieux comparer, toutes proportions gardées, qu'à l'Architectural Association de Londres ; en effet, les membres de l'Union architecturale de Lyon entrent le plus souvent, lors de leur trentième année, à la Société académique d'architecture de Lyon, de même que les membres de l'Architectural Association entrent à l'Institut royal des Architectes britanniques ; mais les membres anciens de l'Union Architecturale y restent à titre de membres honoraires continuent d'entretenir avec leurs plus jeunes confrères des relations précieuses pour la tenue et le bon renom de la profession d'architecte à Lyon.

M. Echernier appartenait depuis trente-six années à la Société académique d'architecture de Lyon, la plus ancienne et la plus florissante des sociétés d'architectes des départements et la seule qui puisse montrer, avec un légitime orgueil, la série presque ininterrompue de concours annuels d'architecture et d'archéologie, ainsi qu'une collection de remarquables volumes d'*Annales* auxquels M. Echernier avait collaboré de sa plume et de son crayon. Tour à tour secrétaire, vice-président et président de cette société, M. Echernier devait à la haute estime dans laquelle le tenaient tous ses confrères lyonnais d'en avoir été acclamé cette année président d'honneur, titre que seul, Chenavard, l'un des fondateurs de la Société, le 18 décembre 1829, avait porté avant lui.

M. Echernier était de plus membre titulaire résident de l'Académie des Sciences, Arts et Belles-Lettres de Lyon, laquelle, fondée en 1700, est une des compagnies les plus illustres de l'ancienne France, ne comprend qu'un nombre limité de membres associés émérites, titulaires et correspondants, et a pour sceau "l'autel de Rome et d'Auguste," tel qu'on le voit sur les médailles des premiers Césars romains avec cette légende : "Athenæum Lugdunense Restitutum." C'est comme discours de réception à cette académie que M. Echernier prononça, le 19 juin 1891, ses *Remarques historiques sur l'Architecture lyonnaise aux quatre derniers Siècles*, tableau sommaire démontrant, comme l'écrit M. Echernier, "le rôle prépondérant de l'architecture dans l'Histoire," et ajoutant : "L'Architecture a été, pour notre cité, le véritable thermomètre de sa vie sociale. Elle en a enregistré les pulsations saines ou morbides, et jusqu'à ses sentiments religieux et mystiques, avec une précision, on peut dire, infaillible."

La Société centrale des Architectes français comptait M. Echernier comme membre titulaire non-résident, et, dès la fondation, en 1884, de la Caisse de défense mutuelle des Architectes, ce confrère, si dévoué aux intérêts professionnels,

s'y était fait inscrire, en était devenu l'un des trois membres du Comité pour les départements et avait été appelé, il y a quelques mois à peine, à l'une des vice-présidences, en remplacement de feu Dormoy de Bar-sur-Aube.

M. Echernier mourut à Lyon le 25 juillet dernier, et après le service religieux qui fut célébré dans l'église d'Ainay, son corps fut porté au cimetière de la Croix-Rousse, où des discours furent prononcés par MM. Pascalon, président de la Société académique d'architecture, Armand-Caillat, représentant l'École des Beaux-Arts de Lyon, et Vaison, au nom de l'Académie des Sciences, Arts et Belles-Lettres de Lyon, tous trois donnant, ainsi que toute la presse lyonnaise, d'unanimes regrets à notre si aimé confrère.

The late A. E. Johnson [F.] of Melbourne [p. 625].

From LLOYD TAYLER [F.], Hon. Sec. for Victoria—

Mr. A. E. Johnson, at the time of his death, filled the position of President of the Royal Victorian Institute of Architects ; during his tenure of which office he not only delivered valuable and interesting lectures to the Institute, but, by his genial manners and hearty interest in all that concerned the advancement of the profession, became exceedingly popular. His death occurred suddenly on the morning of the day following that on which he gave his last lecture, and the sad news was received with sorrow and regret, not only by the profession generally, but by a large circle of intimate friends. The following cutting from the *Building and Engineering Journal* gives particulars of his career :—

Mr. Johnson was born in the south of England, in the year 1821. His father, who held high office in the Devonport dockyards, apprenticed his son when he was sixteen years of age to the sea. He left for the East Indies on board the good ship "Ann," but a seafaring life not being altogether congenial to his tastes, his father persuaded him to relinquish it ; and in 1838 he was bound for five years to a firm of architects, Messrs. Wigg & Pownall, of London. At an early age Mr. Johnson showed his eminent fitness for the profession in which he afterwards secured such notable success. Mr. Johnson subsequently studied in the offices of Sir Gilbert Scott and Mr. Philip Hardwick, afterwards becoming a partner of the late Sir Horace Jones, the City Architect of London ; and, in conjunction with Mr. Pearson, F.R.I.B.A. (the present architect to Westminster Abbey), he erected Weybridge Church in Surrey. In 1852 Mr. Johnson arrived in Victoria and soon obtained an extensive practice in Melbourne, engaging successfully in several public competitions, amongst the most important of which may be mentioned the Melbourne General Post Office and the Church of England Grammar School. He was afterwards connected for several years with the Public Works Department of Victoria, and, besides carrying out his design of the G.P.O. already referred to, he remodelled the Melbourne Custom House, and had charge of all the public buildings in the Melbourne district. He retired from the public service in 1875. . . . Mr. Johnson also held the position of diocesan architect. . . . His association with the Royal Victorian Institute of Architects as President for nearly two years will always be remembered with satisfaction. . . . In

1891 Mr. Johnson made an extended tour through Europe, collecting data for a series of able lectures.

The financial crisis from which Victoria is still suffering leaves very little money available for building purposes, and, in consequence, it still continues a day of very small things even with the leading members of the profession. There is a general consensus of opinion, however, that we have turned the corner; and we are all living in the expectation of a quiet, steady, though necessarily slow improvement in the financial conditions of the community.

“Architecture for the Public” [p. 633].

From Professor BALDWIN BROWN [H.A.], M.A.—

I am sorry that Mr. Statham does not agree with what I said about some architectural questions when reviewing his book the other day. Some of the points he raises are of purely archaeological importance, but that about a building having “a style” as well as “style” in the abstract has enough general interest to make an additional word upon it excusable. Nobody wants to bind an architect down to the mere reproduction of bygone forms, and to compel him to design classical Glyptotheks or Tudor Houses of Parliament, all grammatically correct and cold and uninspiring. It is quite possible to evince freshness of feeling and true originality, while at the same time avoiding that look of fuss and pretence which belongs to work the first object of which is to be unlike everything else of its kind. The truth is that architecture has caught a certain infection of lawlessness from her sister arts of painting and sculpture. These arts, in their revolt from the academic and the classical, have been trying a whole series of experiments with results of very doubtful value, and are showing signs now of a return to the old-established traditions. The architect on his side is trying after fresh qualities and new effects, and objects to any restrictions on his free inventiveness. Yet what he does best in these days is done essentially on the old lines, and where he is most “modern” he is often grievously disappointing. An illustration may be taken from a recent building that has attracted a good deal of attention—the Institute of Chartered Accountants, close to Moorgate Street, City. The great merit of the work is its free, living, but at the same time restrained, treatment of time-honoured classical features. The cornice is admirable, but it conforms to standard precedents. The carved terminal figures along the top of the ground storey are among the best pieces of architectural enrichment of recent times; but why? Simply because they are based on a well-established convention which secures to them solidity and dignity, while they have all the life and animation which a true artist will always impart to everything he touches. Why was the acanthus chosen for the necessary foliage motives, rather

than some native English plant which had never been used before? The acanthus was employed, no doubt, partly from its intrinsic grace and partly because, in that particular position on the building, familiar, and therefore unobtrusive, forms were in better taste than such as would have claimed undue attention from their novel character. And so on throughout the work. Wherever it has as its basis the matured style which in its various phases we call generally the “Classic,” it succeeds. When, on the other hand, an effort is made after something modern and striking, as in the heavy frieze of figures all along the front and side, there is an unpleasantly jarring note. These realistically treated people on the frieze are ugly in themselves, and out of all accord with the conventional effect of the well-considered composition of the building. They may be “actual,” but they are not artistic.

The straining after novel effects which is observable in not a few good modern buildings makes us value all the more such work as that of Wren, who was content to secure his effects by the most purely architectural means, without any reliance on play of detail, or colour, or any adventitious aids. When I said that a building should have “a style,” I meant that the element of restraint, and adherence to well-considered conventions, should play an important part in the design.

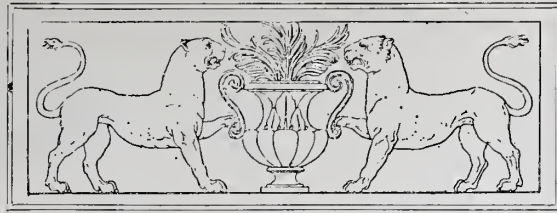
To turn for a moment to archaeological matters, Mr. Statham can hardly believe that I rely for my conviction of the wooden origin of Doric solely on the oaken column Pausanias saw in the Heræon at Olympia. The argument derived from that building is based on the remarkable discoveries made by the German explorers some twenty years ago, when they found that the columns of the Heræon appeared to belong to all sorts of different periods of Doric architecture, the only explanation being that the original columns were of some perishable material, and that as each one became unsafe it was replaced by one in stone, fashioned according to the pattern of the particular period when the substitution took place. Pausanias saw the last of the original columns of wood, and in the light of the discovery just mentioned his statement acquires quite a new interest and value.

On the wooden origin of the Classical Orders I would venture to base my theory of the beginning and development of mouldings. It is obvious that the mouldings of mediæval and modern times are all derived ultimately from those of the classical epoch, and that the Normans would never have used the roll moulding had not Roman monuments sent it down as a tradition through the Middle Ages. The mouldings of the Greek temple, especially as we find them in the upper parts under and on the roof of the portico, seem to me very like carpenters’ work; but we are not left here merely to personal judgment. Mr.

Statham asserts that he said nothing about the historical origin of mouldings because he knew nothing about it, and nobody else did. Let us see for a moment how this matter stands. The first moulding known in stone architecture is the familiar Egyptian cornice, and the evidence that the roll underneath it was once a wooden rod is quite indisputable. As it was the first, so it was practically the only, moulding known to the ancient world before the evolution of Doric. The early rude stone monuments show no approach to mouldings. There is no sign of mouldings in the earliest stone buildings of civilised man, such as the "Temple of the Sphinx" and the Pyramids in Egypt. The Phœnicians, who were among the most accomplished stone workers known to history, never produced a moulding, though they originated the essentially stone feature of the bossy treatment or rustication of their masonry. If the moulding had been a natural stone form, these great stonemasons of Egypt and Phœnicia would have done more for it than simply use it in one single form, and that a form borrowed from carpentry. Mouldings have their true origin among the Greeks, and are, I am convinced, at first an essentially timber feature.

I may note that with respect to the "curvature of horizontals" no one doubts their existence on the Parthenon, and on many other temples besides, or the immense merit of Mr. Penrose in discovering and measuring them. The point on which Professor Durm and others are sceptical is that of the origin and intention of the curves; and it is one of considerable difficulty as well as interest. I have "laid my eye along" almost all the accessible stylobate steps of Greek temples this side of Asia Minor, and have been completely mystified by the apparently accidental manner in which some of them show curvatures, while others, even in the same building, are completely level. The whole subject needs to be taken up by some one like Mr. Flinders Petrie, who would approach it from the point of view of physiological optics as well as of scientific observation and measurement.

Mr. Statham looks upon Professor Durm as only one among many German theorists of the old traditional school. His *Baukunst der Griechen*, based as it is throughout on his own personal observations and drawings, is a sufficient defence of him from any charge of the kind, and that he knows something practically about Greek architecture is proved by the fact that he has been selected to supervise the technical inquiry into the present condition of the fabric of the Parthenon. Professor Durm does not deny the existence of the curves discovered by Mr. Penrose, though his own measurements make them somewhat less regular. As to whether they were designed or accidental he expresses himself with a very judicious reserve.



ARCHITECTURAL EDUCATION.

THE CURRICULUM

OF THE ARCHITECTURAL ASSOCIATION, LONDON.

First year: for R.I.B.A. PROBATIONERS registered in March 1835 and previous years.

A.A. DIVISION I.

Date	Hours P.M.	Lectures, Classes, &c.	Masters
OCT. 1895			
1 Tu	7.30	{ Elementary Cl. of Design, Preliminary Meeting }	Special Visitors
2 W	—	—	—
3 Th	—	—	—
4 F	—	—	—
5 S	—	—	—
7 M	6.30-8.30	Greek Architecture	R. Elsey Smith
8 Tu	6.30-9.30	{ STUDIO	} W. G. B. Lewis
9 W		{ STUDIO	
10 Th	6.30-8.30	Greek Architecture	R. Elsey Smith
11 F	7.30	A.A. General Meeting	—
12 S	—	—	—
14 M	6.30-8.30	Greek Architecture	R. Elsey Smith
15 Tu	6.30-9.30	{ STUDIO	} W. G. B. Lewis
16 W		{ STUDIO	
17 Th	6.30-8.30	Greek Architecture	R. Elsey Smith
18 F	6.30-8.30	English Architecture	F. R. Farrow
19 S	—	—	—
21 M	6.30-8.30	Greek Architecture	R. Elsey Smith
22 Tu	6.30-9.30	{ STUDIO	} W. G. B. Lewis
23 W		{ STUDIO	
24 Th	6.30-8.30	Roman Architecture	R. Elsey Smith
25 F	8.0	A.A. Conversazione	—
26 S	—	—	—
28 M	6.30-8.30	Roman Architecture	R. Elsey Smith
29 Tu	6.30-9.30	{ STUDIO	} W. G. B. Lewis
30 W		{ STUDIO	
31 Th	6.30-8.30	Renaissance Architecture	R. Elsey Smith
NOV. 1895			
1 F	6.30-8.30	English Architecture	F. R. Farrow
2 S	—	—	—
4 M	8.0	R.I.B.A. Presidential Address	—
5 Tu	6.30-9.30	{ STUDIO	} W. G. B. Lewis
6 W		{ STUDIO	
7 Th	6.30-8.30	English Architecture	F. R. Farrow
8 F	7.30	A.A. General Meeting	—
9 S	—	—	—
11 M	6.30-9.30	{ STUDIO	} W. G. B. Lewis
12 Tu		{ STUDIO	
13 W	6.30-8.30	{ English Architecture	} F. R. Farrow
14 Th		{ English Architecture	
15 F	—	—	—
16 S	—	—	—
18 M	6.30-9.30	STUDIO	W. G. B. Lewis
19 Tu	—	—	—
20 W	6.30-9.30	STUDIO	W. G. B. Lewis
21 Th	6.30-8.30	English Architecture	F. R. Farrow
22 F	7.30	A.A. General Meeting	—
23 S	—	—	—
25 M	6.30-9.30	STUDIO	W. G. B. Lewis
26 Tu	6.30-8.30	{ English Architecture	} F. R. Farrow
27 W		{ STUDIO	
28 Th	7.30	Elementary Cl. of Design	Special Visitor
29 F	6.30-9.30	STUDIO	W. G. B. Lewis
30 S	—	—	—

