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# INDEX.

## ARTICLES, &c.

Adams, Prof., on the Training of Teachers, 464.  
 American Universities, 255.  
 Appointments and Vacancies, 25, 70, 182, 216, 250, 293, 326, 384, 425, 462, 495.  
 Armstrong, Prof., on Early Lessons in Science, 257.  
 Bevan, J. O., on the Equipment of the Teacher, 501.  
 Bowen, H. C., on Histories of Literature, 139.  
 Brain Functions, New Light on, 28.  
 British Academy, 379.  
 Butler, Prof., President of Columbia, 253.  
 Cambridge Conference, 496.  
 Cholmley, R. E., on Rewards and Punishments, 457.

## COLLEGE OF PRECEPTORS:—

General Meetings, 70, 328.  
 Meetings of Council, 29, 76, 143, 177, 234, 257, 297, 332, 425, 458, 505.  
 Pass Lists:—  
 Teachers' Diploma Examination.—  
 Christmas, 1901, 77; Midsummer, 1902, 335.  
 Certificate Examination.—Christmas, 1901, 97, 144; Midsummer, 1902, 345, 426.  
 Professional Preliminary Examination.—March, 1902, 187; September, 1902, 426.  
 Lower Forms Examination.—Christmas, 1901, 111; Midsummer, 1902, 365.

Commercial Linguists, Our Need of, 74.  
 Co-operative Secondary Schools, 73.  
 Coronation Honours, 292.

## CORRESPONDENCE:—

Annual Ceremonial—W. H. Collins, 296.  
 Bodleian Oration—E. A. Phipson, 497.  
 College of Preceptors and the Education Bill—J. O. Bevan, 295; H. W. Eve, 296.  
 Educationists' Opportunities—S. Bate-man, 296.  
 "Empirical"—J. J. Findlay, 457, 498.  
 Half-Yearly Meeting—J. O. Bevan, 379.  
 Member's Friendly Remonstrance—C. B. Guttenberg, 497.  
 Needs of Small Endowed Schools—T. Allen, 498.  
 Private Schools and Public Competition—Principal, 458.  
 Registration, The Order in Council on—Observer, 143.  
 Registration and the Supply of Teachers, A. M. Inghis, 223.  
 School Inspection—Observer, 18.  
 Sliphod English—E. Latham, 380.  
 Teachers' Registration Council—T. Allen, 296, 380.  
 Tenure of Head Masters—Head Master, 457.  
 Training of Secondary Teachers—Mag-ister, 19; A. M., 20; S. A. Burstall, 252.

Education, University School of, 465.  
 Education Bill, Head Masters' Associa-tion on, 75.  
 Education Gossip, 24, 69, 183, 216, 251, 294, 327, 385, 424, 463.  
 Endowments and Scholarships, 215, 250, 291, 292, 325, 326, 383, 384, 423, 462, 495.  
 Equipment of the Teacher, 501.  
 Euclid and Geometry, 289.

EVENING MEETINGS at the College of Preceptors. Papers read at:—  
 Histories of Literature: by Mr. H. C. Bowen, 139.  
 The Teaching of Elementary Mathe-matics: by Dr. J. J. Findlay, 184.  
 The Feelings as a Factor in School Training: by Mr. J. L. Paton, 219.  
 Notes on American Universities: by Prof. Knight, 255.  
 The Teaching of Geography: by Mr. L. W. Lyde, 463.  
 The Equipment of the Teacher: by the Rev. J. O. Bevan, 501.

Feelings as a Factor in School Training, 219.  
 Findlay, Dr. J. J., on the Teaching of Elementary Mathematics, 184.  
 Fixtures, 23, 69, 181, 214, 249, 291, 325, 383, 423, 461, 494.  
 Geography, Teaching of, 463.  
 Germany, University Life in, 424.  
 Gordy, Dr., on a University School of Education, 465.  
 Hamilton, A., on Modern Languages in the Army, 386.  
 Histories of Literature, 139.  
 Honorary Degrees, 182, 250, 291, 325, 494.  
 Ideal University for London, 294.  
 Knight, Prof., on American Universities, 255.

## LEADING ARTICLES:—

Cambridge Conference, 450, 489.  
 Country and the Bill, 373.  
 Education Bill, 169, 209.  
 Education Bill in Committee, 281, 317.  
 King's College, London, 282.  
 Multiplication of Universities, 241.  
 Nature Study, 318.  
 Registration of Teachers, 59, 127.  
 Secondary Problem, 449.  
 Tenure of Assistant Masterships, 59.  
 To be or not to be—"Scrapped": 415.  
 Training Problem, 14.  
 Weary Waiting, 13.

Literary Items, 25, 183, 216, 251, 293, 327, 385, 424, 463, 495.  
 London Mathematical Society, 40, 90, 158, 198, 234, 270, 306, 518.  
 Lyde, L. W., on the Teaching of Geo-graphy, 463.