Date	Hours P.M.	Lectures, Classes, &c.	Masters	Date	Hours P.M.	Lectures, Classes, &c.	Masters	
DEC. 1895				FEB. 1896 (contd.)				
2 M	6.30-9.30	STUDIO	W. G. B. Lewis	7 F	7.30	A.A. General Meeting	—	
3 Tu	—	—	—	8 S	—	—	—	
4 W	6.30-9.30	STUDIO	W. G. B. Lewis	10 M	—	{ STUDIO	W. G. B. Lewis	
5 Th	6.30-8.30	English Architecture	F. R. Farrow	11 Tu	6.30-9.30	{ STUDIO		
6 F	7.30	A.A. General Meeting	—	12 W	—	{ Materials and Elementary	F. R. Farrow	
7 S	—	—	—	13 Th	6.30-8.30	{ Construction		
9 M	—	—	—	14 F	—	{ Materials and Elementary		
10 Tu	6.30-9.30	{ STUDIO	W. G. B. Lewis	15 S	—	{ Construction	—	
11 W	—	{ STUDIO	—	17 M	6.30-9.30	STUDIO	W. G. B. Lewis	
12 Th	6.30-8.30	{ English Architecture	F. R. Farrow	18 Tu	6.30-8.30	Materials and Elementary	F. R. Farrow	
13 F	—	{ English Architecture	—	19 W	6.30-9.30	Construction	—	
14 S	—	—	—	20 Th	6.30-9.30	STUDIO	W. G. B. Lewis	
16 M	—	—	—	21 F	7.30	A.A. General Meeting	—	
17 Tu	6.30-9.30	{ STUDIO	W. G. B. Lewis	22 S	—	—	—	
18 W	7.30	Elementary Cl. of Design	Special Visitor	24 M	6.30-9.30	STUDIO	W. G. B. Lewis	
19 Th	6.30-8.30	{ Materials and Elementary	F. R. Farrow	25 Tu	7.30	Elementary Cl. of Design	Special Visitor	
20 F	7.30	{ Construction	—	26 W	6.30-9.30	STUDIO	W. G. B. Lewis	
21 S	—	{ Materials and Elementary	—	27 Th	—	—	—	
23 M	—	{ Construction	—	28 F	—	—	—	
24 Tu	—	—	—	29 S	—	—	—	
25 W	Christmas Day	—	—	MAR. 1896				
26 Th	Bank Holiday	—	—	2 M	6.30-9.30	STUDIO	W. G. B. Lewis	
27 F	—	—	—	3 Tu	—	—	—	
28 S	—	—	—	4 W	6.30-9.30	STUDIO	W. G. B. Lewis	
30 M	—	—	—	5 Th	—	—	—	
31 Tu	6.30-8.30	English Architecture	F. R. Farrow	6 F	7.30	A.A. General Meeting	—	
JAN. 1896				7 S	—	—	—	
1 W	—	{ Materials and Elementary	F. R. Farrow	9 M	—	{ STUDIO	W. G. B. Lewis	
2 Th	6.30-8.30	{ Construction		10 Tu	6.30-9.30	{ STUDIO		
3 F	—	{ Materials and Elementary		—	11 W	—	—	—
4 S	—	{ Construction	—	12 Th	—	—	—	
6 M	—	—	—	13 F	—	—	—	
7 Tu	6.30-9.30	{ STUDIO	W. G. B. Lewis	14 S	—	—	—	
8 W	—	{ STUDIO	—	16 M	6.30-9.30	STUDIO	W. G. B. Lewis	
9 Th	6.30-8.30	Materials and Elementary	F. R. Farrow	17 Tu	—	—	—	
10 F	7.30	Construction	—	18 W	6.30-9.30	STUDIO	W. G. B. Lewis	
11 S	—	A.A. General Meeting	—	19 Th	—	—	—	
13 M	6.30-9.30	STUDIO	W. G. B. Lewis	20 F	7.30	A.A. General Meeting	—	
14 Tu	6.30-8.30	English Architecture	F. R. Farrow	21 S	—	—	—	
15 W	—	{ Materials and Elementary	F. R. Farrow	23 M	6.30-9.30	STUDIO	W. G. B. Lewis	
16 Th	6.30-8.30	{ Construction		—	24 Tu	—	—	—
17 F	6.30-9.30	{ Materials and Elementary		—	25 W	6.30-9.30	STUDIO	W. G. B. Lewis
18 S	—	{ Construction	—	26 Th	—	—	—	
20 M	6.30-9.30	STUDIO	W. G. B. Lewis	27 F	—	—	—	
21 Tu	6.30-9.30	STUDIO	W. G. B. Lewis	28 S	—	—	—	
22 W	6.30-8.30	{ Materials and Elementary	F. R. Farrow	30 M	6.30-9.30	STUDIO	W. G. B. Lewis	
23 Th	6.30-8.30	{ Construction	—	31 Tu	7.30	Elementary Cl. of Design	Special Visitor	
24 F	7.30	A.A. General Meeting	—	APR. 1896				
25 S	—	—	—	1 W	—	—	—	
27 M	6.30-9.30	STUDIO	W. G. B. Lewis	2 Th	—	—	—	
28 Tu	6.30-8.30	Materials and Elementary	F. R. Farrow	3 F	Good Friday	—	—	
29 W	7.30	Construction	—	4 S	—	—	—	
30 Th	6.30-8.30	Materials and Elementary	F. R. Farrow	6 M	Easter Monday	—	—	
31 F	6.30-9.30	STUDIO	W. G. B. Lewis	7 Tu	—	—	—	
FEB. 1896				8 W	—	—	—	
1 S	—	—	—	9 Th	—	—	—	
3 M	6.30-9.30	STUDIO	W. G. B. Lewis	10 F	—	—	—	
4 Tu	6.30-8.30	Materials and Elementary	F. R. Farrow	11 S	—	—	—	
5 W	6.30-9.30	Construction	—	13 M	6.30-9.30	STUDIO	W. G. B. Lewis	
6 Th	6.30-8.30	Materials and Elementary	F. R. Farrow	14 Tu	—	—	—	
		Construction	—	15 W	6.30-9.30	STUDIO	W. G. B. Lewis	
		STUDIO	W. G. B. Lewis	16 Th	—	—	—	
		Elementary Cl. of Design	Special Visitor	17 F	—	—	—	
		Materials and Elementary	F. R. Farrow	18 S	—	—	—	
		Construction	—	20 M	6.30-9.30	STUDIO	W. G. B. Lewis	
		STUDIO	W. G. B. Lewis	21 Tu	—	—	—	
		STUDIO	W. G. B. Lewis	22 W	6.30-9.30	STUDIO	W. G. B. Lewis	
		STUDIO	W. G. B. Lewis	23 Th	—	—	—	
		STUDIO	W. G. B. Lewis	24 F	7.30	A.A. General Meeting	—	
		STUDIO	W. G. B. Lewis	25 S	—	—	—	
		STUDIO	W. G. B. Lewis	27 M	6.30-9.30	STUDIO	W. G. B. Lewis	
		STUDIO	W. G. B. Lewis	28 Tu	7.30	Elementary Cl. of Design	Special Visitor	
		STUDIO	W. G. B. Lewis	29 W	6.30-9.30	STUDIO	W. G. B. Lewis	
		STUDIO	W. G. B. Lewis	30 Th	—	—	—	

Date	Hours P.M.	Lectures, Classes, &c.	Masters
MAY 1896			
1 F	—	—	—
2 S	—	—	—
4 M	6.30-8.30	Formulas and Calculations	R. Holmes
5 Tu	6.30-9.30	STUDIO	W. G. B. Lewis
6 W			
7 Th	—	—	—
8 F	7.30	A.A. General Meeting	—
9 S	—	—	—
11 M	6.30-9.30	STUDIO	W. G. B. Lewis
12 Tu	—	—	—
13 W	6.30-8.30 8.30-9.30	Formulas and Calculations STUDIO	R. Holmes
14 Th			W. G. B. Lewis
15 F	7.30	A.A. Members' Soirée	—
16 S	—	—	—
18 M	6.30-8.30	Formulas and Calculations	R. Holmes
19 Tu	6.30-9.30 7.30	STUDIO Elementary Cl. of Design	W. G. B. Lewis
20 W			Special Visitor
21 Th	6.30-9.30	STUDIO	W. G. B. Lewis
22 F	—	—	—
23 S	—	—	—
25 M	Whit Monday	—	—
26 Tu	—	—	—
27 W	—	—	—
28 Th	6.30-9.30	STUDIO	W. G. B. Lewis
29 F	6.30-8.30	Formulas and Calculations	R. Holmes
30 S	—	—	—

JUNE 1896			
1 M	6.30-9.30	STUDIO	W. G. B. Lewis
2 Tu	6.30-8.30	Exam. Practice & Revision	—
3 W	—	—	—
4 Th	6.30-8.30	Exam. Practice & Revision	—
5 F	6.30-9.30	STUDIO	W. G. B. Lewis
6 S	—	—	—
8 M	6.30-9.30	STUDIO	W. G. B. Lewis
9 Tu	6.30-8.30	Exam. Practice & Revision	—
10 W	—	—	—
11 Th	6.30-8.30	Exam. Practice & Revision	—

Second Year : for R.I.B.A. Probationers registered in March 1895 and previous years.

The second year of study would commence with the month of October 1896, and terminate during the second week of June 1897. A Probationer would in this year (A.A. Session 1896-97) prepare the Testimonies of Study which he has to submit for admission to the Intermediate Examination qualifying for the grade of Student. He would therefore require for a second year the use of the Studio, and continue his attendance in the Elementary Class of Design. He would also take the remainder of the Lectures and Classes in the A.A. Division I.—viz. Elementary Physics, as applicable to Building and Calculation of Strengths, &c., under Mr. Holmes; Plane and Solid Geometry, under Mr. Holmes; with Mensuration, Land Surveying, and Levelling, under Prof. H. Adams.

Fees for the Two Years' Course (exclusive of the A.A. Entrance Fee and Annual Subscription).

	£	s.	d.
Studio, and the Elementary Class of Design (68 evenings)	5	5	0
Greek and Roman Architecture (8 lectures and classes)	12	6	
Nature of Ordinary Building Materials and the Elementary Principles of Construction (16 lectures and classes)	1	7	6
English Architecture to the year 1550 (12 lectures and classes)	1	0	0
Formulas and Calculations (4 lectures and classes)	7	6	
	8	12	6

SECOND YEAR.			
	£	s.	d.
Studio and Elementary Class of Design	5	5	0
Elementary Physics as applicable to Building and Calculation of Strengths, &c. (8 lectures and classes)	12	6	
Plane and Solid Geometry (8 lectures and classes)	12	6	
Mensuration, Land Surveying, and Levelling (8 lectures and field demonstrations)	12	6	
	7	2	6
TOTAL—Two years' course £15. 15s.			

First Year : for R.I.B.A. STUDENTS registered in 1894 and previous years.

A.A. DIVISION II.

Date	Hours P.M.	Lectures, Classes, &c.	Masters
OCT. 1895			
1 Tu	7.30	{ Advanced Class of Design : Preliminary Meeting }	Special Visitors
2 W	—	—	—
3 Th	—	—	—
4 F	—	—	—
5 S	—	—	—
7 M	6.30-8.30	General History, with Features, Mouldings, and Ornament	F. R. Farrow
8 Tu	6.30-9.30	STUDIO	W. G. B. Lewis
9 W			
10 Th	6.30-8.30	General History, with Features, Mouldings, and Ornament	F. R. Farrow
11 F	7.30	A.A. General Meeting	—
12 S	—	—	—
14 M	6.30-8.30	General History, with Features, Mouldings, and Ornament	F. R. Farrow
15 Tu	6.30-9.30	STUDIO	W. G. B. Lewis
16 W			
17 Th	6.30-8.30	General History, with Features, Mouldings, and Ornament	F. R. Farrow
18 F	—	—	—
19 S	—	—	—
21 M	6.30-8.30	General History, with Features, Mouldings, and Ornament	F. R. Farrow
22 Tu	6.30-9.30	STUDIO	W. G. B. Lewis
22 Tu	7.30	Advanced Class of Design	Special Visitor
23 W	6.30-9.30	STUDIO	W. G. B. Lewis
24 Th	6.30-8.30	General History, with Features, Mouldings, and Ornament	F. R. Farrow
25 F	8.0	A.A. Conversazione	—
26 S	—	—	—
28 M	6.30-8.30	General History, with Features, Mouldings, and Ornament	F. R. Farrow
29 Tu	6.30-9.30	STUDIO	W. G. B. Lewis
30 W			
31 Th	6.30-8.30	General History, with Features, Mouldings, and Ornament	F. R. Farrow
NOV. 1895			
1 F	—	—	—
2 S	—	—	—
4 M	6.30-8.30 8.0	General History, with Features, Mouldings, and Ornament	F. R. Farrow
5 Tu			
6 W	6.30-9.30	STUDIO	W. G. B. Lewis
7 Th			
8 F	7.30	A.A. General Meeting	—
9 S	—	—	—

Date	Hours P.M.	Lectures, Classes, &c.	Masters
NOV. 1895 (<i>contd.</i>)			
11 M	6.30-9.30	STUDIO Advanced Class of Design	W. G. B. Lewis Special Visitor
12 TU			
12 TU			
13 W			
14 TH	—	—	—
15 F	6.30-8.30	General History, with Features, Mouldings, and Ornament	F. R. Farrow
16 S	—	—	—
18 M	6.30-9.30	STUDIO	W. G. B. Lewis
19 TU	6.30-8.30	General History, with Features, Mouldings, and Ornament	F. R. Farrow
20 W	6.30-9.30	STUDIO	W. G. B. Lewis
21 TH	—	—	—
22 F	7.30	A.A. General Meeting	—
23 S	—	—	—
25 M	6.30-9.30	STUDIO	W. G. B. Lewis
26 TU	—	—	—
27 W	6.30-9.30	STUDIO	W. G. B. Lewis
28 TH	—	—	—
29 F	6.30-8.30	General History, with Features, Mouldings, and Ornament	F. R. Farrow
30 S	—	—	—
DEC. 1895			
2 M	6.30-9.30	STUDIO	W. G. B. Lewis
3 TU	6.30-8.30	General History, with Features, Mouldings, and Ornament	F. R. Farrow
4 W	6.30-9.30	STUDIO	W. G. B. Lewis
5 TH	—	—	—
6 F	7.30	A.A. General Meeting	—
7 S	—	—	—
9 M	6.30-9.30	STUDIO	W. G. B. Lewis
10 TU			
10 TU	7.30	Advanced Class of Design	Special Visitor
11 W	—	—	—
12 TH	—	—	—
13 F	6.30-8.30	General History, with Features, Mouldings, and Ornament	F. R. Farrow
14 S	—	—	—
16 M	6.30-9.30	STUDIO	W. G. B. Lewis
17 TU			
18 W	—	—	—
19 TH	—	—	—
20 F	7.30	A.A. General Meeting	—
21 S	—	—	—
23 M	—	—	—
24 TU	—	—	—
25 W	Christmas Day	—	—
26 TH	Bank Holiday	—	—
27 F	—	—	—
28 S	—	—	—
30 M	—	—	—
31 TU	—	—	—
JAN. 1896			
1 W	7.0-8.15	Materials: their nature and application	Professor Kerr
2 TH	7.0-8.15	Materials: their nature and application	
3 F	—	—	—
4 S	—	—	—
6 M	6.30-9.30	STUDIO	W. G. B. Lewis
7 TU			
8 W	7.0-8.15	Materials: their nature and application	Professor Kerr
9 TH	7.0-8.15	Materials: their nature and application	
10 F	7.30	A.A. General Meeting	—
11 S	—	—	—
13 M	6.30-9.30	STUDIO	W. G. B. Lewis
14 TU	7.0-8.15	Materials: their nature and application	Professor Kerr
14 TU			
	7.30	Advanced Class of Design	Special Visitor

Date	Hours P.M.	Lectures, Classes, &c.	Masters
JAN. 1896 (<i>contd.</i>)			
15 W	—	—	—
16 TH	7.0-8.15	Materials: their nature and application	Professor Kerr
17 F	6.30-9.30	STUDIO	W. G. B. Lewis
18 S	—	—	—
20 M	6.30-9.30 8.0	STUDIO R.I.B.A. Addresses to Students	W. G. B. Lewis
21 TU			
22 W	7.0-8.15	Materials: their nature and application	Professor Kerr
23 TH			
24 F	7.30	A.A. General Meeting	—
25 S	—	—	—
27 M	6.30-9.30	STUDIO	W. G. B. Lewis
28 TU	—	—	—
29 W	7.0-8.15	Materials: their nature and application	Professor Kerr
30 TH			
31 F	6.30-9.30	STUDIO	W. G. B. Lewis
FEB. 1896			
1 S	—	—	—
3 M	6.30-9.30	STUDIO	W. G. B. Lewis
4 TU	—	—	—
4 W	6.30-9.30	STUDIO	W. G. B. Lewis
6 TH	—	—	—
7 F	7.30	A.A. General Meeting	—
8 S	—	—	—
10 M	6.30-9.30	STUDIO	W. G. B. Lewis
11 TU			
11 TU	7.30	Advanced Class of Design	Special Visitor
12 W	—	—	—
13 TH	—	—	—
14 F	—	—	—
15 S	—	—	—
17 M	6.30-9.30	STUDIO	W. G. B. Lewis
18 TU	—	—	—
19 W	6.30-9.30	STUDIO	W. G. B. Lewis
20 TH	6.30-8.30	Construction	F. R. Farrow
21 F	7.30	A.A. General Meeting	—
22 S	—	—	—
24 M	6.30-9.30	STUDIO	W. G. B. Lewis
25 TU	6.30-8.30	Construction	F. R. Farrow
26 W	6.30-9.30	STUDIO	W. G. B. Lewis
27 TH	6.30-8.30	Construction	F. R. Farrow
28 F	—	—	—
29 S	—	—	—
MAR. 1896			
2 M	6.30-9.30	STUDIO	W. G. B. Lewis
3 TU	—	—	—
4 W	6.30-9.30	STUDIO	W. G. B. Lewis
5 TH	6.30-8.30	Construction	F. R. Farrow
6 F	7.30	A.A. General Meeting	—
7 S	—	—	—
9 M	6.30-9.30	STUDIO	W. G. B. Lewis
10 TU			
10 TU	7.30	Advanced Class of Design	Special Visitor
11 W	6.30-8.30	Construction	F. R. Farrow
12 TH			
13 F	—	—	—
14 S	—	—	—
16 M	6.30-9.30	STUDIO	W. G. B. Lewis
17 TU	6.30-8.30	Construction	F. R. Farrow
18 W	6.30-9.30	STUDIO	W. G. B. Lewis
19 TH	6.30-8.30	Construction	F. R. Farrow
20 F	7.30	A.A. General Meeting	—
21 S	—	—	—
23 M	6.30-9.30	STUDIO	W. G. B. Lewis
24 TU	6.30-8.30	Construction	F. R. Farrow
25 W	6.30-9.30	STUDIO	W. G. B. Lewis
26 TH	6.30-8.30	Construction	F. R. Farrow
27 F	—	—	—
28 S	—	—	—

Date	Hours P.M.	Lectures, Classes, &c.	Masters
MAR. 1896 (contd.)			
30 M	6.30-9.30	STUDIO	W. G. B. Lewis
31 TU	6.30-8.30	Hygiene: Drainage and Water Supply	Max. Clarke
APR. 1896			
1 W	---	---	---
2 TH	---	---	---
3 F	Good Friday		---
4 S	---	---	---
6 M	Easter Monday		---
7 TU	---	---	---
8 W	---	---	---
9 TH	---	---	---
10 F	---	---	---
11 S	---	---	---
13 M	6.30-9.30	STUDIO	W. G. B. Lewis
14 TU	6.30-8.30	Hygiene: Drainage and Water Supply	Max. Clarke
15 W	6.30-9.30	STUDIO	W. G. B. Lewis
16 TH	6.30-8.30	Hygiene: Drainage and Water Supply	Max. Clarke
17 F	---	---	---
18 S	---	---	---
20 M	6.30-9.30	STUDIO	W. G. B. Lewis
21 TU	6.30-8.30	Hygiene: Drainage and Water Supply	Max. Clarke
	7.30	Advanced Class of Design	Special Visitors
22 W	6.30-9.30	STUDIO	W. G. B. Lewis
23 TH	6.30-8.30	Hygiene: Drainage and Water Supply	Max. Clarke
24 F	7.30	A.A. General Meeting	---
25 S	---	---	---
27 M	6.30-9.30	STUDIO	W. G. B. Lewis
28 TU	6.30-8.30	Hygiene: Drainage and Water Supply	Max. Clarke
29 W	6.30-9.30	STUDIO	W. G. B. Lewis
30 TH	---	---	---
MAY 1896			
1 F	---	---	---
2 S	---	---	---
4 M	---	---	---
5 TU	6.30-9.30	STUDIO	W. G. B. Lewis
		STUDIO	
6 W	---	---	---
7 TH	---	---	---
8 F	7.30	A.A. General Meeting	---
9 S	---	---	---
11 M	6.30-9.30	STUDIO	W. G. B. Lewis
12 TU	6.30-8.30	Specifications & Estimates	F. R. Farrow
	7.30	Advanced Class of Design	Special Visitor
13 W	6.30-9.30	STUDIO	W. G. B. Lewis
14 TH	---	---	---
15 F	7.30	A.A. Members' Soirée	---
16 S	---	---	---
18 M	---	---	---
19 TU	6.30-9.30	STUDIO	W. G. B. Lewis
20 W	6.30-8.30	Specifications & Estimates	F. R. Farrow
21 TH	6.30-9.30	STUDIO	W. G. B. Lewis
22 F	---	---	---
23 S	---	---	---
25 M	Whit Monday		---
26 TU	---	---	---
27 W	---	---	---
28 TH	6.30-9.30	STUDIO	W. G. B. Lewis
29 F	6.30-8.30	Specifications & Estimates	F. R. Farrow
30 S	---	---	---
JUNE 1896			
1 M	6.30-9.30	STUDIO	W. G. B. Lewis
2 TU	6.30-8.30	Exam. Practice & Revision	---
3 W	6.30-8.30	Specifications & Estimates	F. R. Farrow
4 TH	6.30-8.30	Exam. Practice & Revision	---
5 F	6.30-9.30	STUDIO	W. G. B. Lewis
6 S	---	---	---
8 M	6.30-9.30	STUDIO	W. G. B. Lewis
9 TU	6.30-8.30	Exam. Practice & Revision	---
10 W	7-8.30	Professional Practice	A. O. Collard
11 TH	6.30-8.30	Exam. Practice & Revision	---

Date	Hours P.M.	Lectures, Classes, &c.	Masters
JUNE 1896 (contd.)			
12 F	7-8.30	Professional Practice	A. O. Collard
13 S	---	---	---
15 M	---	---	---
16 TU	---	---	---
17 W	7-8.30	Professional Practice	A. O. Collard
18 TH	---	---	---
19 F	7-8.30	Professional Practice	A. O. Collard

Second Year: For R.I.B.A. Students registered in 1894 and previous years.