MATHEMATICAL QUESTIONS AND SOLU-TIONS:—Aletrop, 87, 156, 195, 232, 267, 304, 336, 515; Arnold, L., 393; Bate-man, H., 196, 268, 303, 395, 516; Bates, G. N., 304; Beyens, Prof., 156; Bhat-tacharyya, Prof., 88; Biddle, D., 88, 195, 231, 268, 269, 337, 435, 437, 477, 515; Biggs, R., 195; Blaikie, J., 87, 156, 196, 304, 394, 436; Blythe, W. H., 267, 304; Carse, L. W., 87; Cuyler, Prof., 476; Chakravarti, Prof., Byomkamesa, 232; Chartres, R., 87, 155, 197, 231, 267, 436, 515; Christie, R. W. D., 38, 87, 156, 195, 231, 269, 303, 305, 336, 394, 436, 476, 516; Clayton, R. B., 232, 269; Cochez, Prof., 338, 436; Collins, M., 89; Constable, S., 87, 303; Cullen, J., 88, 303, 476; Cumm-ingham, Lieut.-Col., 38, 87, 88, 156, 195, 231, 267, 303, 336, 337, 393, 394, 395, 435, 476, 516; Curjel, H. W., 155, 156, 196, 232, 267, 269, 394, 435; Daniel, V., 232, 476; Davis, R. F., 37, 196, 267, 268, 303, 393, 516; De Vries, Prof., 88, 196, 267; Dew, H., 269; Durell, C. A., 232; Editor, 88; Elliott, Prof., 38; Escott, Prof., E. B., 336; Frizer, T., 38; Garrett, C. A. B., 395; Geuse, Prof., 39, 475; Goodwin, H. B., 395; Gordon, A., 87; Greenstreet,

W. J., 195, 267; Griffiths, I., 267, 304; Hardy, G. H., 87, 476; Harris, H. W., 437; Heppel, G., 231, 516; Heyden, A. F. van der, 155, 475; Hills, G. F. S., 394, 516; Hillyer, C. E., 268; Hjorsn, J. P., 196; Hudson, Prof., 231, 336; Huntington, E. V., 232; Isserlis, L., 395; Knowles, R., 156, 232, 303, 338, 395, 435; Laisant, C. A., 39, 475; Lamic, 88; Lawson, J. S., 337; Lemaire, J., 268; Lemone, Prof., 435; MacColl, H., 37, 155; Mackenzie, J. L., 196; Macleod, J., 515; MacMahon, Major P. A., 38; Marks, Constance I., 38, 267, 337, 437; Martin, A., 394, 435; Mitcheson, T., 304; Morley, Prof., 195, 267; Morrice, G. G., 195; Muir, Dr., 38, 336, 515; Muirhead, R. F., 231; Nanson, Prof., 89, 195, 196, 232, 267, 268, 336, 395, 435, 437, 475, 515, 516; Nesbitt, A. M., 37, 156, 195, 232, 267, 268, 337, 395, 436, 475, 515; Neuberger, Prof., 38, 89, 196, 435, 476; Omega, 437; Orchard, Prof., 232, 337, 436; Peachell, F. H., 88; Peele, T., 303, 395, 435; Peirce, B., 475; Peiris, M. R., 155, 393; Plummer, H. C., 37; Poole, A. W., 269, 303, 337, 338, 516; Prescott, J., 37, 88, 231, 232, 303, 338, 435; Quero, 87; Rau, R., 155; Reny, L. E., 155, 156, 232, 268, 338, 516; Reeves, F. W., 155; Roach, T., 155, 195, 196, 232, 268, 338, 435, 436, 516; St. Clair, J. C., 196; Salutation, 88; Sanjana, Prof., 37, 88, 89, 155, 196, 232, 267, 303, 305, 336, 337, 395, 437, 475, 477, 515, 516; Scott, T. C., 231, 515; Simmons, T. C., 87, 196; Sircorn, Prof., 37, 155, 336; Symons, E. W., 196; Taylor, C., 435; Taylor, H. M., 336, 475; Taylor, J. H., 232, 336, 395, 475; *θ β*, 155; Third, J. A., 37, 196, 267; Trachtenberg, H. L., 195, 338; Tucker, R., 88, 156, 195, 232, 268, 304, 338, 435, 437, 477, 516; Webster, H. W., 303, 304; Whitehead, R. F., 233, 394; Whitworth, W. A., 196, 303, 435; Wiggins, T., 38, 155, 195, 269, 393; Wol-stenholme, Prof., 305; Worthington, W. R., 475; Yonigman, C. E., 196, 303, 477, 515; Zerr, Prof., 157.

Mathematics, Teaching of Elementary, 184.  
 Micklejohn, Prof., 224.  
 Merchant Tailors' School in the Fifties, 132.  
 Modern Languages in the Army, 386.  
 Notes, 14, 61, 128, 170, 210, 242, 283, 319, 374, 416, 450, 490.  
 Paton, J. L., on the Feelings, 219.  
 Register of Teachers, the Order in Council, 134, 176, 379.  
 Registration Regulations—R. S. F. Roberts, 252.  
 Rewards and Punishments, 457.  
 Science, Early Lessons in, 257.  
 Sergeant, Mr. Lewis, 143.  
 Sliphod English, 257.  
 Sturling, Prof., on the Building of the University, 294.  
 Story, A. T., on Brain Functions, 28.  
 Summary of the Month, 16, 63, 130, 172, 212, 245, 284, 320, 376, 418, 452, 491.  
 Teachers' Registration Council Direc-tions, 323, 457.  
 Temple, Sir Richard, 177.  
 Tenure of Masters in Endowed Schools, 28.  
 Thornton, J. S., on Co-operative Sec-ondary Schools, 73.  
 Training of Secondary Teachers, 26, 464, 496.  
 Universities, 17, 65, 131, 175, 248, 287, 455, 493.