The "Student R.I.B.A." during the A.A. Session 1896-97 would take the remainder of the A.A. Division II. Lectures and Classes—viz. Special History Subjects under Mr. Farrow; Stresses and Strains under Mr. Holmes; with Hygiene: Materials and Construction, Ventilation, Lighting, and Heating, under Mr. Farrow. He would also use the Studio for a second year, and continue in the Advanced Class of Design. It may further be assumed that during 1896-97 he would considerably advance, if not complete, the Testimonies of Study which he is required to submit for admission to the Final Examination qualifying for candidature as Associate.

Fees for the Two Years' Course (exclusive of the A.A. annual subscription).

FIRST YEAR.		£	s.	d.
Studio and the Advanced Class of Design (71 evenings)		5	5	0
History of Architecture, with the Characteristic Architectural Features, Mouldings, and Ornament (14 lectures and classes)		1	7	6
Materials: their nature and application (10 lectures and classes)			12	6
Construction (10 lectures and classes)			12	6
Hygiene: Drainage and Water Supply (6 lectures and classes)			7	6
Specifications and Estimates (4 lectures and classes)			7	6
Professional Practice, including Legislative Enactments relating to Building Contracts (4 lectures and classes)		7	6	
		£9	0	0
SECOND YEAR.				
Studio and Advanced Class of Design		5	5	0
Special History Subjects (6 lectures and classes)			10	6
Stresses and Strains (4 lectures and classes)			7	6
Hygiene: Materials and Construction, Ventilation, Lighting, and Heating (6 lectures and classes)			12	0
		£6	15	0
Total—Two Years' Course, £15. 15s.				

THE GLASGOW AND WEST OF SCOTLAND TECHNICAL COLLEGE.

The *Calendar* for the ensuing Session of this College, just issued, gives full particulars of the courses of architectural education to be conducted under the direction of Mr. Charles Gourlay [A.], Professor of Architecture at the College. In former sessions the classes in architecture have been held only in the evening; but under the new rule day classes will be taken by Professor Gourlay on Mondays and Thursdays from 9.30 till 12.30, and will include two Courses, Junior and Senior, of 60 lectures each, with tutorial instruction in the Studio. The Junior Course is intended to assist students in preparing for the Inter-

mediate Examination of the Institute, and the Senior for the Final Examination.

Day Instruction.

The Junior Course embraces—

(a) ART.—The origin, development, and application of the orders of Greek and Roman Architecture, with the several varieties of ornament appropriate to each order.

The successive development of the styles of Architecture in England, with the characteristic mouldings and ornament of each period.

(b) CONSTRUCTION.—The nature, qualities, and defects of ordinary building materials. The calculation of strengths of materials and resistances. The elementary principles of Construction.

(c) DESIGN.—Simple subjects are set upon the ground covered in the lectures, whereby the student becomes acquainted with the elements of Design in Architecture.

The Senior Course embraces—

(a) ART.—The leading characteristics, history, and development of the principal Styles of Architecture, with the mouldings and ornament appropriate to each style. Particulars of celebrated buildings and their architects.

(b) CONSTRUCTION.—The principles of Hygiene in relation to Architecture. The nature and properties of building materials. The principles of stresses and strains; formulas for their calculation and their graphic determination. The principles of construction, and their application in practice to foundations, walls, arches, vaults, girders, floors, roofs, &c., and constructive details in all trades.

(c) DESIGN.—The design of buildings of moderate dimensions to be made from data to be given, with details of construction and ornament, by means of scale and full-size drawings.

(d) PROFESSIONAL PRACTICE.—Specifying, estimating, and measuring work of the building trades. The relative position, duties, and responsibilities of client, architect, and builder.

The fee for each Course is £2 2s.

Evening Instruction.

LECTURES AND CLASSES ON ARCHITECTURE AND DESIGN.

The courses are arranged to supplement the training acquired by architectural pupils in the offices where they are engaged, and prepare for the examinations qualifying for the grade of *Student*, and for candidature as *Associate*, of the Royal Institute of British Architects. Every lecture is copiously illustrated by photographs, lithographs, drawings, and some by lantern views. The lending library of the College contains a good collection of architectural works for the use of students.

FIRST COURSE: CLASSIC ARCHITECTURE (30 Lectures, on Tuesdays, from 7 till 8).—Introduction to the study of Architecture. The influence of Ancient upon Classic Architecture. The history of Greek and Roman Architecture. The origin, development, and application of the Orders; the curves used; and the appropriate enrichments for each part.

Analysis of Greek buildings and of Roman temples, baths, monuments, and houses into the plan, walls, roofs, openings, columns, ornaments, sculpture, and use of colour.

The Orders of the Renaissance and their application.

SECOND COURSE:—MEDIÆVAL ARCHITECTURE (30 Lectures, on Wednesdays, from 7 till 8).—The successive developments of the Mediæval styles, with the characteristic mouldings and ornament of each period:—In England, from 1066 to 1550 A.D.; in France, from 1055 to 1515 A.D.; and in Scotland, from 1057 to 1542 A.D.

Analysis of cathedrals, abbeyes, churches, and domestic buildings, &c., into plans, walls, towers and spires, gables, piers and columns, doors and windows, vaulting, timber roofs and screens, fonts, ornaments, metal-work, stained glass, sculpture, brasses, textile fabrics, &c.

In connection with Courses I. and II. the classes meet every Tuesday, Wednesday, and Friday, from 7 till 9.30, for the drawing of Classic and Mediæval examples, as well as for the preparation of the Testimonies of Study required for the Intermediate Examination of the Royal Institute of British Architects.

The fee for each Course is 10s.

THIRD COURSE:—HISTORY OF ARCHITECTURE (30 Lectures, on Fridays, from 7 till 8).—History of Ancient and Oriental Architecture; Greek in Greece, Asia Minor, and Sicily; Etruscan; Roman in Italy and the Provinces; Byzantine in Greece, Italy; Romanesque and Mediæval in Italy; Renaissance in Florence, Rome, Venice, and other cities and towns in Italy; Romanesque in France; early, middle, and late Renaissance in France. Mediæval and Renaissance in the Low Countries, Germany, Spain, and Portugal; Tudor, Elizabethan, Jacobean, Jones and Wren, and the later Renaissance in England. Renaissance in Scotland.

In connection with Course III., the class meets every Tuesday, Wednesday, and Friday, from 7 till 9.30, for the drawing of Classic, Mediæval, and Renaissance examples and designs based upon them, and the preparation of the Testimonies of Study required for the Final Examination of the Royal Institute of British Architects.

The fee for Course III. is 15s.; for a Second Session, 10s.

MEASURING AND SKETCHING CLASS.—Students attending any of the above classes meet in Glasgow Cathedral and visit other local mediæval buildings on Saturday afternoons, from May till October, under the guidance of the Professor and Assistants, for the measuring and sketching of old work.

ARCHITECTURAL STUDIO.

Mr. James Lochhead [A.] is the Instructor in the Studio, which is open on Tuesday, Wednesday, and Friday evenings, when all Students enrolled in the Architectural Classes meet for Architectural Drawing and Design. Subjects for design to Courses I. and II. are based upon the lectures and instruction given in each course respectively.

COURSE I.—Gateway; monument; stone screen.

COURSE II.—Entrance porch; organ case; memorial chapel.

COURSE III.—Designs based upon the Italian, French, and English Renaissances. Particulars will be given during the session.

LECTURES & CLASSES: BUILDING CONSTRUCTION AND DESIGN.

These classes are held on Mondays and Thursdays, from 7 till 9.30. On Saturday afternoons visits are made to buildings in progress.

The first or Elementary Course includes—

Introductory.—Drawing, inking, colouring, and isometric projection.

Brickwork.—Different bonds. Junction of walls at right angles. Gauged work. Arches over openings in external and internal walls. Jambs of window and door openings. Footings. Corbelling.

Masonry.—Classification of walling—ashlar, rubble, &c. Stone arches. Joints and connections. Dressings—string courses, cornices, &c.

Iron Girders.—Cast-iron girders and cantilevers, wrought-iron joists.

Carpentry.—Joints—lapping, fishing, scarfing, &c. Fastenings—straps, plates, shoes, screws, &c. Floors—single, double, and framed. Partitions—quartered and brick-nogged. Timber roofs, from flat roof to queen-post truss roof. Composite roofs of wood and iron.

Slating.—Names of parts, preparing and the methods of laying slates.

Plumbing.—Lead work connected with chimneys, ridges, hips, valleys, gutters, and lead flats. Joints for lead pipes.

Joinery.—Mouldings. Joints. Framing. Doors—ledged

ledged and braced, framed and braced, and panelled. Solid door and window frames. Windows, fixed sashes, cased frames with double-hung sashes. Casement windows.

Iron Roofs.—Roofs with straight rafters, and details.

The Second or Advanced Course includes—

Foundations.—Timbering for excavations. Incompressible and compressible soils. Piles and pile foundations.

Brickwork and Masonry.—Compound walls. Prevention of damp in walls. Joints—flat, struck, keyed, &c. Hoop-iron, diagonal, herring-bone, and other bonds. Bond in arches. Brick drains and sewers. Chimneys. Grouting. Lorrying. Pargetting.

Roofs.—Timber and iron roofs up to 60 feet span. Queen-post and mansard roofs and details. Trussed rafter and queen-rod roofs. The designing of wooden and iron roofs.

Centres.—Centres for circular, segmental, and elliptical arches. Centering for concrete. Bricklayer's and mason's scaffolding. Methods of securing stones to be lifted.

Roof Coverings.—Tiles, corrugated iron, sheet lead, zinc, copper, &c., and the various methods of laying same.

Stresses.—The natures of the stresses to which the different parts of simple structures are subjected. Calculation of strength of materials and resistances.

Riveting.—Proportion and pitch of rivets. Riveted joints. Essentials of good riveting. Causes of failure.

Girders.—Built-up beams, curved ribs, timber and iron girders, the construction of travellers. Fitch and trussed beams.

Joinery.—Joints. Fixing joiners' work, grounds, architraves, skirtings, &c. Linings, shutters, skylights, and lanterns.

Stairs.—Different forms. Stone and wooden stairs. Handrailing.

Fireproof Floors.—Girders with brick arches. Fox and Barrett's, Doulton-Peto's, W. H. Lindsay's, Dennett's, and other systems.

Plasterers' Work.—Materials used by the Plasterer. Lathing, &c. Rendering and plastering. Cornices. Arrises.

Materials.—The nature, application, and characteristic peculiarities of the following materials:—Bricks. Granite. Slate. Stones. Limes. Cements. Mortars. Concrete. Asphalte. Timber of different kinds. Cast and wrought iron and steel. Copper. Lead. Zinc. Tin. Glass.

The Third or Honours Course includes—

Calculations for Structures.—Equilibrium. Beams. Cast and wrought iron and steel beams. Columns. Plate girders. Braced girders. Trussed beams. Roofs. Stability of brickwork and masonry structures. Retaining walls. Arches, vaults, spires, &c. Shoring and underpinning. Hydraulics in building construction.

Materials.—Terra cotta, manufacture of cast and wrought iron and steel, copper, tin, zinc, alloys, and a more complete knowledge of those stated in advanced course, including their application, strength, decay, preservation, and how to judge of their quality.

Air.—Composition. Nature of impurities. Purification.

Ventilation and Warming.—Quantity of air required. The modes in which the necessary fresh air can be supplied. Natural and artificial ventilation. Lighting. Fireplaces, stoves, and grates. Warming by hot water, high and low pressure, and by steam.

Water.—Quantity per head. Sources, storage, and distribution. Action on lead. Quality, composition, and origin of the impurities in drinking water. Purification. Action of water filters.

Removal of waste and impurities.—Amount of excreta. Dust bins. Earth closets. Methods of removal of excreta. Treatment and utilisation of sewage.

House Drainage.—Construction, position, and ventilation of drains. Traps. Closets, sinks, baths. Testing and flushing of drains.

Soil.—Conditions affecting health. Solid constituents. Aspect.

Local conditions.—Humidity. Movement and weight of the air. Climate. Influence of surrounding objects. Rainfall.

Shelter.—Materials used in the construction of walls and roofs, and their properties. Ventilation through walls. Foundations and basements. Floors. Wall coverings, dangerous papers. Paper-hanging. Paints, varnishes, and painting. Glass and glazing.

Professional Practice.—Specifications. Estimating cost. Contracts.

Lectures and Drawing on Wednesdays and Fridays, 7 till 9.30. Drawing and Design on Tuesdays, 7 till 9.30. All students attending the Third Course will meet on Tuesday evenings for tutorial instruction in design and in the preparation of working and scale drawings. Subjects for design comprise public and private buildings. The fee for the Third Course is 15s.; for a Second Session, 10s.

BRICKWORK AND MASONRY. CARPENTRY AND JOINERY.

There will be a course of Lectures on Brickwork and Masonry. The First Course held on Mondays and Thursdays, 7 till 9.30; the Second on Wednesdays and Fridays, from 7 till 9.30.

Also a course of Lectures on Carpentry and Joinery. The First Course held on Mondays and Thursdays, 7 till 9.30; the Second on Wednesdays and Fridays, 7 till 9.30.

Fees for Brickwork and Masonry or Carpentry and Joinery—First Course, 10s.; Second Course, 15s. These fees include the Building Construction Class. Gentlemen attending the Architectural or the Building Construction Class may join the Class for Modelling, conducted by Mr. Ferris, and the Art Classes, held in the Department of Industrial Art, West Regent Street, Glasgow, on payment of an additional fee of 5s.

THE NORTHERN ASSOCIATION.

With a view to encouraging Probationers, Students, and others to prepare themselves for the R.I.B.A. Examinations in its own district, the Northern Architectural Association (Newcastle) offers a first prize of two guineas and a second of one guinea for the best set of drawings or "Testimonies of Study," as required for the Final Examination. Similar prizes will also be given for the Testimonies of Study required from Probationers for admission to the Intermediate Examination. The drawings are to be delivered to the Hon. Secretary of the Northern A.A. not later than 5 p.m. on 28th February 1896 (under motto).

With a view to assisting young men, members of the Council will attend at the rooms of the Association on the first Wednesday in each month, from 6.30 to 7.30 p.m. (commencing 6th November 1895).

KÁFIRISTÁN.

SIR GEORGE ROBERTSON'S REPORT.

The Indian Government may be heartily congratulated in possessing a servant so competent and devoted as the British Agent at Gilgit in Kashmir, Sir G. S. Robertson. Brilliant as are the achievements, often very little known, of civilians employed on "political" work such as that with which Sir George is entrusted, few, if any, can surpass in value, interest, and style his Report on "Káfiristán and "its People," a copy of which has been presented to the Institute by the Secretary of State for India. A preliminary Paper on the subject was read last year by the same author before the Royal Geographical Society,* and readers of the following extracts from the Report will do well to look at the map published in that Society's Journal, as it illustrates the journeys he made in Káfiristán, and shows

* See, in *The Geographical Journal*, vol. iv. p. 193, "Káfiristán," by Dr. G. S. Robertson, C.S.I. The map is at p. 288.

the geographical position of the country in regard to Kabul, Chitral, and Gilgit. Under this head Sir George writes that "the geographical position of Káfiristán is "all included between latitudes 34° 30' and latitude 36°, "and from about longitude 70° to longitude 71° 30'. The "western frontier being very imperfectly known and somewhat ill-defined, it is difficult to estimate accurately the "size of the country. Its greatest extent is from east to "west at latitude 35° 10', its greatest breadth is probably "at longitude 71°. Its map area may be put down as "somewhere about 5,000 square miles." The Report, which is divided into twelve sections, treats of the topography, government, trade, and agriculture of the country; the origin and characteristics, the religion and arts, the manners and customs, the houses and other buildings, of the people. The following passages are taken from Sir George's Report:—

Origin and Physical Characteristics.

As there are no rock inscriptions, no ancient books, nor any literature of any kind to be found in Káfiristán, and as the traditions of the people themselves give such small help in forming any opinion concerning their origin, the only hope which remains that the Káfirs may be eventually assigned their proper place in the general history of the world is from a comparative study of their language, their manners and customs, and their religious ceremonies, as well as from their cranial measurements, and other anthropometric observations. That they are made up of different races appears certain; that they have no admixture of Tartar blood seems obvious; that they came from the West, at least the great majority of them, is their own fixed idea, and is more than probable. If there may be points of resemblance between present Káfir and ancient Greek sacrificial observances, and if certain of their domestic utensils, such, for instance, as the Wai wooden dish-stand, may seem to be fashioned in Grecian mould, it may perhaps be conjectured that some of the Káfir tribes, at any rate, are still influenced, as the ancient Indian populations of Eastern Afghánistán were also influenced, by the Greek colonists of Alexander, and that these Káfirs, having never been under the rule of Mahomedans, may possibly represent some of the people of Eastern Afghánistán as they were before the victorious Moslem defeated and converted them to Islam. . . . A conquering race may progress in the arts and in civilisation, as it progresses and excels in warlike skill. But not so an isolated people like the Káfirs. . . . If it were not for their splendid courage, their domestic affections, and their overpowering love of freedom, Káfirs would be a hateful people. In other respects they are what they have been made by uncontrollable circumstances. For them, the world has not grown softer as it has grown older. Its youth could not be crueller than its present maturity, but if they had been different they would have been enslaved centuries ago. Their present ideas and all the associations of their history and their religion are simply bloodshed, assassination, and blackmailing; yet they are not savages. Some of them have the heads of philosophers and statesmen. Their features are Aryan, and their mental capabilities considerable. Their love of decoration, their carving, their architecture, all point to a time when they were higher in the human scale than they are at present.

Villages and Houses.

(1) THE FORT VILLAGE.—The fort village is peculiar to the Káfir tribe. In the Bashgul country Ptsigrom in the Skorigul, Pshui, Apsai, Shidgul, and Badamuk are of this kind. These villages are built in an oblong figure, the houses, two or three storeys high, surrounding a centre courtyard which is partially occupied by a dancing-place and a rude altar, while the dancing-house, or

gromma, which is used in the winter and in bad weather is close by. The exterior of such a village offers to an enemy an unbroken front, as all the windows of the rooms looking outwards are very small. There is usually only one entrance gate, or at most two, in which case the second not unfrequently, as at Badamuk, leads into dark passages difficult to penetrate at any time without a guide. The main entrance is capable of being quickly and effectively closed. Such villages are usually built on the bank of a river flowing through the Káfir equivalent for a plain. When besieged the inhabitants obtain their water from the river by means of a tunnel, which leads from the central courtyard to the river's edge, and ends in a covered way made of roughly hewn timbers. These fort villages contain from 120 to 200 different families, and are all greatly overcrowded. The houses which form the four sides of the oblong figure have low cellars like chambers underneath them, into which sheep, goats, and cattle are driven when an attack is imminent. The corners of the village are generally strengthened by towers, and at Badamuk and other places, where there are steep slopes in close proximity, one or two detached three-storeyed towers are built up the hillside as an additional security. A great deal of wood enters into the construction of these villages. On the courtyard side the dwellings or rooms are often furnished with verandahs or wooden galleries open in front, the uprights and frames of which are often rather effectively carved in the ordinary basket-work pattern, or with purely conventional heads of animals. The different floors of a house are reached by solid ladders, that is to say, by planks shaped by the axe alone, and deeply notched at proper intervals for the feet. The quaint carvings, and the irregular outline of the inner aspect of the houses caused by the verandahs or galleries, render these villages somewhat picturesque; but they are grimed black with smoke, the open spaces are littered with the bones and horns of animals killed for food, and the general appearance is squalid and depressing, while the stench is sometimes hardly bearable. The cellars or half subterranean stables already mentioned are used in peacetime as latrines. The odoriferous pine leaves with which they are littered do but little to disguise the fact. These chambers are only cleared out when manure is wanted for the fields.

(2) VILLAGES BUILT ON DEFENSIVE POSITIONS.—Good examples of this form of construction are found at Purstám, Bajindra, and Gourdesh. The houses at Purstám are clustered together on the east face of a steep detached rock, inaccessible from every other direction. The lowest habitations are on the bank of a side branch of the Bashgul river. The road up the rock between the houses is extremely steep. Half-way up is the gromma, or dancing-house, with its wooden platform adjoining. Bajindra is one of the most curious villages in Káfiristán. At that place advantage has been taken of the flat upper surface of a huge detached piece of rock, and upon it some thirty different domiciles have been crowded and superimposed the one on the other. The only way to reach the houses is by a bridge which connects the village with the hillside behind. This bridge can be easily broken away, and then the houses are absolutely inaccessible. The drawback to the position is that the river is a little distance away, and there is no other water supply for the people. There are two or three little hamlets in the Skorigul built precisely after the fashion of Bajindra on fragments of rock, but they are all on the river bank by the water's edge. The village of Gourdesh is a densely populated cluster of some twenty-five houses, built on the knife-edge of a rocky spur which projects into the Gourdesh valley, and compels the river to flow in a pear-shaped course round its base. This spur, 200 or 300 feet high, is precipitous except at its point of connection with the main range of hills, where there is a watch tower, and where the village can be easily defended

To enable all the houses to perch on the rocky ledge many ingenious contrivances have had to be adopted. In some instances the verandahs or wooden galleries are supported on long wooden pillars, the bases of which fit into crevices in the rock. An additional appearance of insecurity has been produced in some places where the sustaining pillars, having proved too short, have been supplemented by the placing of smooth water-worn stones beneath them. The insecurity of this arrangement is, however, more apparent than real, for experience has taught the Káfirs so much skill in the management of weights that even the most fragile structures they erect rarely, if ever, collapse. Villages like Gourdesh cannot possibly grow larger, and in consequence they are greatly over-populated.

(3) **POPULOUS VILLAGES.**—Places like Kámdesh, Bagalgrom, and Bragamatál (Lutdeh) depend for their protection on the strong arm of a numerous population rather than on fortifications or the happy selection of a good defensive site. Any detached towers which such villages may possess are more for use as watching-places than for defensive purposes, although they are capable of being employed for the latter purpose also. In some portions of Kámdesh the houses are built in regular terraces, which rise one above the other like a giant's staircase, or they are made to overhang steep drops or low precipices. They are likewise crowded into many awkward and inconvenient positions, with the obvious intention of not curtailing or interfering in any way with the cultivation. In many other villages the same cause and the same result are seen to a very much greater extent. Kámdesh, Bagalgrom, and that portion of Bragamatál which is on the right bank of the river are built on no regular pattern, houses being erected wherever there is room for them. The left bank part of Bragamatál is laid out in the form of half a regular hexagon open towards the south. The enclosed space is occupied by the gromma and dancing platform, and by detached clusters of houses.

(4) **WALLED VILLAGES.**—The only regularly walled villages with which I am acquainted are in the Presungul. Their general construction is as follows. The houses are packed together on and in the substance of a mound or rounded hillock. Many of the rooms are underground. At the foot of the slope a short distance away there is a protecting wall topped with brushwood. At Pushkigrom, the lowest village in the valley, the arrangement is somewhat different. There the houses are built on a slope which is surmounted by watch towers from which extend walls which run down to and encircle the houses. This surrounding wall is strengthened with barricades at different points, and looks fairly strong.

(5) **UNDEFENDED VILLAGES.**—There are some villages in Káfiristán which are both small and defenceless, and are also easily accessible. From such places the inhabitants must bolt at once if a formidable enemy makes his appearance. There are others which could be defended if the people were brave, *e.g.* Kstigigrom in the Presungul. There, however, the villagers prefer to retire to a large cave overlooking their homes, where they cannot be followed. From that safe and elevated position they have more than once watched their houses being sacked and burnt. Other small villages seem to find a sense of security in the fact that they are more or less hidden away in the hills or up difficult and unpromising ravines. Of these, as of all other villages in Káfiristán, it may be said that they find their chief protection in the easily defensible nature of the main roads of the country.

The One-room House.

The simplest form of house consists of one apartment, oblong or square in shape, and measuring some 18 by 18 or 18 by 20 feet. It is usually well built of cedar timber and rubble stones embedded in mud mortar. The timbers, fashioned with the axe alone and roughly mortised together at the angles of the building, form a series of wooden frames upon and between which the masonry is built.

These wooden frames are about nine inches apart. The thickness of the walls is about five inches. They are well plastered with mud both inside and out, and are strong and durable. There are sometimes two doors, but usually only one. The door is a solid piece of wood, shaped by the axe alone. There are no hinges, but small projections from the upper and lower edges are made to revolve in sockets in the door frame. The Káfir slaves, if we consider the indifferent tools at their disposal, are extremely clever at carpentry. In addition to the door or doors there is often a little window also. It is usually 15 or 18 inches square, and is closed by a wooden shutter revolving on pivots. The doors are fastened by a wooden bolt, which is made to run easily in a groove cut in the solid substance of the door, and thence into a socket in the door frame. The bolt has vertical notches all along one side. Just above the groove in which it works is a small round hole in the substance of the door. This is the keyhole. The key is a piece of iron wire, about the thickness of the top of the little finger, and more than a foot long. It is bent back in such a way that it is somewhat of the shape of a pot-hook, and can be pushed through the keyhole, and then if it is turned downwards the end can be made to catch in the slots in the bolt, and the latter can be pushed back, and the door opened.

CENTRE-PILLARS.—In the centre of every room at each corner of the square hearth are four wooden pillars, which are often elaborately carved. These pillars are usually between 5 feet and 6 feet apart, and are either rounded or more or less square in shape. Their diameter varies from 9 inches to 15 inches. From the lateral walls of the apartment two large beams cross over, and are mainly supported on the top of the hearth pillars.

THE ROOF.—Boards covered with beaten-down earth form the roof, but they do not fit accurately, so that snow, water, and rain find easy access into the room. The only way to minimise this discomfort is to keep adding earth to the roof, and to get it beaten down or trampled by men or goats. The roof is the worst feature of all Káfir houses. As they are all made in the way described and are all flat, there is not one which is even moderately watertight. It is necessary that they should be flat, for contiguous roofs form, perhaps, the only level spaces which can be found in some villages, where corn can be winnowed or thrashed, or fruit be spread out to dry.

THE SMOKE-HOLE.—The smoke-hole is over the middle of the hearth. It is usually about a foot square, and has enclosing boards which project a few inches above the level of the roof. It is closed by a flat board, with a long handle in the middle, being placed over it. The long handle hangs down into the room, whence it can be pushed up, and the smoke-hole opened. The hearth square in the centre of the room is raised a few inches above the level of the surrounding floor, and like the latter is made of beaten earth. There is some special sanctity connected with the hearth, for although slaves may cross the threshold of the priest's house, they may on no account approach the hearth. The height of a room does not exceed seven or eight feet.

The foregoing description applies to the house of an average poor Káfir of the Bashgul valley. In such an apartment he brings up his family. There would probably be also a stable or rough kind of shed, leaning against one wall of the house, and more or less completely closed in by mud walls, or by screens made by twisting twigs together. This shed would be used as a latrine.

Houses of the Better Class.

A better kind of house in the Bashgul valley consists of two storeys, the upper part being reserved for the dwelling-place, while the lower half is used as a cow stable or a wood store. The best-built habitations in the Bashgul valley are those used by the wealthy Káfirs of the Kám tribe. Such dwellings consist of three storeys. The top floor is the living-place, the middle storey is the store-room,

while the bottom room is employed as a cow stable or wood store in the winter, and a latrine at all times. In this variety of house a verandah is almost always projected from the top storey. These verandahs, or open wooden galleries, are well-made structures, closed on all sides except in front. They are frequently elaborately ornamented with carving. The projecting floor of the verandah is supported on long wooden pillars, the lower ends of which are securely kept in their proper position on the ground by the nicety with which the weights above are adjusted. The roof of the verandah is upheld by the wooden framework of the structure, and by a row of pillars which run down the centre of the floor. Frequently all the pillars and the front of the verandah are prettily carved, and its roof beams, which are allowed to project a foot or more beyond the walls, are fashioned at the ends into effective, if grotesque, animals' heads.

Houses of the Presun Káfrs.

The houses of the Presun or Viron Káfrs differ in many respects from those already described. Perhaps the most obvious and striking peculiarity of the Viron houses is that their accommodation is principally underground. This arrangement is more particularly noticeable in the upper, and consequently colder, part of the valley. In that position, also, wood being scarce, it is sparingly used in the construction of the walls. The timbers are not shaped with the axe, as in the Bashgul valley, but are used in the form of round poles. The large proportion of mud and rubble to timber gives the houses a somewhat badly built appearance. There are no verandahs to break the ugly lines of the buildings. In the lower part of the valley at Pushkigrom, wood is abundant, and the domiciles are built almost exclusively of round poles, very little masonry being used in their construction. The villages themselves are either built on a hillock or on a slope. There is one exception to this rule in the case of the village called Diogrom, which is on level ground close by the river. In the villages of the upper part of the valley, those parts of the houses above ground are very low, and the doorways which open on to the lanes are rarely more than 3 feet 6 inches or 4 feet high. The houses are packed together closely, and the paths between them are hardly wide enough for a man with moderately broad shoulders. Many of the houses have three apartments, one below the other; one being half underground, and the other two completely so. I carefully examined the house of the Shtevgrom priest. From the roadway a 3 feet 6 inches doorway opened on to a short ladder, by which the floor of the dwelling-room was reached. That apartment was 20 feet square, but only 7 feet high. The roof was supported by numerous pillars, all of which were grotesquely carved into a supposed resemblance to gods or goddesses. Four pillars carved with more than usual care bounded the hearth in the ordinary way. Each was made to resemble, more or less, a man on horseback. The horseman was given an enormous face, shield-shaped, $1\frac{1}{2}$ foot long by 10 inches at the broadest part, the brows. The chin was not more than an inch and a half from the top of the diminutive horse's head. The rider's left hand rested on the horse's neck. What at first sight looked like an enormous ear turned out to be the horseman's right arm grasping a weapon. The tiny animal itself was given a little stand, such as a toy horse has. The nose of the effigy was scored by parallel lines, intersected at right angles by similar parallel lines. All the other pillars in the room were similarly carved into grotesque male or female forms, except that they were not provided with horses. Above the hearth, which was 7 feet square, there was a wooden structure, 4 feet square, which projected above the level of the roof about 4 feet. This was roofed, and in one corner of it there was a smoke-hole a foot square. This peculiar chimney arrangement is very common in Presungul. From the dwelling-room a ladder led into a lower apartment, which was not more than 5 feet in height.

There was yet another room, lower still, which was reached in a similar way. There it was possible to stand upright. From this lowest apartment a tunnel ran under the village wall to the river bank. A second tunnel, which I was solemnly informed had been originally constructed by Yush (the Devil), burrowed under the village tower or citadel.

A Káfr Tower.

A Káfr tower used for watch and ward is from one to four storeys in height. It is of square shape, and commonly 10 feet by 10 feet. The door is always some considerable height above the ground, and is reached by a ladder, which can be drawn up in time of need, when the men inside are completely out of reach. The floor of each of the upper storeys has a large square aperture in the middle, and each is usually provided with a ladder. The top of the tower, the three or four feet which constitute the parapet, is a little wider than the rest of the building, and projects about a foot outwards on every side. At the foot of this parapet are a series of holes all round, which enable the defenders to see clearly all the walls of the tower, and to command its base. Such structures are sprinkled all over the country, and are, as a rule, extremely well built.

The Dancing-place and Gromma, or "Church."

The dancing-place is always the most important spot in a Káfr village. There is usually only one, but Kámadesh and Bragamatal have two each. A dancing-place should consist of a house to be used in winter and in bad weather; a boarded platform, which, if the level ground available is very limited, as is commonly the case, often projects from a slope, and is upheld at its outer extremity by long poles; and a level piece of ground, on which particular dances are performed, which is furnished with a rude stone altar. A description of the upper Kámadesh dancing-place will also apply, with some modifications, to all similar places in the Bashgul valley. The whole place is called the gromma, a name evidently derived from the word "grom" or "brom," the Bashgul term for a village. A Káfr who had been to India with me always called the gromma the "church" when he spoke Urdu. To the north of the Kámadesh dancing-place is the gromma, or dancing-house. It is 12 feet high, 35 feet long, and 30 feet broad. Its sides are barred, not closed, by heavy square beams, between the intervals of which spectators can thrust their heads and shoulders restfully. During a spectacle these apertures are generally crowded with the heads of girls and women. Down the centre of the gromma run two rows of massive pillars, which support the heavy roof. They are about 6 feet apart. The central four are quite plain, except at the top, where they are ornamented with curved horses' heads. The remaining four are completely covered with the ordinary basket-work carving. In the middle of the roof there is a 4-foot-square smoke-hole. Bordering the gromma to the south is the largest level space in the village. It is about 30 yards square. On it there is a rude altar, formed of two upright stones, with a horizontal one on top. On this altar there are almost always to be seen the remains of a recent fire. To the east this space is continuous with a platform, which is carried out from the steep slope and maintained in that position by wooden pillars and beams. It looks, and is, a shaky structure. A railing runs round its three dangerous sides. Seats are provided on it in the shape of long planks, of comfortable breadth, a few inches off the floor. These platforms are always to be seen if the village is built on the side of a hill. Most of the shrines at Kámadesh are provided with a platform, which only differs from that at the gromma in point of size. In villages built on the flat, such as those in the upper part of the Bashgul valley, the platforms are lifted off the ground on trestles. They are, indeed, an essential part of every dancing-place, because certain ceremonies cannot be performed except on them.



SESSIONAL STATISTICS.

SUMMARY OF PROCEEDINGS.

1894.