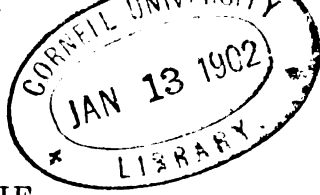
University School of Education, 465.  
 Wallace, W. B., on University Life in Germany, 424.

## REVIEWS, NOTICES, &c.

### REVIEWS.

Æschylus's Choephoroi (Tucker), 79.  
 Aristophanes (Rogers), Vol. V., 387.  
 Aristophanes's Knights (Neil), 31.  
 Ashley's American Federal State, 260.  
 Burnard's Companion to English History, 429.  
 Benson's The Schoolmaster, 466.  
 Black, William (Reid), 507.  
 Boole's Mathematical Imagination, 261.  
 Bowen, Edward (Bowen), 506.  
 Brandes's German Romantic School, 297.  
 Chaucer's Language and Metre (Ten Brink and Kluge), 298.  
 Combe's Commercial Correspondence, 80.  
 Creighton's Thoughts on Education, 225.  
 Crockett's Scott Country, 335.  
 Du Bois's Point of Contact, 148.  
 Duff's Theology of the Hebrews, 467.  
 Edward I. (Jenks), 507.  
 Edwards's Wales, 30.  
 Encyclopedia Biblica, Vols. I. to III., 427.  
 Encyclopedia Britannica (New Volumes), Vols. I. and II., 259; Vol. III., 332; Vol. IV., 387; Vol. V., 428; Vol. VI., 468.  
 Encyclopædic Dictionary—Supplement, 508.  
 Engel's English Literature (Bent), 467.  
 Findlay's Class Teaching, 426.  
 Girl from St. Agneta's (Yoxall), 261.  
 Grieb's German Dictionary (Schöer), Vol. I., 260; Vol. II., 568.  
 Henderson's History of Germany, 468.  
 Henry V. (Kingsford), 147.  
 Historical Essays (Owens College), 188.  
 History Teaching, Essays on, 78.  
 Hodge's Nature Study, 332.  
 Homer (Monro and Allen), 258.  
 Hughes's Schools at Home and Abroad, 80.  
 Hutchison's Lake of Menteth, 355.  
 Huxley, T. H. (Clodd), 189.  
 Jose's Growth of the Empire, 79.  
 Keane's Central and South America, 189.  
 Laurie's Scottish Philosophy, 468.  
 Mackinder's Britain, 146.  
 Marenholtz-Bulow, Baroness von, 333.  
 Martin's Law of Chelms, 30.  
 Maximilian I. (Watson), 260.  
 Mellor's Higher Mathematics, 429.  
 Miles's Better Food for Boys, 143.  
 Monro's Greek and Roman Education, 146.  
 Mudge's Text-Book of Zoology, 147.  
 Nation's Pictures, Vol. I., 388.  
 National Education, 145.  
 Newcomb's The Stars, 80.  
 Paton's Syria and Palestine, 467.  
 Pierce's Auditory Perception, 333.  
 Reusen's College Chemistry, 145.  
 Richmond's Mind of a Child, 32.  
 Robinson's Political Economy, 143.  
 Rogers's History of Philosophy, 29.  
 Saintsbury's Earlier Renaissance, 32.  
 Shakespeare's Julius Caesar (Macmillan), 298.  
 Shilleto's Greek and Latin Compositions, 31.  
 Shipley and MacBride's Zoology, 147.  
 Skrine's Pastor Agnorum, 225.  
 Tarr and McMurtry's Geography, Parts I. and II., 388.  
 Tibullus the Tyrant (Tarver), 507.

- Traill and Mann's Social England, Vols. I, to III., 508.  
 Traverser's Study of Gases, 189.  
 Villani's Barbarian Invasions of Italy, 428.  
 Webster's International Dictionary, 261.  
 Wells's Discovery of the Future, 224.  
 Willoughby's Hygiene, 226.  
 Wilmore's Analytical Psychology, 388.  
 Workman's Tutorial Arithmetic, 298.
- GENERAL NOTICES.
- Abbott's Roman Political Institutions, 82.  
 Adventures of Downy V. Green, 511.  
 Æschylus's House of Atreus (Morsehead), 35.  
 Aids to English History, 151.  
 Aisy's Westminster, 470.  
 Alford's Latin Passages, 262.  
 All Astray (Ascott R. Hope), 471.  
 Albrayce's Steps, 152.  
 Andersen in German (Rippmann), 509.  
 Anderson's Greek Prose Composition, 299.  
 Apperson's Idler's Calendar, 34.  
 Arnold's Life (Stanley and Fitch), 34.  
 Arnold's (E. J.) History Pictures, 470.  
 Arrian's Anabasis, Books I. and II. (Auden), 469.  
 At the Point of the Sword, 471.  
 Atkins's German Grammar, 430.  
 Avery's French Conversational Sentences, 151.  
 Bacon's Drawing Charts, 470.  
 Ball's Earth's Beginning, 82.  
 Ball's Elements of Greek, 469.  
 Balzac's Comedie Humaine (Wells), 299.  
 Bayard, Histoire de (Hartog), 151.  
 Bayard and Smith's Algebra, 509.  
 Bible, The Century, 227.  
 Black's Descriptive Geographies, 431.  
 Black's Geography Readers, 451.  
 Blackie's Continental Readers, 191; French Conversational Sheets, 470; Little French Classics, 190; Phonic Reading Sheets, 470; Red Letter Library, 511; Three Division Arithmetic, 299.  
 Blaisdell's Life and Health, 469.  
 Boon's Commercial Geography, 152.  
 Botanical Wall Diagrams, 470.  
 Botticelli (Stemmann), 264.  
 Bourlet's Cours de Mathematiques, 190.  
 Bourne's Comparative Anatomy, Vol. II., 389.  
 Bradshaw's First Step in Arithmetic, 429.  
 Brandin's Grands Prosauteurs, 265.  
 Briggs's First Stage Mathematics, 469.  
 Broderick and Morton's Egyptian Archaeology, 510.  
 Brown's (Hume) History of Scotland, Vol. II., 451.  
 Browne's Elements of Botany, 150.  
 Buckley's Birds of the Air, 85.  
 Buckley's Insect Life, 510.  
 Buckley's Trees and Shrubs, 510.  
 Cadett's Boy's Book of Battles, 511.  
 Cesar's Civil War, Book I. (Allcroft), 389.  
 Cesar's Gallic War, Book I. (Shuckburgh), 149; Book II. (Brown), 33; Book VI. (Brown), 389.  
 Canfield's The College Student, 300.  
 Carlyle's Heroes (Macmillan), 84.  
 Carr's Civil Service, 152.  
 Carter's History of England, Part II., 510.  
 Cassell's "Eyes and No Eyes" Series, Book IV., 83; Book V., 510; Book VI., 510.  
 Cassell's Saturday Journal, 512.  
 Castaways of Meadow Bank, 34.  
 Chambers's Continuous Readers, 431; Tales for Infants, 431; Twentieth Century Dictionary, 152; Twentieth Century Readers, Book V., 191.  
 Chaucer's Works (Skene), 262.  
 Children's Treasury, 512.  
 Church's Story of the Iliad, and of the Odyssey (Cheap Edition), 512.  
 Cicero de Amicitia (Masse), 81.  
 Cicero, Orations, &c. (Allen and Greenwood), 429.  
 Cicero pro Lege Manilia (Wilson), 508.  
 Clarke and Tanqueray's French Grammar, 469.  
 Clifford's Lectures and Essays, 85.  
 Colquhoun's More Animal Stories, 84.  
 Collins's Hygiene of Schools, 469.  
 Conan and Kendall's English History, 82.  
 Conqueres All, 511.  
 Cooke's Rambles after Flowers, 151.  
 Corbridge's Counting House Guide, 152.  
 Corinthians (Masse), 227.  
 Cruise of the Katherine, 471.  
 Danson and Crawford's Fathers, 85.  
 Darwin's Origin of Species (Murray), 84.  
 Davison's Mathematical Problem Papers, 469.  
 Debonah's Dressing, 35.
- De Maistre's Jeune Sberienne (Ethelred), 299.  
 De Musset's Trois Comedies (McKenzie), 299.  
 Dexter's Exercises on Sound, &c., 265.  
 Diamond Seekers, 511.  
 Dodd's Old Testament Narrative, 152.  
 D'Ooge's Latin Composition, 81.  
 Dumas's Cheot (Florent), 151.  
 Dumas's Napoleon (Vaughan), 334.  
 Edgren and Burnet's French Word Book, 227.  
 Emerson's Essay on Beauty (Cunnington), 300.  
 Enchiridion, Book XI. (Lachlan), 82.  
 Exodus (Stewart), 510.  
 Fanclough Family, 511.  
 Fallen Fortunes, 471.  
 Fawcett's Geometrical Drawing, 82.  
 Fime and her Friends, 471.  
 Finmore's Boys and Girls, 34.  
 First Men in the Moon, 84.  
 Fitzroy Pictures, 470.  
 Fletcher's Elementary Geometry, 509.  
 For the Red Rose, 511.  
 Fowler's More Tales of the Birds, 470.  
 Fraser and Squair's French Grammar, 430.  
 French and Osborn's Algebra, 34.  
 Fry's Grammar School Geography, 334.  
 Furneaux's Hygiene, 152.  
 Games and Gambols, 511.  
 Ganot's Physics (Atkinson and Reinold), 430.  
 Geibler's Deutsche Sagen, 151.  
 Geikie's Class-Book of Geology, 469.  
 George's King Edward's Cookery Book, 84.  