- October 22nd.*—First Meeting of the Finance Committee of Council (6 members present).
- October 25th.*—SECOND MEETING OF THE BOARD OF EXAMINERS (ARCHITECTURE) (15 members present).
- October 25th & 26th.*—EXAMINATION under Metropolitan Building Act 1855 and Local Acts and Authorities.
- October 26th.*—FIRST MEETING OF THE STATUTORY BOARD OF EXAMINERS (8 members present).
- October 29th.*—Sixth Meeting of the Council (14 members present).
- November 1st.*—THIRD MEETING OF THE BOARD OF EXAMINERS (ARCHITECTURE) (12 members present).
- November 1st.*—SECOND MEETING OF THE ART STANDING COMMITTEE (6 members present).
- November 5th.*—Seventh Meeting of the Council (16 members present).
- November 5th.*—First General Meeting (Ordinary), Mr. F. C. Penrose, F.R.S., *President*, in the Chair.—Announcement of reinstatement as Associate of F. L. Canning [A.]. Announcement of result of October Statutory Examination. Candidates recommended for admission. OPENING ADDRESS, by the President. Vote of thanks. The late Wyatt Papworth: vote of condolence with his family. Minutes, page 28.
- November 8th.*—THIRD MEETING OF THE SCIENCE STANDING COMMITTEE (12 members present).
- November 9th.*—FOURTH MEETING OF THE LITERATURE STANDING COMMITTEE (12 members present).
- November 12th.*—FOURTH MEETING OF THE BOARD OF EXAMINERS (ARCHITECTURE) (14 members present).
- November 13th & 14th.*—PRELIMINARY EXAMINATION in London, Manchester, and Bristol to qualify for registration as Probationer.
- November 13th, 14th, 15th, & 16th.*—INTERMEDIATE EXAMINATION in London to qualify for registration as Student.
- November 15th.*—FIFTH MEETING OF THE BOARD OF EXAMINERS (ARCHITECTURE) (16 members present).
- November 16th.*—SIXTH MEETING OF THE BOARD OF EXAMINERS (ARCHITECTURE) (10 members present).
- November 19th.*—Eighth Meeting of the Council (16 members present).
- November 19th.*—Second General Meeting (Ordinary), Mr. Alex. Graham, F.S.A., *Vice-President*, in the Chair.—Decease announced of Charles George Hood Kinnear [F.] and Frederick Hemings [A.]. Announcement of results of Intermediate Examination, and names of newly registered Students. Paper by Mr. F. M. Gratton [F.]: NOTES UPON THE ARCHITECTURE OF CHINA, read by Mr. Wm. Kidner [F.]. Discussion. Minutes, page 72.
- November 26th to December 5th.*—EXAMINATION, in London, Glasgow, Manchester, and Bristol, to qualify for *Candidature as Associate*.

- November 30th.*—SEVENTH MEETING OF THE BOARD OF EXAMINERS (ARCHITECTURE) (14 members present).
- December 1st.*—EIGHTH MEETING OF THE BOARD OF EXAMINERS (ARCHITECTURE) (13 members present).
- December 3rd.*—Ninth Meeting of the Council (19 members present).
- December 3rd.*—THIRD MEETING OF THE ART STANDING COMMITTEE (9 members present).
- December 3rd.*—Third General Meeting (Business), Mr. F. C. Penrose, F.R.S., *President*, in the Chair.—Election of Members. Paper by Mr. W. D. Caröe [F.], M.A., F.S.A.: THE RECENT FALLING-OFF OF CANDIDATES IN THE STATUTORY EXAMINATION FOR THE OFFICE OF DISTRICT SURVEYOR. Discussion, and Resolution expressing the desirability of maintaining the high status of District Surveyors by permitting them the right of private practice as before, under necessary restrictions.

Minutes, page 98.

- December 4th.*—NINTH MEETING OF THE BOARD OF EXAMINERS (ARCHITECTURE) (12 members present).
- December 5th.*—TENTH MEETING OF THE BOARD OF EXAMINERS (ARCHITECTURE) (8 members present).
- December 11th.*—First Meeting of the Library Management Committee of Council (3 members present).
- December 12th.*—Second Meeting of the Finance Committee of Council (5 members present).
- December 13th.*—FOURTH MEETING OF THE SCIENCE STANDING COMMITTEE (10 members present).
- December 13th.*—ELEVENTH MEETING OF THE BOARD OF EXAMINERS (ARCHITECTURE) (14 members present).
- December 14th.*—FIFTH MEETING OF THE LITERATURE STANDING COMMITTEE (5 members present).
- December 17th.*—Tenth Meeting of the Council (18 members present).
- December 17th.*—FOURTH MEETING OF THE ART STANDING COMMITTEE (9 members present).
- December 17th.*—Fourth General Meeting (Ordinary), Mr. F. C. Penrose, F.R.S., *President*, in the Chair.—Decease announced of William Gratus Coward [F.], Herbert A. K. Gribble [A.], and Morton Glover [A.]. Announcement of results of the Qualifying Examination, the names of those who had passed, and the award of the Ashpittel Prize. Announcement of results of Preliminary Examination, and names of newly registered Probationers. Paper by Professor Banister Fletcher [F.]: OBSERVATIONS ON THE LONDON BUILDING ACT 1894. Minutes, page 135.
- December 28th.*—FIRST MEETING OF THE PRIZES AND STUDENTSHIPS COMMITTEE (14 members present).

1895.

- January 4th.*—Eleventh Meeting of the Council (11 members present).
- January 7th.*—Twelfth Meeting of the Council (17 members present).
- January 7th.*—Fifth General Meeting (Business), Mr. Aston Webb, F.S.A., *Vice-President*, in the Chair.—Announcement of Award of Prizes and Studentships for 1894-95. The late Herbert A. K. Gribble: vote of condolence with his family. Paper by Mr. R. Phené Spiers [F.] describing M. Chedanne's drawings of the Pantheon at Rome. Minutes, page 191.
- January 10th.*—FIFTH MEETING OF THE SCIENCE STANDING COMMITTEE (9 members present).
- January 11th.*—SIXTH MEETING OF THE LITERATURE STANDING COMMITTEE (10 members present).
- January 14th.*—Thirteenth Meeting of the Council (20 members present).
- January 14th.*—Sixth General Meeting (Ordinary), Mr. F. C. Penrose, F.R.S., *President*, in the Chair.—ADDRESS TO STUDENTS, by the President. M. Chedanne's Report to the Académie des Beaux-Arts upon his Drawings of the Pantheon: SUMMARY by Mr. R. Phené Spiers [F.].

4 Z

- Vote of Thanks to the French Government for the loan of M. Chedanne's Drawings. REVIEW OF THE WORK SUBMITTED FOR THE PRIZES AND STUDENTSHIPS 1895, by Mr. J. M. Brydon [F.]. PRESENTATION OF MEDALS AND OTHER PRIZES. Minutes, page 192.
- January 22nd.**—SECOND MEETING OF THE PRACTICE STANDING COMMITTEE (18 members present).
- January 23rd.**—TWELFTH MEETING OF THE BOARD OF EXAMINERS (ARCHITECTURE) (7 members present).
- January 28th.**—FOURTEENTH MEETING OF THE COUNCIL (18 members present).
- January 28th.**—SEVENTH GENERAL MEETING (ORDINARY), Mr. Aston Webb, F.S.A., *Vice-President*, in the Chair.—Decease announced of Edward Graham Pacey [F.]. Announcement that William Edward Jones, *Fellow*, had been expelled from membership. Paper by Mr. J. A. Strahan, M.A., LL.B., Barrister-at-law: THE LEGAL POSITION OF ARCHITECTS IN RELATION TO CERTIFICATES AND AWARDS. Discussion. Minutes, page 225.
- January 29th.**—THIRD MEETING OF THE PRACTICE STANDING COMMITTEE (14 members present).
- February 7th.**—FIFTH MEETING OF THE ART STANDING COMMITTEE (10 members present).
- February 8th.**—SEVENTH MEETING OF THE LITERATURE STANDING COMMITTEE (9 members present).
- February 8th.**—FIRST MEETING OF THE HON. ASSOCIATES COMMITTEE OF COUNCIL (6 members present).
- February 11th.**—FIFTEENTH MEETING OF THE COUNCIL (15 members present).
- February 11th.**—EIGHTH GENERAL MEETING (ORDINARY), Mr. F. C. Penrose, F.R.S., *President*, in the Chair.—Candidates recommended for admission. Announcement that the Council proposed to submit to Her Majesty The Queen the name of Mr. James Brooks [F.] as the Royal Gold Medallist 1895. Papers by Mr. Halsey Ricardo, Mr. Basil Champneys, B.A., and the President: THE VALUE OF SIMPLICITY IN ARCHITECTURE. Discussion. Minutes, page 258.
- February 14th.**—SECOND MEETING OF THE PRIZES AND STUDENTSHIPS COMMITTEE (13 members present).
- February 14th.**—FIRST MEETING OF THE FELLOWS COMMITTEE OF COUNCIL (4 members present).
- February 14th.**—SIXTH MEETING OF THE SCIENCE STANDING COMMITTEE (15 members present).
- February 19th.**—FOURTH MEETING OF THE PRACTICE STANDING COMMITTEE (13 members present).
- February 21st.**—SEVENTH MEETING OF THE SCIENCE STANDING COMMITTEE (10 members present).
- February 21st.**—SIXTH MEETING OF THE ART STANDING COMMITTEE (10 members present).
- February 25th.**—SIXTEENTH MEETING OF THE COUNCIL (17 members present).
- February 25th.**—NINTH GENERAL MEETING (ORDINARY), Mr. F. C. Penrose, F.R.S., *President*, in the Chair.—Decease announced of Arthur Lett [F.], Thomas Edward Bridgen [F.], and Ewan Christian, *Past President* and *Royal Gold Medallist*. Resolution of condolence with the widow and family of Mr. Ewan Christian. Paper by Mr. Thomas W. Aldwinckle [F.]: FEVER HOSPITALS. Discussion. Minutes, page 314.
- March 1st.**—SECOND MEETING OF THE HON. ASSOCIATES COMMITTEE OF COUNCIL (6 members present).
- March 7th.**—THIRTEENTH MEETING OF THE BOARD OF EXAMINERS (ARCHITECTURE) (8 members present).
- March 8th.**—EIGHTH MEETING OF THE LITERATURE STANDING COMMITTEE (8 members present).
- March 11th.**—SEVENTEENTH MEETING OF THE COUNCIL (14 members present).
- March 11th.**—SPECIAL GENERAL MEETING, Mr. F. C. Penrose, F.R.S., *President*, in the Chair.—Recommendation of the Council that the Royal Gold Medal 1895 be awarded to Mr. James Brooks adopted. Minutes, page 343.
- March 11th.**—TENTH GENERAL MEETING (BUSINESS), Mr. F. C. Penrose, F.R.S., *President*, in the Chair.—Decease announced of Charles Aldridge [F.] and Alfred White, F.S.A. [H.A.]. Election of members. Minutes, page 343.
- March 12th.**—THIRD MEETING OF THE PRIZES AND STUDENTSHIPS COMMITTEE (9 members present).
- March 14th.**—EIGHTH MEETING OF THE SCIENCE STANDING COMMITTEE (13 members present).
- March 14th.**—FOURTEENTH MEETING OF THE BOARD OF EXAMINERS (ARCHITECTURE) (7 members present).
- March 15th.**—THIRD MEETING OF THE FINANCE COMMITTEE OF COUNCIL (3 members present).
- March 18th.**—EIGHTEENTH MEETING OF THE COUNCIL (13 members present).
- March 19th & 20th.**—PRELIMINARY EXAMINATION in London, Manchester, and Bristol, to qualify for registration as *Probationer*.
- March 19th, 20th, 21st, & 22nd.**—INTERMEDIATE EXAMINATION in London to qualify for registration as *Student*.
- March 21st.**—FIFTEENTH MEETING OF THE BOARD OF EXAMINERS (ARCHITECTURE) (9 members present).
- March 22nd.**—SIXTEENTH MEETING OF THE BOARD OF EXAMINERS (ARCHITECTURE) (9 members present).
- March 25th.**—NINETEENTH MEETING OF THE COUNCIL (12 members present).
- March 25th.**—ELEVENTH GENERAL MEETING (ORDINARY), Mr. James Brooks, *Vice-President*, in the Chair.—Decease announced of Ernest Turner [F.] and Hubert Alfred Gregg [A.]. Announcement of results of Intermediate Examination and names of newly registered Students. Paper by Mr. Henry W. Burrows: SOUND IN ITS RELATION TO BUILDINGS. Discussion. Minutes, page 393.
- March 29th to April 5th.**—FIRST "FINAL" EXAMINATION in London and Manchester to qualify for *candidature* as *Associate*.
- April 1st.**—TWENTIETH MEETING OF THE COUNCIL (14 members present).
- April 2nd.**—FIFTH MEETING OF THE PRACTICE STANDING COMMITTEE (9 members present).
- April 4th.**—SEVENTEENTH MEETING OF THE BOARD OF EXAMINERS (ARCHITECTURE) (8 members present).
- April 4th.**—NINTH MEETING OF THE SCIENCE STANDING COMMITTEE (8 members present).
- April 5th.**—SEVENTH MEETING OF THE ART STANDING COMMITTEE (9 members present).
- April 5th.**—EIGHTEENTH MEETING OF THE BOARD OF EXAMINERS (ARCHITECTURE) (9 members present).
- April 8th.**—TWENTY-FIRST MEETING OF THE COUNCIL (10 members present).
- April 9th.**—NINETEENTH MEETING OF THE BOARD OF EXAMINERS (ARCHITECTURE) (6 members present).
- April 19th.**—NINTH MEETING OF THE LITERATURE STANDING COMMITTEE (6 members present).
- April 22nd.**—TWENTY-SECOND MEETING OF THE COUNCIL (16 members present).
- April 22nd.**—TWELFTH GENERAL MEETING (ORDINARY), Mr. F. C. Penrose, F.R.S., *President*, in the Chair.—Decease announced of John George Hall [A.], Gordon Macdonald Hills [A.], and Alfred Hayles Clark [A.]. Announcement of results of Final Examination, and the names of those who had passed. Announcement of results of Preliminary Examination, and names of newly registered Probationers. Papers by Professor Aitchison [F.], A.R.A., Mr. Wm. Young [F.], and Mr. W. Brindley, F.G.S.: THE USE AND ABUSE OF MARBLE FOR DECORATIVE PURPOSES. Discussion. Minutes, page 428.
- April 25th & 26th.**—EXAMINATION under the London Building Act 1894, and Local Acts and Authorities.
- April 26th.**—SECOND MEETING OF THE STATUTORY BOARD OF EXAMINERS (7 members present).
- April 29th.**—SPECIAL GENERAL MEETING, Mr. Aston Webb, F.S.A., *Vice-President*, in the Chair.—The "Form

"of Agreement and Revised Schedule of Conditions of Building Contracts" presented, and recommended by the Council for approval and adoption. Letters of objection read. Statement by the Hon. Secretary of the Practice Standing Committee. Discussion. Adjournment to allow the Allied Societies and the General Body further time for consideration of the document.

Minutes, page 477.

May 1st.—Meeting of the Committee of Council for Visit of German Architects (3 members present).

May 6th.—Twenty-third Meeting of the Council (13 members present).

May 6th.—Sixtieth Annual General Meeting, Mr. F. C. Penrose, F.R.S., *President*, in the Chair.—Announcement of result of the April Statutory Examination.—Annual Report of the Council presented; Report of the Auditors read; Discussion; Annual Report approved and adopted. Appointment of Scrutineers to direct the election of the Council and Standing Committees. Nomination of Auditors 1895-96. Re-election of the Statutory Board of Examiners.

Minutes, page 477.

May 8th.—TWENTIETH MEETING OF THE BOARD OF EXAMINERS (ARCHITECTURE) (10 members present).

May 9th.—TENTH MEETING OF THE SCIENCE STANDING COMMITTEE (13 members present).

May 10th.—TENTH MEETING OF THE LITERATURE STANDING COMMITTEE (6 members present).

May 13th.—Twenty-fourth Meeting of the Council (15 members present).

May 13th.—Adjourned Special General Meeting, Mr. Aston Webb, F.S.A., *Vice-President*, in the Chair.—Announcement that communications and suggestions on the subject of the "Revised Form of Conditions of Contract" had been received from the Allied Societies and from members of the General Body. Summary of the above-mentioned Suggestions by Mr. Edwin T. Hall [F.]. Discussion. Resolution approving the Paper and, subject to amendments in the discretion of the Council, authorising its issue. Resolution withdrawing the assent of the Institute to the further issue of the old "Heads of Conditions." Resolution instructing the Council to advise the Council of the Institute of Builders of the foregoing resolutions, and duly notify the same to the professional Press.

Minutes, page 522.

May 20th.—Twenty-fifth Meeting of the Council (16 members present).

May 20th.—Fourteenth General Meeting (Ordinary), Mr. F. C. Penrose, F.R.S., *President*, in the Chair.—Decease announced of James Piers St. Aubyn [F.]. Candidates recommended for admission. Paper by Professor Baldwin Brown [H.A.], M.A.: SOME CHARACTERISTICS OF PRE-CONQUEST ARCHITECTURE. Discussion.

Minutes, page 522.

May 24th.—Meeting of the Building Contracts Committee of Council (3 members present).

May 24th.—Third Meeting of the Hon. Associates Committee of Council (3 members present).

May 27th.—Fourth Meeting of the Finance Committee of Council (3 members present).

May 28th.—Twenty-sixth Meeting of the Council (11 members present).

June 10th.—Twenty-seventh Meeting of the Council (15 members present).

June 10th.—Fifteenth General Meeting (Business), Mr. F. C. Penrose, F.R.S., *President*, in the Chair.—Resolution instructing the Council to memorialise the Prime Minister on behalf of the British School at Athens,

urging its claims to an annual grant from the Government. Motion agreed to.—That the Council do publish the names of the seven proposers of any name or names added by Fellows and Associates to the nomination list issued by the Council. The Reports of the Scrutineers read, and the Council and Standing Committees for 1895-96 declared to be duly elected. Election of members.

Minutes, page 550.

June 11th.—TWENTY-FIRST MEETING OF THE BOARD OF EXAMINERS (ARCHITECTURE) (14 members present).

June 17th.—First Meeting of the Council 1895-96 (16 members present).

June 24th.—Second Meeting of the Council (19 members present).

June 24th.—Sixteenth General Meeting (Ordinary), Mr. F. C. Penrose, F.R.S., *President*, in the Chair.—PRESENTATION OF THE ROYAL GOLD MEDAL TO MR. JAMES BROOKS [F.]. Address by the President, and Mr. Brooks's Reply.

Minutes, page 572.

June 26th.—FIRST MEETING OF THE ART STANDING COMMITTEE 1895-96 (9 members present).

June 28th.—FIRST MEETING OF THE SCIENCE STANDING COMMITTEE 1895-96 (12 members present).

July 2nd.—FIRST MEETING OF THE PRACTICE STANDING COMMITTEE 1895-96 (9 members present).

July 4th.—FIRST MEETING OF THE BOARD OF EXAMINERS (ARCHITECTURE) 1895-96 (16 members present).

July 8th.—Third Meeting of the Council (18 members present).

July 8th.—First Meeting of the Hon. Associates Committee of Council 1895-96 (4 members present).