 Gibson's Calculus, 150.  
 Girl's Loyalty, 511.  
 Girl's Own Annual, 512.  
 Girls of Banstoe Castle, 511.  
 Glauser's French Commercial Correspondence, 510.  
 Glikin's Russian Grammar, 35.  
 Gobel's Hermann der Cherusker (Esser), 81.  
 Graham's Lessons in Cookery, 84.  
 Grant and Hill's Commercial Arithmetic, 429.  
 Greene's Legends of King Arthur, 85.  
 Grit will tell, 511.  
 Guilgault's French History, 151.  
 Hachette's Gift-Books, 81.  
 Hadley's Exercises in Magnetism, 150.  
 Hahn and Thimm's German Reader, 35.  
 Hall's Algebraical Examples, 150.  
 Happy Failure, 471.  
 Harmony of the Empire, 334.  
 Harris's One-Hour Grammar Exercises, 509.  
 Hart's Scotch School Sermons, 85.  
 Hasluek's Optical Lanterns, 85.  
 Hasluek's Photographic Cameras, 85.  
 Hassall's English History, 34.  
 Hatfield's German Lyrics, 150.  
 Heath's Modern Language Series, 389.  
 Hebrews (Peaker), 227.  
 Hem and Becker's Commercial German, Part I., 510.  
 Henderson's Elements of Physics, 509.  
 Henty's New Tales, 511.  
 Herbertson's North America, 84.  
 Hero of the Highlands, 511.  
 Heyse's Hochzeit auf Capri (Bernhardt), 299.  
 Heyse's L'Arrabbiata (Bernhardt), 299.  
 Hill's The Aspirant, 190.  
 Histoires de Tante (Roger), 265.  
 Homer's Iliad (Camer), 334.  
 Homer's Iliad, Books IX. and X. (Lawson), 149.  
 Homer's Odyssey, Book I. (Owen), 149.  
 Hope's (Ascott R.) All Astray, 471.  
 Homer's Odes (Gwynn), 334.  
 Homer's Satires, Book I. (Gow), 33.  
 Hoyer's Friend of Little Children, 472.  
 Hudson's Geography of Wales, 34.  
 Hutcheson's Living Rulers, 471.  
 In Flora's Realm, 472.  
 In Search of the Wallypug, 511.  
 In the Great White Land, 511.  
 In the Hands of the Cave-Dwellers, 511.  
 Johnston's (W. & A. K.) Everyday Life Scenes, 470; Illustrations of Trades, 470; Maps; Africa, 470; Scotland, 470; South Africa, 470; Natural History Plates, 470; Types of Nations, 470.  
 Joubert's Contemporary French Poetry, 390.  
 Just So Stories, 471.  
 Keller's Kleider machen Leute (Lambert), 389.  
 Kids of Many Colours, 511.  
 Kipling's Just So Stories, 471.  
 Kirkman and Field's Arithmetic, 389.  
 Kitching's Duck Knip, 510.  
 Knight's Second Arithmetic, 265.  
 Knowledge Diary, 84.  
 Knox's (Bp.) Pastors and Teachers, 510.  
 Korner's Zaimy (Holsworth), 389.  
 Kotzebue's Der gerade Weg (Matthews), 150.  
 Lamb's Mental Arithmetic, 227.
- Lamb's Book of Romance, 471.  
 Langley and Bradley's Algebra, 34.  
 Last of the Chibods, 471.  
 Lazare and Marshall's French Verb Drill, 227.  
 Leaper's Exercises in Physics, 150.  
 Le Francois's French Test Papers, 33.  
 Leisure Hour, 512.  
 Leonard's Practical Science, 265.  
 Lett's Diaries, 510.  
 Lewis's English Grammar, 300.  
 Lindsey's English History, 151, 300.  
 Lindsey's European History, 151.  
 Little Cockney, 511.  
 Little Folks, 512.  
 Lively, Book XXI. (Allcroft and Hayes), 389.  
 Lively, Book XXVIII. (Middleton and Souter), 508.  
 Lockwood and Emerson's Composition, 227.  
 Lotte's Convocation Book, 471.  
 Long's Beasts of the Field, 85.  
 Long's Fowls of the Air, 85.  
 Long's School of the Woods, 511.  
 Longman's Complete Arithmetics, 299.  
 Loomis's Original Investigation, 265.  
 Lost Square of Inghwood, 471.  
 Louns's French Poetry, 190.  
 Lucas's Visit to London, 472.  
 MacDougal's Plant Physiology, 430.  
 Macgregor's Kinematics and Dynamics, 469.  
 Mackail's Biblia Innocentium, Part II., 35.  
 Macmillan's Pocket Classics, 472, 511.  
 Macmillan's First Makes of England, 151.  
 Macmillan's Petit Poeme (Super), 265.  
 Marchant's Commercial History, 300.  
 Marchant's First Greek Reader, 149.  
 Marzani's Comedies (Olmsted), 265.  
 Mark and Prellberg's French Method, 33.  
 Marsh's Arithmetic Made Easy, 509.  
 Marshall's Stage of York, 511.  
 Mascarenhas's Portuguese Grammar, 469.  
 Mathematics, Discussion on Teaching of, 82.  
 Mermue's Mateo Falcone (Michell), 150.  
 Mehl's Injurious and Useful Insects, 509.  
 Midlands, History of the, 151.  
 Miles's Mathematical Law, 34.  
 Milton's Samson Agonistes (Blakeney), 262.  
 Moleworth's Peterkin, 472.  
 Moorhouse's Golden World, 511.  
 Morfill's History of Russia, 431.  
 Morris's Tales of the Spanish Main, 152.  
 Myers's Mediaeval and Modern History, Part I., 510.  
 Mystery of St. Rule's, 511.  
 Muller's Commercial Correspondence, 390.  
 Muller and Wenckelbach's Glück auf!, 81.  
 Nation's Pictures, Vol. II., 471.  
 Nelson's Composition, Second, 152; Picture Books, 472; Picture Readers, 431; Royal Portfolio - Geographical, 470; Royal Prince Readers, 191; Royal Princess Readers, V., 509.  
 New Pupil, 511.  
 Newsholme's Hygiene, 469.  