July 8th.—Special General Meeting, Mr. F. C. Penrose, F.R.S., *President*, in the Chair.—Decease announced of Thomas Chatfield Clarke [F.]. Announcement that the Council had given instructions to issue to members the new Form of Agreement and Schedule of Conditions for Building Contracts. Motion to adopt a recommendation of the Council to establish a Class of subscribing members to be called "Craftsmen," and to make and adopt By-laws and Declaration, therewith submitted, governing the proposed new class. Discussion. Resolution approving the general principle of the scheme, but referring the matter to the Council for consideration of details, and for submission to a subsequent Meeting.

Minutes, page 596.

July 16th.—SECOND MEETING OF THE ART STANDING COMMITTEE (8 members present).

July 22nd.—First Meeting of the Finance Committee of Council 1895-96 (6 members present).

July 25th.—THIRD MEETING OF THE ART STANDING COMMITTEE (9 members present).

July 26th.—FIRST MEETING OF THE LITERATURE STANDING COMMITTEE 1895-96 (10 members present).

July 29th.—Fourth Meeting of the Council (14 members present).

August 9th.—FOURTH MEETING OF THE ART STANDING COMMITTEE (5 members present).

October 9th.—Second Meeting of the Finance Committee of Council (5 members present).

October 10th.—SECOND MEETING OF THE SCIENCE STANDING COMMITTEE (13 members present).

October 10th.—FOURTH MEETING OF THE ART STANDING COMMITTEE (6 members present).

October 11th.—SECOND MEETING OF THE LITERATURE STANDING COMMITTEE (7 members present).

October 14th.—Fifth Meeting of the Council (16 members present).



THE REFERENCE LIBRARY.

[Additions: 30th September 1894—12th October 1895.]

DONATIONS.

Drawings, Prints, Photographs, &c.

- ADAMS (M. B.) *Fellow*—ARCHITECTURAL ASSOCIATION—
Illustrations of excursion in Gloucestershire 1895.
7 sheets. *E. Lond.* 1895
- BULS (C.) *Hon. Corr. Member*—BRUSSELS—Maison du
roi: view. *Pr. Brussels* —
- FELLNER (F.) *Hon. Corr. Member*—AUGSBURG—Stadt-
theater: view. *E.* — 1877
- BERLIN—Theater Unter den Linden: view. *E.* — 1892
- BRÜNN—Stadttheater: view. *E.* — 1882
- BUDA-PESTH—Lustspieltheater: views. 2 sheets.
E. — 1895
- CARLSBAD—Hygiea: quelle and Sprudel: interiors.
6 sheets. *P. Prague* —
Stadttheater. 3 sheets. *E. & P. v. p.* [1887]
- ODESSA—Stadttheater: view, plans, elevations, sections,
&c. 11 sheets. *E. & P. v. p.* [1887]
- PESTH—Volkstheater: view. *E.* — 1874
- PRAGUE—Neues Deutsches Theater: views. 3 sheets.
E. & P. Prague [1887]
- Vaulting: view. *P. Prague* —
- PRESBURG—Stadttheater: view. *P. Presburg* —
- SALZBURG—Stadttheater: auditorium. *P. Salzburg* —
- VIENNA—Ausstellungstheater: view. *E.* — 1892
- Etablissement Ronaecher. 2 sheets. *P. Vienna* —
- Geschäftshaus: view. *Pr. Vienna* —
- Stadttheater: view. *E.* — 1873
- Observatory: view. *Pr. Vienna* —
- Volkstheater; view, plans, section, &c. 6 sheets.
E. & P. Vienna [1890]
- ZÜRICH—Stadttheater: view. *E.* — 1891
- GRATTON (F. M.) *Fellow*—CHINA—Views of buildings
&c. 35 sheets. *P.* — —
- LAMBERT (Captain)—GREECE—Architectural views: D.
and *Pr.* from D. by Sir R. Smirke, and P. — —
la. fo. — —
- SPIERS (R. Phene) F.S.A., *Fellow*—ARCHITECTURAL ASSO-
CIATION—Programmes. 7 sheets. *E. Lond.* 1869-86
- ANONYMOUS—Sketch of W. Burges and Mr. Chapple.
Pr. — —
- RICHARDSON (H. H.)—Design for Albany cathedral. 9
sheets. *Pr.* — —
- CHICAGO—Chamber of Commerce building. 2 sheets.
Pr. Chicago 1890
- PHILADELPHIA U.S.A.—Church of Saviour: S. porch.
Pr. Philadelphia 1890
- WOBURN U.S.A.—Winn Memorial Library: views.
2 sheets. *P.* — —
- VIOLLIER (L.) *Hon. Corr. Member*—GENEVA—Church of
St. Pierre: views. 13 sheets. *P. Geneva*
Buildings unnamed: views. 3 sheets. *P. Geneva*
- WARD (W. H.) *Institute Silver Medallist* 1895—CAM-
BRIDGE—St. John's college: gateway. 2 sheets.
Pr. Lond. [1895]
- WIELEMANS (A.) Edl. v. Monteforte, *Hon. Corr. Member*
—Design for houses in Vienna. *P.* — —
- Grabdenkmal: view. *Pr. Berlin* —
- Furniture and utensils. 7 sheets. *P. Vienna* —
- BREITENFELD—Pfarrkirche: view. *P. Gratz* —
- GRATZ—Civilgerichtsgebäude. 5 sheets. *P. Gratz* —
- Rathhaus: view. *P. Gratz* —
- Villa der gräfin Ferri: views. 3 sheets. *P. Gratz* —
- INNSBRUCK—Redoutensaal: plan and façade. 2 sheets.
P. — 1885
- PEUERBACH—Freihof Steindlbach: view. *P. Vienna* 1888
- INZERSDORF—Grufkapelle: view. *P.* — —
- WIGFULL (J. R.) *Associate*—LINCOLN—Cathedral: N.
transept. 5 sheets. *Pr. Lond.* [1895]

TOTAL:—1 volume; 156 sheets.

Medals.

- CORPORATION OF THE CITY OF LONDON—Bronze.
Commemorative of the visit of the Duke and Duchess
of York.
- GRATTON (F. M.) *Fellow*—Bronze. Commemorative of
Shanghai Municipal Jubilee.

TOTAL:—2.

Books, Pamphlets, &c.

- AGENT-GENERAL FOR NEW SOUTH WALES—
SYDNEY—Dept. of Pub. Wks.: Report.
pam. fo. Sydney 1894
- ALLEN (G.) the Publisher—RUSKIN (J.)—Verona, and
other lectures. *la. 8o. Lond.* 1894
- ANONYMOUS—Reorganisation of the Royal Engineers.
pam. la. 8o. — 1895
- ARCHITEKTEN- UND INGENIEUR-VEREIN FÜR
ELSASS-LOTHRINGEN, Strassburg—Strassburg
und seine bauten. *la. 8o. Strassburg* 1894
- ARCHITEKTEN- UND INGENIEUR-VEREIN FÜR
NIEDERRHEIN UND WESTFALEN, Cologne—
Cölnner thorbürgen und befestigungen. (*Wants*
Piate 59.) *ob. fo. Cologne* 1883
- Köln und seine bauten. *la. 8o. Cologne* 1888
- BATEMAN (C. E.)—Castle Bromwich church.
pam. la. 4o. — 1893
- BATES & GUILD (Messrs.) the Publishers—Brochure
series of architectural illustration. Vol. i. Nos. 1-5.
la. 8o. Boston 1895
- BATSFORD (B. T.)—BATSFORD (H.)—Reference books on
architecture and decoration, &c. *pam. 4o. Lond.* 1894
- STREET (W. B.)—Hand-list of books on architecture,
Liverpool Public Library. *pam. 8o. Liverpool* 1894
- BATSFORD (B. T.) the Publisher—FLETCHER (B.)—
London Building Act 1894. *sm. 8o. Lond.* 1894
- Quantities. 6th ed. *sm. 8o. Lond.* 1895
- MEYER (F. S.)—Handbook of ornament. 2nd Eng. ed.
8o. Lond. 1894
- MIDDLETON (G. A. T.)—Stresses and thrusts.
sm. 8o. Lond. 1895
- MITCHELL (C. F.)—Building construction; advanced
and honours courses. *sm. 8o. Lond.* 1884
- SACHS (E. O.)—Urban fire protection.
pam. 8o. Lond. 1895
- BELTRAMI (L.)—*Hon. Corr. Member*—Ambrogio Fossano.
pam. sm. 8o. Milan 1895
- La Certosa di Pavia. *sm. 8o. Milan* 1895
- BIBBY (G. H.) *Fellow*—The housing of pauper lunatics.
sm. 8o. Lond. 1895

- BILSON (J.) F.S.A., *Fellow*—Discovery of remains of chapter-house, Beverley Minster.
pam. la. 4o. *Westminster* 1895
- BLACK (Messrs. A. & C.) the Publishers—FARRAR (F. W.)
—The life of Christ as represented in art.
la. 8o. *Lond.* 1894
- BOARDMAN (F.) *Fellow*—NORWICH—Castle Museum.
pam. 4o. *Norwich* [1895]
- BOMBAY GOVERNMENT—Archæological survey of Western India : Progress report 1893-94.
pam. fo. *Poona* 1894
- BOROUGH SURVEYOR, STOCKPORT—Annual report.
8o. *Stockport* 1894
- BREWSTER (E. H. G.) A.M.Inst.C.E.—Patents for inventions.
pam. la. 8o. *Lond.* 1894
- BRIDGE HOUSE ESTATES COMMITTEE—WELCH (C.) & BARRY (J. W.)—History of the Tower Bridge.
(2 copies.) la. 4o. *Lond.* 1894
- BROCKHAUS (Prof. H.)—Unsere heutige baukunst.
pam. la. 8o. *Leipzig* 1895
- BROOKS (G.)—Industry and property. 2 vols.
8o. *Halesworth* 1892-94
- BROWN (G. Baldwin) M.A., *Hon. Associate*—The "old things" of Greece and Italy. pam. 8o. *Edinb.* 1894
- BUILDER (THE) the Publishers—Cathedrals of England and Wales.
la. fo. *Lond.* 1894
- Royal Academy architecture. la. fo. *Lond.* 1892-94
- BULS (C.) *Hon. Corr. Member*—La peinture allemande.
pam. la. 8o. *Brussels* 1870
- Anciennes gildes et corporations.
pam. la. 8o. *Brussels* 1876
- Fêtes nationales de 1890. pam. 8o. [*Brussels* 1890]
- Palais du peuple. 2 pams. la. 8o. *Brussels* 1890, 1893
- Le Monténégro. pam. la. 8o. *Brussels* 1891
- La Thessalie. pam. 8o. *Brussels* 1892
- STÜBBEN (J.)—La construction des villes.
pam. 8o. *Brussels* 1895
- CADBURY, JONES, & Co. (Messrs.) the Publishers—
UNDERHILL (J.) & MONK (W.)—St. John's, Clerkenwell.
la. fo. *Lond.* 1895
- CAMBRIDGE UNIVERSITY PRESS, the Publishers—
GLAZEBROOK (R. T.)—Dynamics.
sm. 8o. *Cambridge* 1895
- Statics. sm. 8o. *Cambridge* 1895
- CATES (ARTHUR) *Past Vice-President*—ARCHITEKTEN- UND
INGENIEUR-VEREIN FÜR ELSSASS-LOTHRINGEN—Strass-
burg und seine bauten. la. 8o. *Strassburg* 1894
- ARCHITECTURAL PUBLICATION SOCIETY—Dictionary of
architecture. 11 vols. fo. *Lond.* 1852-92
- HERRMANN (J. von)—Bauordnung für die landsteile
rechts des Rheins. pam. sm. 8o. *Munich* 1894
- KARRER (F.)—Baumaterial-sammlung des k. k. hofmu-
seums in Wien. sm. 8o. *Vienna* 1892
- KUZSINSZKY (V.)—Aquincum guide,
pam. sm. 8o. *Buda-Pesth* 1894
- CHAPMAN & HALL, LTD. (Messrs.) the Publishers—
PERROT (G.) & CHIEPIEZ (C.)—History of art in primitive
Greece : Mycænan. 2 vols. la. 8o. *Lond.* 1894
- CHRISTIAN (E.) *Past President* (Executors of)—
BILLINGS (R. W.)—Kettering church. 4o. *Lond.* 1843
- CHRISTIAN (E.)—Report on St. Peter's, Wolverhampton.
(*Wants Plate I.*) pam. 8o. *Wolverhampton* 1852
- Canterbury and York Cathedrals.
fo. *Lond.* 1755
- DART (J.)—Westminster Abbey. (*Plates only. Imper-
fect.*) fo. *Lond.* —
- (*Bound in one.*)
- GWILT (J.)—Equilibrium of arches.
3rd ed. 8o. *Lond.* 1839
- HALL (F.)—St. Peter's church, Wolverhampton.
8o. *Wolverhampton* 1865
- KENT ARCHÆOLOGICAL SOCIETY—Archæologia Cantiana.
Vols. viii., ix., xi., xix. 8o. *Lond.* 1872-92
- CHRISTIAN (E.) (*continued*) —
REID (D. B.)—Theory and practice of ventilation.
8o. *Lond.* 1844
- WILSON (W. C.)—Helps to the building of churches,
parsonages, and schools. 2nd ed.
8o. *Kirkby Lonsdale* 1842
- CITY OF LONDON BOOK DEPOT, the Publishers—
ARMSTRONG (C.)—Cusack's shading. ob. fo. *Lond.* —
Cusack's model drawing. 4o. *Lond.* 1893
- CLOQUET (L.)—Classification et appréciation des formes.
pam. la. 8o. *Brussels* 1895
- CLOWES & SON, LTD. (Messrs.)—JOHANNESBURG, S.A.B.
—Town engineer's report. pam. 8o. *Lond.* 1895
- GRIFFITHS (W. R.) & PEMBER (F. W.)—London Building
Act 1894. 8o. *Lond.* 1895
- COLE (R. Langton) *Associate*—British Almanac & Com-
panion 1894. sm. 8o. *Lond.* 1893
- CRANAGE (D. H. S) M.A.—Churches of Shropshire :
Brimstree. la. 4o. *Wellington* 1894
- CROSBY LOCKWOOD & SON (Messrs.) the Publishers—
Builders' & contractors' price-book.
sm. 8o. *Lond.* 1895
- GRIFFITHS (W.)—Trusses of wood and iron.
ob. 8o. *Lond.* 1886
- SMITH (T. Roger)—Acoustics. New ed.
sm. 8o. *Lond.* 1895
- DICKSEE (B. J.) *Associate*—London Building Act 1894.
8o. *Lond.* 1894
- EDITORS AND PROPRIETORS—
- | | |
|--------------------------------|---------|
| American Architect. | 1891-95 |
| Architect. | 1894-95 |
| Architectural Record. | 1894-95 |
| Architecture & Building. | 1894-95 |
| Australasian Builder. | 1894-95 |
| British Architect. | 1894-95 |
| Builder. | 1894-95 |
| Builder's Journal. | 1895 |
| Builder's Reporter. | 1894-95 |
| Building & Engineering Journal | 1894-95 |
| Building News. | 1894-95 |
| California Architect. | 1894-95 |
| Canadian Architect & Builder. | 1894-95 |
| Construction Moderne. | 1894-95 |
| Contract Journal. | 1894-95 |
| Deutsche Techniker-Zeitung. | 1895 |
| Engineering Record. | 1894-95 |
| Estates Gazette. | 1894-95 |
| Fireman. | 1894-95 |
| Furniture & Decoration. | 1894-95 |
| Gaceta de Obras Públicas. | 1894-95 |
| Indian Engineer. | 1894-95 |
| Industries & Iron. | 1894-95 |
| Inland Architect. | 1894-95 |
| Irish Builder. | 1894-95 |
| Journal of Decorative Art. | 1894-95 |
| Machinery Market. | 1894-95 |
| Neubauten und Concurrenzen. | 1895 |
| Notes & Queries. | 1894-95 |
| Plumber & Decorator. | 1894-95 |
| Revue d'Architecture. | 1894-95 |
| Semaine du Bâtiment. | 1894-95 |
| Surveyor. | 1894-95 |
- THE ELECTRICIAN PRINTING & PUBLISHING
Co., LTD., the Publishers—Engineering Magazine.
Vols. vii.-ix. la. 8o. *Lond.* 1894-95
- ELWORTHY (T.) *Fellow*—Hastings water supply.
pam. 8o. *St. Leonards* 1894
- FABER (J.)—History of the lead pencil.
pam. 8o. *Nuremberg* —
- FALKENER (E.)—WEBER (G.)—The so-called tomb of
St. Luke at Ephesus. pam. 8o. *Lond.* 1881
- FELLNER (F.) *Hon. Corr. Member*—Über den bau des
Wiener stadtheaters. pam. la. 4o. *Vienna* 1874