 Nicol's Brush Drawing, 85.  
 Oadly's Home Latine, 32.  
 Old Indian Legends, 85.  
 One of the Fighting Scouts, 511.  
 Ormiston's Old Senate, 262.  
 Other Boy, 472.  
 Our Little Patients, 472.  
 Ovid (Schwertassek), 299.  
 Ovid's Metamorphoses, Book I. (Ensor), 81; Book VIII. (Summers), 149.  
 Ovid's Tristia, Book I. (Roberts), 226.  
 Parsons's Child at Home, 152.  
 Peeles at the Capital, 511.  
 Perkin and Leav's Chemistry and Physics, 150.  
 Pestalozzi (Pinloche), 510.  
 Peterkin, 472.  
 Philips' Map-Building Sheets, 470.  
 Phaedrus, Books I. and II. (Flather), 149.  
 Physiology Examinations, Guide to, 150.  
 Plato's Euthyphro and Menexenus (Mills), 262.  
 Plato's Republic (Campbell), 299.  
 Poole and Becker's Commercial French, Part II., 299.  
 Pope Anthology (Arber), 85.  
 Porter's Stars in History, 152.  
 Potunters, 472.  
 Pratt's Invertebrate Zoology, 389.  
 Pratt's Perspective, 152.  
 Preston and Dodge's Roman Life, 33.  
 Princess's Story Book, 511.  
 Pithus, Books IV. and V. (Kirkpatrick), 510.  
 Quain's Dictionary of Medicine (Murray), 85.  
 Rabalais's Gargantua (Goldberg), 150.  
 Ralph Wynward, 471.  
 Rele's Dictation Sentences, 262.  
 Rhead's Drawing Examples, 470.
- Robinetta, 511.  
 Robinson's Western Europe, Part I., 510.  
 Roche's Imperial Health Manual, 469.  
 Rubis de la Perouse (De Beauvoisard), 82.  
 Russell's Greek and Latin Syntax, 429.  
 St. Mark's Gospel (Rube), 152.  
 Sale's Sharpshooters, 471.  
 Scholle and Smith's First Steps in German, 430.  
 School Year, 511.  
 Scott and Jones's First Latin Course, 299.  
 Scott's Continuous Readers - Waverley, 262.  
 Scott's Marmion (Scott), 190.  
 Scott's Novels (Black's School Library Edition), 191; (Macmillan's School Library Edition), 191.  
 Scripture Cartoons, 470.  
 Secret de Tilleuls (De la Bruyere), 81.  
 Secret of the Everglades, 511.  
 Secrets of the Woods, 84.  
 Seidel's Leberecht Hühchen (Spamhoff), 389.  
 Shakespeare's Henry V. (Blackie), 151.  
 Shakespeare's Julius Caesar (Meiklejohn), 227; (Wood), 152.  
 Shakespeare's King Lear (Smith), 450.  
 Shakespeare's Macbeth (Deutschlein), 334; (Miller), 262.  
 Shakespeare's Midsummer Night's Dream (Carter), 430; (Wood), 430.  
 Shakespeare's Much Ado about Nothing (Smith), 262.  
 Shakespeare's Richard II. (Blackie), 450.  
 Shakespeare's Tempest (Snouton), 450.  
 Shakespeare, The Windsor, 152, 430.  
 Shindler's Recent English Literature, 390.  
 Siege of York, 511.  
 Siepmann's French and German Series, 334.  
 Sims's Living London, 471.  
 Six and Twenty Boys and Girls, 511.  
 Slater's Commercial Law, 265.  
 Steing's Normal School Hygiene, 469.  
 Smith, Captain John, 471.  
 Smith's Ratio and Proportion, 509.  
 Smith's Scientific Research, 34.  
 Smith's World of Animal Life, 85.  
 Smith and Field's Botany, 150.  
 Sophocles's Antagone (Jobb and Shuckburgh), 508; (Laurence), 149.  
 Speight's Middle Temple Reader, 84.  
 Speight's Temple Reader, 35.  
 Stamford's Map of Europe, 470.  
 Stanhope, 471.  
 Story of a Scout, 511.  
 Story of the Sword, 471.  
 Sunday at Home, 512.  
 Sybel's Prinz Eugen (Quiggin), 151.  
 Tacitus's Histories, Book III. (Balcanne), 261.  
 Tante Picot (Du Plantz), 81.  
 Ten Travellers, 511.  
 Terence's Phormio (Laming), 226.  
 Theophrastus and Galatians (Adeney), 228.  
 Thamm's Hindustani Self-Taught, 190.  
 Thamm and Marshall's Russian Self-Taught, 35.  
 Thomson's History of England, Part II., 151.  
 Thomson's Tales from the Faerie Queene, 509.  
 Three Scottish Heroines, 471.  
 Thynn's Elementary Physics, 81.  
 Todhunter's Spherical Trigonometry (Leatham), 227.  
 Treasure of Princesate Priory, 511.  
 Treasure of the Incas, 511.  
 Tweeddale Arithmetics, 265.  
 Two Little Travellers, 471.  
 Under the Spangled Banner, 511.  
 Victor's Methods of Language Teaching, 390.  
 Virgil's Æneid, Book I. (Cotterill), 149; Book II. (Tatham), 81; Book V. (Phillipson), 81; Books I. to VI. (Knapp), 190.  
 Virgil's Georgics, Book IV. (Sargeant), 81.  
 Walden and Manley's Physics, Vol. I., 265.  
 Webb's Geographical Summary, 34.  
 Wells's Latin Period, 190.  
 Wildenbruch's Harold (Ezzert), 389.  
 Wilkinson's Practical Physics, 34.  
 Williams's History Chart, 470.  
 Williams's Romance of Invention, 511.  
 Williamson's Junior English Grammar, 152.  
 Willis's Algebra, Part I., 150; Part II., 389.  
 With Kitchener in the Sudan, 511.  
 With the British Legion, 511.  
 Wood's Composition, 35.  
 Wright's German Vocabulary, 190.  
 Wright's Summation of Series, 82.  
 Xenophon's Anabasis, Book I. (Edwards), 190.
- FIRST GLANCES, 191, 228, 264, 300, 390, 431, 472, 512.



# THE EDUCATIONAL TIMES,

AND  
Journal of the College of Preceptors.

Vol. LV.] New Series, No. 489. JANUARY 1, 1902. { Price to Non-Members, 6d. By Post, 7d.

**COLLEGE OF PRECEPTORS.**—  
The Half-Yearly General Meeting of the Members of the Corporation will be held at the College, Bloomsbury Square, W.C., on Saturday, the 25th of January, 1902, at 3 p.m. C. R. HODGSON, B.A., Secretary.

**COLLEGE OF PRECEPTORS.**—  
ANNUAL DINNER (1902).  
The Dinner will take place at the Trocadero Restaurant on January 25th, at 6 p.m. Ladies and Gentlemen who are Members of the College may obtain tickets (6s. each) on application to the SECRETARY, College of Preceptors, Bloomsbury Square, W.C. Every Member has the privilege of introducing a friend, for whom a ticket should be obtained on or before January 21st. Evening dress is not requisite.  
JOHN STEWART } Hon. Secs.  
R. F. CHARLES }

**COLLEGE OF PRECEPTORS.**—  
EXAMINATIONS, 1902.  
1. **DIPLOMAS.**—The next Examination of Teachers for the Diplomas of the College will commence on the 7th of January, 1902.—At the *Midsummer* Examination, persons who have previously passed in Theory and Practice of Education at the Diploma Examination may be examined practically for Certificates of Ability to Teach.  
2. **CERTIFICATE EXAMINATIONS.**—The Midsummer Examination for Certificates will commence on the 1st of July, 1902.  
3. **LOWER FORMS EXAMINATIONS.**—The Midsummer Examination will commence on the 1st of July, 1902.  
4. **PROFESSIONAL PRELIMINARY EXAMINATIONS.**—These Examinations are held in March and September. The next Examination will commence on the 4th of March, 1902.  
5. **INSPECTION AND EXAMINATION OF SCHOOLS.**—Visiting Examiners are appointed by the College for the Inspection and Examination of Public and Private Schools.

**PRIZES.**  
*Diploma Examination.*—The following Prizes will be offered for competition:—Theory and Practice of Education, £10; Classics (Greek and Latin), £5; Mathematics, £5; Natural Science, £5. The Doreck Scholarship of £20 will be awarded on the results of the Christmas Examination.  
*Certificate Examination.*—Prizes will be awarded as follows, subject to the conditions stated in the Regulations:—  
*First Class.*—Four Prizes for General Proficiency; two each for Classics, Mathematics, Modern Languages, Natural Sciences, and English subjects; one for Scripture History.  
*Second Class.*—Four Prizes for General Proficiency.  
*Third Class.*—Four Prizes for General Proficiency.  
Two Medals will also be awarded to the best Candidates in Shorthand.  
The Regulations for the above Examinations can be obtained on application to the Secretary at the College, Bloomsbury Square, W.C.  
C. R. HODGSON, B.A., Secretary.