- FELLNER (F.) (*continued*)—
 GOGH (O. W. von)—Eröffnung des neuen stadttheaters
 in Zürich. pam. la. 4o. *Zürich* 1891
 LAUSER (W.)—Kunst-chronik.
 pam. la. 8o. *Vienna* 1889
- FERREE (B.) *Hon. Corr. Memb.*—The study of architec-
 ture. pam. 8o. *N. York* 1894
 Architecture in London. la. 8o. *N. York* 1895
 Artistic domestic architecture in America.
 la. 8o. *N. York* 1895
- The cathedrals of France. la. 8o. *N. York* 1895
- FLETCHER (Prof. Banister) *Fellow*—LONDON, King's Col-
 lege—Syllabus. pam. 8o. *Lond.* 1895
- FROWDE (H.) the Publisher—OXFORD—Archæologia
 Oxoniensis. Part 5. 8o. *Oxford* 1895
- GARDNER (J. S.)—Ironwork: to end of mediæval period.
 sm. 8o. *Lond.* 1893
- ANONYMOUS—Architecture et parties qui en dépendent.
 fo. [*Paris*] —
- GILDARD (T.)—An old Glasgow architect on some older
 ones. pam. 8o. [*Glasgow*] 1894
- GILL (L. U.)—the Publisher—MEADE (E.)—Pen pictures,
 and how to draw them. sm. 8o. *Lond.* 1895
- GOVERNMENT OF INDIA—Epigraphia Indica. Part 16.
 la. 4o. *Calcutta* 1894
- ROBERTSON (G. S.)—Káfristán and its people.
 pam. fo. — 1895
- GREEN (M.A.) *Associate*—Architects' certificate forms.
 ob. fo. *Cirencester* —
 Architects' order forms. ob. 8o. *Cirencester* —
- GRIGGS (W.) the Publisher—Journal of Indian Art.
 Nos. 49–51. sq. fo. *Lond.* 1894–95
- HARRIS (T.) *Fellow*—Taylor's builders' price-book.
 sm. 8o. *Lond.* 1776
- HEBB (J.) *Fellow*—ANONYMOUS—The lion's tale.
 pam. 8o. *Lond.* 1890
 Regolamento per la conservazione dei monumenti.
 pam. la. 8o. *Rome* 1893–94
- Antiche cave italiane. pam. 4o. *Rome* 1895
- BONI (G.)—Il duomo di Parenzo. pam. fo. *Rome* 1894
- DICKINSON (W. H.) Municipal pawnbroking.
 pam. 8o. *Lond.* 1894
- LONDON COUNTY COUNCIL—A short account of Spring
 Gardens, &c. pam. sm. 8o. *Lond.* 1895
- SOCIETY FOR THE PROTECTION OF ANCIENT BUILDINGS.—
 Report. sm. 8o. *Lond.* 1893
- HIGHTON (G.) *Fellow*—Education and the arts.
 pam. 8o. *Lond.* 1893
- HILL (H. L.) *Associate*—CANINA (L.)—Pianta di Roma
 antica. la. fo. *Rome* 1850
- HIRTH (Herr G.) the Publisher—Der Formen Schatz.
 1894, parts 10–12; 1895, parts 1–9.
 la. 4o. *Munich* 1894–95
- INDIA OFFICE—INDIA—N.-W. Prov. & Oudh: Progress
 report of archaeological survey circle ($\frac{A.S.}{145}$ 94).
 pam. fo. *Roorkee* —
- INDIAN ENGINEER Co., LTD., the Publishers—India as
 a field for industrial enterprise.
 pam. 4o. *Calcutta* 1895
- INGELOW (B.) *Fellow*—MURRAY (J. A. H.)—New English
 Dictionary. D (secs. 1 & 2). F (sec. 1).
 la. 4o. *Lond.* 1894–95
- JEFFERY (G. H.) *Fellow*—Buildings of the Holy
 Sepulchre. pam. 4o. *Jerusalem* 1895
- JEYPORE (Maharaja of) G.C.S.I., *Hon. Fellow*—JACOB
 (S. S.)—Jeypore portfolio of architectural details.
 Part 7. (2 copies.) la. fo. *Lond.* 1894
- KNIGHT & Co. (Messrs.) The Publishers—GLEN (R. C.) &
 BETHUNE (A. A.)—London Building Act 1894.
 8o. *Lond.* 1895
- KOCH (A.)—Academy architecture. 2 vols.
 4o. *London* 1892–93
- LACOUPERIE (Madame DE)—LACOUPERIE (T. DE)—
 Western origin of early Chinese civilisation.
 la. 8o. *Lond.* 1894
- LE COQ (Baron von)—VITRUVIUS—Baunkunst . . . über-
 stezt von A. Rode. 2 vols. la. 4o. *Leipzig* 1796
 De architectura . . . recensuit . . . C. Lorentzen.
 Vol. i. part 1 (*all published*). 8o. *Gotha* 1857
- LIVERPOOL ARCHITECTURAL SOCIETY—JACKSON
 (T. G.)—Some thoughts on the training of architects.
 pam. 8o. *L'pool* 1895
- SCHOOL OF ARCHITECTURE—Syllabus.
 pam. sm. 8o. *L'pool* 1895
- LONDON COUNTY COUNCIL—London technical educa-
 tion gazette. Nos. 1–11. fo. *Lond.* 1894–95
- LONGMANS, GREEN, & CO. (Messrs.) the Publishers—
 BENT (J. T.)—The ruined cities of Mashonaland.
 sm. 8o. *Lond.* 1895
- WARREN (W. H.)—Engineering construction in iron,
 steel, and timber. la. 8o. *Lond.* 1894
- LOVEGROVE (H.) F.S.I., *Associate*—MILIZIA (F.)—Me-
 morie degli architetti antichi e moderni. 3rd ed. 2
 vols. la. 8o. *Parma* 1781
- MACMILLAN & Co. (Messrs.) the Publishers—ERMAN
 (A.)—Life in ancient Egypt. la. 8o. *Lond.* 1894
- LETHBY (W. R.) & SWAINSON (H.)—The church of Sancta
 Sophia, Constantinople. la. 8o. *Lond.* 1894
- PATER (W.)—Greek studies. 8o. *Lond.* 1895
- VIOLETT-LE-DUC (E. E.)—Rational building.
 la. 8o. *N. York* 1895
- MADRAS GOVERNMENT—INDIA—Coorg: remains.
 la. 4o. *Madras* 1894
- Epigraphy: progress reports. (728, 729, Pub.)
 pam. fo. *Madras* 1894
- South Indian Buddhist antiquities. la. 4o. *Madras* 1894
- REA (A.)—Madras archæological survey: reports. (619–
 620, Pub.) pam. fo. *Madras* 1895
- MEESON (F.)—Table of oligocene, eocene, and cretaceous
 strata. pam. 8o. *Woking* 1895
- METHUEN & CO. (Messrs.) the Publishers—PETRIE
 (W. M. F.)—History of Egypt. sm. 8o. *Lond.* 1894
- MILLARD (W. S. N.) *Associate*—St. Mary's church,
 Hitchin. pam. la. 8o. *Hitchin* 1894
- MILLER (R.) Lord Dean of Guild—Municipal buildings of
 Edinburgh. la. 4o. *Edinb.* 1895
- MURRAY (A. S.) LL.D., F.S.A., *Hon. Associate*—Mauso-
 leum at Halicarnassos. pam. 4o. — [1894]
- MURRAY (J.)—Handbook of Rome. 15th ed.
 12o. *Lond.* 1894
- PERRY (J. T.) *Associate*—Bletchingley.
 pam. 8o. *Lond.* 1895
- PLANAT (P.)—Encyclopédie de l'architecture: Tables du
 texte et des dessins. la. 8o. *Paris* [1895]
- READE (T. M.) Assoc. M.Inst.C.E., F.G.S., *Fellow*—Dublin
 and Wicklow shelly-drift. pam. 8o. *L'pool* 1894
- ST. BRIDE'S PRESS, LTD., the Publishers—MAXWELL
 (W. H.)—Drainage work and sanitary fittings.
 12o. *Lond.* 1895
- SAMPSON LOW, MARSTON, & Co., LTD. (Messrs.) the
 Publishers—LEANING (J.)—Specifications.
 sm. 8o. *Lond.* 1894
- SANDBY (W.)—Thomas and Paul Sandby.
 8o. *Lond.* 1892
- SCHWANN (Herr L.) the Publisher—Zeitschrift für christ-
 liche kunst. Vol. vii. Nos. 7–12; vol. viii. Nos. 1–7.
 sm. fo. *Düsseldorf* 1894–95
- SCOTT (WALTER), LTD. (Messrs.) the Publishers—
 TOMLINSON (W. W.)—Denton Hall. 4o. *Lond.* 1894
- SEARLE (C. H.)—The quantity surveyor. Parts 1–6.
 la. 4o. *Lond.* —
- SIMPSON (W.) R.I., M.R.A.S., *Hon. Associate*—Oriental
 art and archæology. pam. la. 8o. *Woking* 1894
- SMITH (P. G.), *Fellow*—ANONYMOUS—Frauds and abuses
 at St. Paul's. sm. 8o. *Lond.* 1712–1

- SMITHER (J. G.), *Fellow*—Architectural antiquities, Anurádhapura. la. fo. *Lond.* [1894]
- SOCIETY FOR PROMOTING CHRISTIAN KNOWLEDGE, the Publishers—MASPERO (G.)—The dawn of civilisation. la. 8o. *Lond.* 1894
- SPON (Messrs. E. & F. N.) the Publishers—Architects' & builders' price-book. sm. 8o. *Lond.* 1895
- Engineers' and contractors' price-book. 4o. *Lond.* 1895
- STATHAM (H. H.)—The changes in the London building law. sm. 8o. *Lond.* 1895
- WOOD (W. H.)—Practical stair building and handrailing. la. 8o. *Lond.* 1894
- STANNUS (H.), *Fellow*—Decorative treatment of natural foliage. pam. la. 8o. *Lond.* 1891
- Decorative treatment of artificial foliage. pam. la. 8o. *Lond.* 1895
- STATHAM (H. H.) *Fellow*—Architecture for general readers. 8o. *Lond.* 1895
- STOCK (E.) the Publisher—The Antiquary. N.S., No. 61. 4o. *Lond.* 1895
- ORDISH (T. F.)—Early London theatres. 8o. *Lond.* 1894
- STÜBBEN (J.)—Construction des villes. pam. 8o. *Brussels* 1895
- Der bau der städte. pam. 8o. *Berlin* 1895
- Gesundheitliche verbesserungen baulicher art in italienischen städten. pam. 8o. *Bonn* 1895
- SWAN SONNENSCHNEIN & Co. (Messrs.) the Publishers—SEYFERT (O.)—Dictionary of classical antiquities. 3rd ed. la. 8o. *Lond.* 1895
- SWEET & MAXWELL, LTD. (Messrs.) the Publishers—CRATES (W. F.)—London Building Act 1894. la. 8o. *Lond.* 1894
- SZERELMEY (N. C.)—Waterproof walls. pam. 8o. *Lond.* 1895
- TAYLOR (A. T.) *Fellow*—MCGILL UNIVERSITY—Opening of Library. pam. ob. fo. *Montreal* 1893
- THOMPSON (W.) M.A., D.D.—St. Saviour's, Southwark. 8o. *Lond.* 1894
- TICKNOR & CO. (Messrs.) the Publishers—BERG (L. DE C.)—Safe building. 2 vols. 4o. *Boston* 1892-94
- TRANSACTIONS, REPORTS, AND PROCEEDINGS OF SOCIETIES, &c.
- AMSTERDAM—Architectura et Amicitia.—Architectura. fo. *Amst.* 1894-95
- De Architect. fo. *Amst.* 1894-95
- Maatschappij tot Bevordering der Bouwkunst.— Afbeeldingen van oude bestaande gebouwen. No. 35. la. fo. *The Hague* 1894
- Bouwkundig Weekblad. fo. *Amst.* 1894-95
- BERLIN—Architekten-Verein.—Entwürfe 1895. la. fo. *Berlin* 1895
- Zeitschrift für bauwesen. fo. *Berlin* 1894-95
- Königliche Technische Hochschule. — Das gesetz von der erhaltung der energie. pam. la. 8o. *Berlin* 1895
- BIRMINGHAM—Architectural Association.—Report. pam. sm. 8o. *Birm.* 1894
- BOSTON, U.S.A.—Massachusetts Institute of Technology. —Annual catalogue. pam. 8o. *Boston* 1895
- Technology Quarterly. Vol. vii. Nos. 2-4; vol. viii. No. 1. la. 8o. *Boston* 1894
- BRUSSELS—Société d'Archéologie de Bruxelles.— Annuaire. pam. 8o. *Brussels* 1895
- Annales. Vol. viii. part 4; vol. ix. parts 1, 3. la. 8o. *Brussels* 1894-95
- Société Centrale d'Architecture de Belgique.— L'Émulation 1894, Nos. 7-12; 1895, Nos. 1-6. la. fo. *Brussels* 1894-95
- TRANSACTIONS, REPORTS, AND PROCEEDINGS OF SOCIETIES, &c. (*continued*)—
- CHATHAM—Royal Engineers Institute.—Occasional papers. Vol. xx. 8o. *Chatham* 1894
- CHICAGO—American Institute of Architects.—27th annual convention. 4o. *Chicago* 1893
- CHRISTIANIA—Norsk Ingeniør- & Arkitekt-Forening.— Norsk teknisk tidsskrift. Vol. xii. Nos. 3-6; vol. xiii. Nos. 1-4. 4o. *Christiania* 1894-95
- COLCHESTER—Essex Archæological Society.—Transactions. N.S. Vol. v. parts 2 & 3. 8o. *Colchester* 1894-95
- COPENHAGEN—Kongelige Kunstakademi.—Aarsberetning. pam. 8o. *Copenhagen* 1895
- DUBLIN—Royal Society of Antiquaries of Ireland.— Journal. 5th S., vol. iv. Nos. 3 & 4; vol. v. Nos. 1 & 2. la. 8o. *Dublin* 1894-95
- DUNDEE—Institute of Architecture, Science, and Art.— Report. sm. 8o. *Dundee* 1894
- EDINBURGH—Architectural Association.—Transactions. Vol. ii.; vol. iii. No. 1. 8o. *Edinb.* 1894
- Museum of Science and Art.—Report. 8o. ——— 1893
- EXETER—Diocesan Architectural and Archæological Society.—Transactions. 3rd S. vol. i. part i. la. 8o. *Exeter* 1894
- GLASGOW—Mitchell Library.—Report. pam. 8o. *Glasgow* 1895
- Philosophical Society—Proceedings. Vol. xxv. 8o. *Glasgow* 1894
- University—Calendar. sm. 8o. *Glasgow* 1894
- ITHACA, U.S.A.—Cornell University.—Library Bulletin. No. 37. la. 8o. *Ithaca* 1895
- JOHANNESBURG, S.A.R.—South African Association of Engineers and Architects.—Proceedings. Vol. i. 8o. *Johannesburg* 1894
- LEEDS—Leeds & Yorkshire Architectural Society.— President's address. pam. 8o. *Leeds* 1894
- Yorkshire College.—Report. pam. 8o. *Leeds* 1894
- LEICESTER—Leicester & Leicestershire Society of Architects.—Report. pam. 8o. *Leicester* 1895
- LILLE—Société Régionale des Architectes du Nord de la France.—L'architecture et la construction. Vol. iv. Nos. 7-12; vol. v. Nos. 1 & 9. sm. fo. *Lille* 1894-95
- LIVERPOOL—Free Public Library.—Report. pam. 8o. *L'pool* 1895
- LONDON—Architectural Association.—A. A. Notes. la. 8o. *Lond.* 1894-95
- Curriculum. pam. 12o. *Lond.* 1895
- Library catalogue. sm. 8o. *Lond.* 1895
- Sketch Book. la. fo. *Lond.* 1894-95
- City of London College.—Calendar. 8o. *Lond.* 1894
- Institution of Civil Engineers.—Library catalogue (names). 3 vols. 8o. *Lond.* 1895
- List of Members. 8o. *Lond.* 1895
- Minutes of Proceedings. Vols. cxix.-cxxii. 8o. *Lond.* 1895
- Institution of Mechanical Engineers.—Proceedings. 8o. *Lond.* 1894-95
- Iron & Steel Institute.—Brief index. pam. 8o. *Lond.* 1895
- Journal. 8o. *Lond.* 1895
- List of Members. pam. 8o. *Lond.* 1895
- Royal Archæological Institute.—Journal. Nos. 195-206. 8o. *Lond.* 1892-95
- Royal Geographical Society.—Geographical Journal. la. 8o. *Lond.* 1894-95

TRANSACTIONS, REPORTS, AND PROCEEDINGS OF SOCIETIES, &c. (*continued*)—
 LONDON (*continued*)—
 Royal Institution.—List of members. pam. 8o. *Lond.* 1894
 ————— Proceedings. No. 88. 8o. *Lond.* 1895
 Royal Photographic Society.—Journal & transactions. la. 8o. *Lond.* 1894-95
 ————— List of members. pam. la. 8o. *Lond.* 1895
 Royal Society.—Proceedings. 8o. *Lond.* 1894-95
 Sanitary Inspectors' Association.—Journal. N.S. vol. i. No. 1. 4o. *Lond.* 1895
 Sanitary Institute.—Journal. Vol. xv. parts 3 & 4; vol. xvi. parts 1-3. 8o. *Lond.* 1894-95
 Society of Antiquaries.—Archæologia. Vol. liv. part 1. la. 4o. *Lond.* 1894
 ————— Index of archæological papers. pam. 8o. *Lond.* 1894
 ————— List of Fellows. pam. 8o. *Lond.* 1894
 ————— Proceedings. 8o. *Lond.* 1894
 Society of Architects.—Journal. 4o. *Lond.* 1894-95
 Society of Arts.—Journal. la. 8o. *Lond.* 1894-95
 Society of Biblical Archæology.—Proceedings. 8o. *Lond.* 1894-95
 Society of Engineers.—Transactions. 8o. *Lond.* 1895
 Society of Medical Officers of Health.—Public Health. 4o. *Lond.* 1894-95
 Society for Preservation of Monuments of Ancient Egypt.—Reservoirs in the valley of the Nile. pam. 8o. *Lond.* 1894
 Society for the Promotion of Hellenic Studies.—Journal. Vol. xiv. No. 2; vol. xv. No. 1. sm. fo. *Lond.* 1894-95
 Surrey Archæological Society.—Collections. Extra vol. i. 8o. *Guildford* 1894
 Surveyors' Institution.—Transactions. 8o. *Lond.* 1894-95
 MADRID—Sociedad Central de Arquitectos.—Revista. 1894, No. 10; 1895, Nos. 7 & 8. sm. fo. *Madrid* 1894-95
 ————— Resumen. 1894, No. 10; 1895, Nos. 7 & 8. sm. fo. *Madrid* 1894-95
 MANCHESTER—Literary & Philosophical Society.—Memoirs & proceedings. 4th S. vol. viii. Nos. 3 & 4; vol. ix. Nos. 1-5. 8o. *Manch.* 1894-95
 Society of Architects.—Library catalogue. sm. 8o. *Manch.* 1895
 MARSEILLES—Association Provinciale des Architectes Français.—Annuaire. pam. 8o. *Marseilles* 1895
 ————— Bulletin. fo. *Marseilles* 1895
 MONTREAL—Canadian Society of Civil Engineers.—Annual report. pam. 8o. *Montreal* 1895
 ————— Transactions. Vol. viii. parts 1 & 2. 8o. *Montreal* 1894
 NEWCASTLE-ON-TYNE—North of England Institute of Mining & Mechanical Engineers.—Annual report. pam. la. 8o. *Newc.-on-Tyne* 1894
 ————— Report of committee on flameless explosives. Parts 1 & 2. la. 8o. *Newc.-on-Tyne* 1894-95
 ————— Transactions. la. 8o. *Newc.-on-Tyne* 1893-95
 Northern Architectural Association.—Annual report. pam. 8o. *Newc.-on-Tyne* 1895
 Public Library.—Annual report. pam. la. 8o. *Newc.-on-Tyne* 1895

TRANSACTIONS, REPORTS, AND PROCEEDINGS OF SOCIETIES, &c. (*continued*)—
 PALERMO—Collegio degli Ingegneri e degli Architetti.—Atti 1894, No. 1. la. 8o. *Palermo* 1894
 Congresso degli Ingegneri e degli Architetti.—Memorie preliminari e resoconti. 3 parts. la. 8o. *Palermo* 1892-3
 PARIS—Caisse de Défense Mutuelle des Architectes.—Mémorandum judiciaire. pam. 8o. *Paris* 1895
 École Spéciale d'Architecture.—Séance d'ouverture 1894-95. pam. 8o. *Paris* 1894
 Société Centrale des Architectes.—Annuaire. pam. 8o. *Paris* 1895
 ————— L'Architecture. fo. *Paris* 1894-95
 ROME—British and American Archæological Society.—Journal. Vol. ii. No. 4. la. 8o. *Rome* 1894
 Commissione Archeologica Comunale.—Bullettino. S. 4. Vol. xxii. No. 4; vol. xxiii. Nos. 1 & 2. la. 8o. *Rome* 1894-95
 SHEFFIELD—Society of Architects and Surveyors.—Annual report. pam. 8o. *Sheffield* 1895
 SYDNEY, N.S.W.—Engineering Association of N. S. Wales.—Minutes of proceedings. Vol. viii. 8o. *Sydney* 1893
 TORONTO—Engineering Society.—Papers read. Nos. 3 & 5. 8o. *Toronto* 1890, 1892
 VIENNA—Österreichischer Ingenieur- u. Architekten-Verein.—Zeitschrift. la. 4o. *Vienna* 1894-95
 WASHINGTON—Smithsonian Institution.—Reports. 8o. *Wash.* 1891-94
 YORKSHIRE ARCHÆOLOGICAL SOCIETY.—Journal. Nos. 51 & 52. la. 8o. *Lond.* 1895
 UNWIN (T. F.) the Publisher—HODGES (E.)—Some ancient English homes. 4o. *Lond.* 1895
 VAN YSENDYCK (J. J.) *Hon. Corr. Member*—Documents classés de l'art dans les Pays-Bas. 5 vols. la. fo. *Antwerp* 1880-89
 VIOLLIER (L.) *Hon. Corr. Member*—ASSOCIATION POUR LA RESTAURATION DE ST. PIERRE—St. Pierre: ancienne cathédrale de Genève. 3 parts. 4o. *Geneva* 1891-93
 VIRTUE & Co. LTD. (MESSRS.) the Publishers—LANE-POOLE (S.)—Cairo. 2nd ed. la. 8o. *Lond.* 1895
 WHITEHOUSE (C.)—How to save Egypt. pam. 8o. *Lond.* 1893
 WILLIAMS (R.)—The people the nation's wealth. pam. 8o. *Lond.* 1895
 WILLSON (T. J.) *Associate*—Tomb of St. Hugh at Lincoln. pam. 8o. *Lond.* 1894
 WOODWARD (W.) *Associate*, F.S.I.—St. Paul's cathedral. pam. 4o. *Lond.* 1894

TOTAL:—Volumes (*exclusive of Periodicals, Reports and Transactions of Societies, and Parts of Works issued in a serial form now in progress*) 113; Pamphlets 67.

PURCHASES.

Books, Pamphlets, &c.

ALLGEMEINE BAUZEITUNG—(*In progress.*) fo. *Vienna* 1894-95
 ALLSOP (R. O.)—Public baths and wash-houses. 8o. *Lond.* 1894
 ANDERSON (J.)—Our national monuments. pam. la. 8o. *Lond.* —
 ANONYMOUS—A colonial monastery. pam. la. 8o. *N. York* —
 New Courts of Justice designs. pam. la. 8o. *Lond.* —
 The profession of an architect. pam. la. 8o. *Lond.* —
 Rudiments of ancient architecture. 4th ed. la. 8o. *Lond.* 1810
 ATHENÆUM (THE)—(*In progress.*) 4o. *Lond.* 1894-95

BABEAU (A.)—Le Louvre. sm. fo. *Paris* 1895
 BELL (E.)—Distinction between Romanesque and Gothic. pam. la. 8o. *Lond.* ———
 BUCKINGHAM (J. S.)—Travels in Mesopotamia. la. 4o. *Lond.* 1827
 BURDETT (H. C.)—Hospitals and asylums of the world. Text 4 vols. la. 8o. *Lond.* 1891–93
 Plates 1 vol. la. fo. *Lond.* 1893
 CARRÈRE (J. M.)—Ethics of architectural competitions. pam. la. 8o. *Lond.* ———
 CHIPIEZ (C.)—Histoire critique des ordres grecs. sm. fo. *Paris* 1876
 COMYNS CARR (J. W.)—Abbey church of St. Albans. la. 4o. *Lond.* 1877
 DESJARDINS (G.)—Le Petit-Trianon. la. 8o. *Paris* 1885
 DESTAILLEUR (H.)—Notices sur quelques artistes Français. la. 8o. *Paris* 1863
 EGYPTIAN ANTIQUITIES—Exhibition at University College 1894; catalogue. pam. sm. 8o. *Lond.* 1894
 GWILT (J.)—Rudiments of architecture. la. 8o. *Lond.* 1839
 JAQUES (W. W.)—Acoustic architecture. pam. la. 8o. *Lond.* ———
 KODITEK (J.)—Literatur-nachweis der wichtigsten zeitschriften des hochbauwesens 1884–94. pam. la. 8o. *Vienna* 1895
 MIERS (H. C.) & CROSSKEY (R.)—The soil in relation to health. sm. 8o. *Lond.* 1893
 PALLADIO (A.)—L' antichità di Roma. la. 8o. *Oxford* 1709
 PARKER (J. H.)—Introduction to the study of Gothic architecture. sq. mo. *Oxford* 1849
 SHAW (E. M.)—Protection of dwelling-houses from fire. pam. la. 8o. *Lond.* ———
 TRENDALL (E. W.)—Exterior and interior finishings, in the Italian style. fo. *Lond.* 1848
 VAN BRUNT (H.)—Architecture in the West. pam. la. 8o. *N. York* 1889
 VASI (G.)—Nuova raccolta di vedute di Roma. 4o. *Rome* 1796
 VITRUVIUS POLLIO (M.)—Vitruvius iterum et Frontinus a Iocvndo revisi. 12mo. *Florence* 1513
 WILDE (E. S.)—New York City Hall. pam. la. 8o. *N. York* ———

TOTAL:—Volumes (*exclusive of Periodicals and Parts of Works issued in a serial form now in progress*) 20; Pamphlets 12.

Parliamentary Papers.

ARCHITECT—Architects' Registration Bill 1895. (132.) fo. *Lond.* 1895
 ARTIZANS' & INDUSTRIAL DWELLINGS—Housing of the Working Classes Act 1890. la. 8o. *Lond.* [1890]
 Housing of the Working Classes Act 1894. la. 8o. *Lond.* [1894]
 LONDON - House of Commons accommodation: return. (1.) fo. *Lond.* 1895
 METROPOLIS & METROPOLITAN—London Building Act 1894. sm. fo. *Lond.* 1894
 SCIENCE & ART DEPARTMENT, S. Kensington—Calendar, history, and regulations. (C. 7601.) 8o. *Lond.* 1895

SCIENCE & ART DEPARTMENT, S. Kensington (*cont.*)—42nd report, and supplement. (C. 7693, 7693-i.) la. 8o. *Lond.* 1895
 Technical education and county authorities: return. (C. 7463.) fo. *Lond.* 1894

TOTAL:—9.

Photographs.

HELMINGHAM—The Hall: views. ob. fo. ———
 TOTAL:—1 volume.

THE LOAN LIBRARY.

[*Additions: 1st October 1894—12th October 1895*]

Donations.

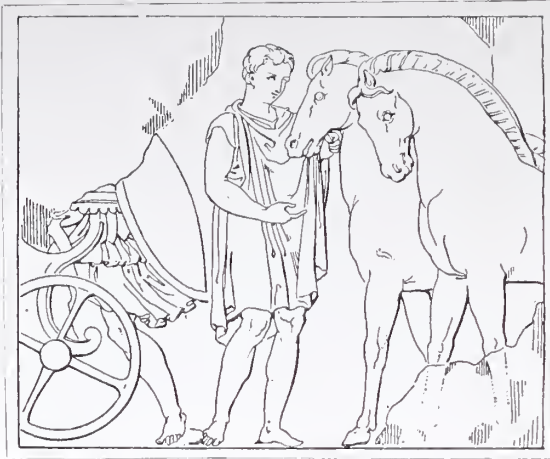
BIBBY (G. H.) *Fellow*—The housing of pauper lunatics. sm. 8o. *Lond.* 1895
 CHRISTIAN (E.) *Past President* (Executors of)—BOUTELL (C.)—Monumental brasses. la. 8o. *Lond.* 1849
 HADFIELD (J.)—Ecclesiastical, castellated, and domestic architecture of England. (*Imperfect.*) fo. *Lond.* 1848
 NEALE (J. P.) & Others—Westminster Abbey. fo. *Lond.* 1856
 PALEY (F. A.)—Baptismal fonts. 8o. *Lond.* 1844
 WILSON (F. R.)—Churches in archdeaconry of Lindisfarne. la. 8o. *Newc.-on-Tyne* 1870
 CROSBY LOCKWOOD & SON (Messrs.) the Publishers—FERGUSON (F. O.)—Architectural perspective. 2nd ed. la. 8o. *Lond.* 1895
 CULSHAW (A.) *Fellow*—JACKSON (T. G.)—Some thoughts on the training of architects. pam. 8o. *L'pool* 1895
 FALKENER (E.)—Museum of classical antiquities. New ed. la. 8o. *Lond.* 1860
 HEBB (J.) *Fellow*—MITCHELL (A. B.)—Shottesbrooke church. fo. *Lond.* 1885
 HIGHTON (G.) *Fellow*—Education and the arts. pam. 8o. *Lond.* 1893
 WIMPERIS (E. W.) *Associate*—MIERS (H. A.) & CROSSKEY (R.)—The soil in relation to health. sm. 8o. *Lond.* 1893

TOTAL:—Volumes 10; Pamphlets 2.

Purchases.

DURANDUS (W.)—Symbolism of churches and church ornaments. 8o. *Leeds* 1843
 FLETCHER (B.)—London Building Act 1894. sm. 8o. *Lond.* 1895
 GRIFFITHS (W. R.) & PEMBER (F. W.)—London Building Act 1894. 8o. *Lond.* 1895
 LEANING (J.)—Specifications. sm. 8o. *Lond.* 1894
 LEVEIL (J. A.)—Vignole: traité élémentaire d'architecture. 4o. *Paris* ———
 MEYER (F. S.)—Handbook of ornament. 2nd Eng. ed. 8o. *Lond.* 1894
 MITCHELL (C. F.)—Building construction: advanced and honours courses. sm. 8o. *Lond.* 1894
 SPIERS (R. Phené)—Architectural drawing. 4o. *Lond.* 1887
 SUTCLIFFE (G. L.)—Concrete. sm. 8o. *Lond.* 1893
 TARN (E. W.)—The mechanics of architecture. sm. 8o. *Lond.* 1892
 TUIT (J. E.)—The Tower Bridge. 4o. *Lond.* 1894

TOTAL:—Volumes 11.



MEMBERS ELECTED 1894-95.

Fellows (5).

- BELL: Edward Ingress [A.]
 DOLLMAN: Francis Thomas [A.]
 FOWLER: Charles Busted, Cardiff.
 HENMAN: William [A.] (*Inst. Medallist 1868; Pugin Student 1871*), Birmingham.
 WATERHOUSE: Paul, M.A. Oxon. [A.] (*Inst. Medallist 1886; Qualified as Associate 1888*).

Associates (67).

- ADAMS: Percy Henry (*Qualified 1894*).
 ARMSTRONG: Geoffrey Prater (*Qualified 1894*).
 BAILEY: Harold (*Probationer 1890, Student 1892, Qualified 1894*), Hull.
 BARKER: Walter Hugh (*Qualified 1894*), Wrexham.
 BARLOW: Luke (*Qualified 1894*), Manchester.
 BATEMAN: Charles Edward (*Qualified 1894*), Birmingham.
 BEALE: Sydney Benjamin (*Qualified 1894*).
 BIRD: Eustace Godfrey (*Qualified 1894*), Ontario.
 BOND: Frederick Bligh (*Qualified 1894*), Bristol.
 BORROWMAN: John, Jun. (*Qualified 1894*).
 BUDDEN: Harry Ebenezer (*Qualified 1894*), Sydney.
 CARNELL: John Laurie (*Qualified 1894*), Norwich.
 CHAPMAN: Henry Ascough (*Probationer 1890, Student 1894, Qualified 1894*), Scarborough.
 CHURCH: Harold Edmund (*Probationer 1892, Student 1892, Qualified 1894*).
 CLARK: John Pain (*Probationer 1889, Student 1892, Qualified 1894*).
 COOPER: Frank Berridge (*Probationer 1889, Student 1890, Qualified 1894*), Leicester.
 COSTER: George (*Qualified 1894*), Bournemouth.
 COTTON: Percy Paovich (*Probationer 1889, Student 1892, Qualified 1894*).
 CROMPTON: William Edward Vernon (*Probationer 1891, Student 1892, Qualified 1894, Ashpitel Prizeman*), Wigan.
 CUMMINS: Ernest Outram (*Probationer 1891, Qualified 1894*).
 DEWHURST: John Cadwallader (*Qualified 1894*), Belfast.
 DICKIE: Archibald Campbell (*Probationer 1893, Qualified 1894*).

- DOTTRIDGE: Samuel Stevens (*Probationer 1892, Student 1893, Qualified 1894*).
 EDWARDS: Frederick Ernest Pearce (*Qualified 1894*), Liverpool.
 ELKINS: Hyla Edward (*Qualified 1894*).
 ERRINGTON: Charles Septimus (*Qualified 1894*) Newcastle-on-Tyne.
 FETCH: Ernest Edward (*Qualified 1893*).
 FIELD: Alfred Whitelock (*Qualified 1894*).
 FLETCHER: Herbert Phillips (*Qualified 1894*).
 FORSYTH: William Adam (*Qualified 1894*).
 GAULD: William Edgar (*Qualified 1894*), Aberdeen.
 GUNN: George (*Qualified 1894*), Sandgate, Ayr.
 HARRINGTON: Harry (*Qualified 1894*).
 HAZELL: Wilberforce Ernest (*Probationer 1889, Qualified 1894*).
 HENNELL: Alexander Robert (*Probationer 1890, Student 1892, Qualified 1894*).
 HOBBS: Frederick Brice (*Qualified 1894*), Liverpool.
 HODGEN: William (*Qualified 1893*), Queensland.
 HORN: Robert William (*Qualified 1894*), Glasgow.
 HUBBARD: George (*Qualified 1894*).
 JAGGARD: Walter Robert (*Qualified 1894*).
 JEFFERIS: Harry (*Qualified 1893*), New South Wales.
 JOASS: John James (*Pugin Student 1892, Owen Jones Student 1894, Qualified 1894*).
 KERSHAW: Thomas (*Qualified 1894*), Halifax.
 KING: Vivian Herbert (*Qualified 1894*).
 KIRBY: Henry Ernest (*Probationer 1889, Student 1891, Qualified 1894*).
 LEGG: Herbert Alfred (*Qualified 1894*).
 LIVESAY: George Augustus Bligh (*Qualified 1894*), Bournemouth.
 MACALISTER: Alexander Paul (*Probationer 1889, Student 1891, Qualified 1894*), Cambridge.
 MILLS: Alfred Henry (*Qualified 1894*), Manchester.
 PALMER: Herbert Jeffrey (*Qualified 1894*).
 PINN: Allan John (*Qualified 1894*), Exeter.
 POLE: Thomas Aloysius (*Qualified 1894*), Brisbane.
 POTTER: Francis John (*Probationer 1890, Student 1891, Qualified 1894*).
 POTTER: Henry Ingle (*Qualified 1894*).
 PRICE: John Henry (*Qualified 1894*), Liverpool.
 PYE: Harry Wilson (*Probationer 1889, Student 1891, Qualified 1894*).
 RHIND: Thomas Duncan (*Qualified 1894*).
 SCORER: George Oakley (*Probationer 1892, Student 1893, Qualified 1894*).
 SHERIDAN: George Patrick (*Qualified 1894*).
 SMITH: Charles Henry (*Qualified 1894*).
 SPAIN: Joseph (*Probationer 1889, Student 1891, Qualified 1894*), Sunderland.
 SPENCER: Harry Tom Boden (*Probationer 1889, Qualified 1894*).
 TAYLER: Arnold Seaward (*Qualified 1894*).
 THOMSON: Robert John (*Qualified 1893*).
 TOYNTON: Alfred Wright (*Qualified 1893*).
 WESTON: Thomas Harry (*Probationer 1889, Qualified 1894*), Bristol.
 WISE: Henry James (*Probationer 1892, Qualified 1894*).

Honorary Associates (3).

- GILBERT: Alfred, R.A.

PRICE : Frederick George Hilton, Director of the Society of Antiquaries, F.G.S.

RICHMOND : William Blake, M.A. Oxon., R.A., F.S.A.

Hon. Corresponding Members (8).

BULS : Charles, Burgomaster of Brussels.

FELLNER : Ferdinand, Vienna.

FERREE : Barr, B.Sc. University of Pennsylvania, New York.

HAUSZMANN : Alois, Professor of Architecture in the Royal Polytechnic School, Budapest.

NAVILLE : Henri Edouard, D.Ph., D.Litt. *Correspondant* of the Institut de France, Geneva.

STEINDL : Emerich, Professor of Architecture (Mediæval) in the Royal Polytechnic School, Budapest.

VIOLLIER : Louis, Architect to the Cathedral of Saint-Pierre, Geneva.

WIELEMANS : Alexander, Vienna.



PRINTED BY
SPOTTISWOODE AND CO., NEW-STREET SQUARE
LONDON

43

GETTY CENTER LIBRARY



3 0125 00614 6895