**PROFESSIONAL PRELIMINARY EXAMINATIONS.**—The COLLEGE OF PRECEPTORS will hold an Examination for Certificates recognized by the Board of Education, the Incorporated Law Society, the General Medical Council, the Royal College of Physicians of London, the Royal College of Surgeons of England, the Royal College of Veterinary Surgeons, the Pharmaceutical Society of Great Britain, and other bodies, on the 4th, 5th, and 6th of March, 1902.  
The Examination will take place in London, and at the following Local Centres:—Birmingham, Bristol, Edinburgh, Leeds, Liverpool.  
Examination Fee, 25s.  
Regulations and Entry Forms may be obtained on application to the Secretary of the College of Preceptors, Bloomsbury Square, W.C.  
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Will be held in March and April, 1902. For particulars see Syllabus A.

SCHOOL EXAMINATIONS, 1902.  
Will be held in March and April, June and July, and October and December, 1902. For particulars see Syllabus B.  
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**NOTICE.**—The "EDUCATIONAL TIMES" for February will contain the CLASS LISTS of CANDIDATES who have passed at the recent CHRISTMAS EXAMINATIONS of the College of Preceptors.  
The Volume for 1901 is now ready, price 7s. 6d. Cases for binding the Volume may also be had, price 1s. 6d.; by post, 1s. 8d.

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For further information and copies of the various Prospectuses, apply to

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Further particulars can be obtained on application to the CLERK, Dulwich College, London, S.E. No personal canvassing will be allowed.

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Full information from the PRINCIPAL.

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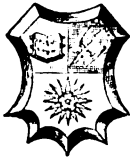
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## CONTENTS.

	Page		Page
Weary Waiting .....	13	Training of Teachers for Secondary Schools .....	26
The Training Problem .....	14	Tenure of Masters in Endowed Schools .....	28
Notes .....	14	New Light on Brain Functions .....	28
Summary—The Month .....	16	Meeting of the Council of the College of Preceptors .....	29
Universities .....	17	Reviews .....	29
Correspondence .....	18	History of Philosophy; The Lore of Cathay; The Principality; Shilleto; A Scholar's Memorial; Child Study; In the Dawn of Renaissance.	
School Inspection; Training of Secondary Teachers; Teachers' Tenure in New York.		General Notices .....	32
Forecasts and Comments:—Fixtures .....	23	Mathematics .....	37
Education Gossip .....	24		
Appointments and Vacancies .....	25		
Literary Gossip .....	25		

## The Educational Times.

### Weary Waiting.

No one will be surprised to hear that the schoolmasters—as Mr. Moss said, on their behalf, at the Head Masters' Conference—find it “weary waiting” for promised legislative reforms, which they are invited to discuss over and over again in every succeeding year, but which are never seriously pressed forward in the House of Commons. The Chairman of the Conference on secondary training, whose proceedings we report this month, used a still more vigorous expression when referring to the continued procrastination of the Government in the matter of the Teachers' Register. The profession has been steadily demanding registration for many years past; the Consultative Committee has shown how simply and systematically it may be worked; and yet no one who understands what is going on from day to day has any confidence that we are near to the fruition of our hopes. The speaker to whom we have referred calls this prolonged delay a crying shame, and he is entirely in the right of it. Still, there are some who maintain that the present Government are destined to do great things for education, and that their supporters would not suffer them to throw away the opportunity of something like heroic legislation in 1902. We shall see. We have certainly no desire to end the record of 1901 in a pessimistic spirit.

Although the last year has produced outwardly no development in the educational situation, and there has been much to increase the despondency of the less sanguine in educational matters, a real advance has, nevertheless, been made. The ideas of educationists with regard to the character of future reform, and particularly of principles which should underlie and inform the Secondary Education Bill, have had time to permeate larger masses of the people. One need only watch the columns of the daily Press to be satisfied as to this. No gathering of teachers or conference relating to educational questions passes unnoticed; and—most hopeful sign of all—it is seldom that a prominent politician addresses the public without dealing with the subject of education. It is true that many members of Parliament preserve an open mind as to the exact form

which the Education Bill should take. In some cases this suggests a vagueness with regard to the issues at stake, which is not far removed from ignorance. In the real educational world there has been substantial progress towards a conception of true ideals; and schoolmasters will be found much better prepared to criticize and appreciate the Government's forthcoming Bill than they were a year ago.

There was a good attendance at the Head Masters' Conference held at Cambridge on December 20 and 21. The guests of the University included sixty head masters and seventy assistant masters. The proceedings of the Conference prove indisputably the steady growth of the interest taken in professional discussions by the head masters of the great non-local schools. In their desire to make the Conference interesting to all, the Committee fell into the unfortunate mistake of including too many subjects in the agenda. There were twelve different questions to be discussed, two of which had three subdivisions. There were also some instances of loose drafting, which led to a waste of time at the meetings. It is clear that so many subjects, ranging from the Education Bill down to newspaper reports of a certain class of trials, cannot be profitably dealt with in two meetings. In the interests of the influence which ought to attach to the resolutions of the Conference, it is hoped this error will be in future avoided.

The first and most important subject discussed was the constitution of the future Secondary Education Authority. Apparently the resolution proposed and adopted was designedly framed so as not to raise any question as to the future of School Boards or the control of elementary education. It is as follows:—

That the new Local Authority for Secondary Education should be so constituted as to secure for each locality the advantages of higher education, and that, with this view, it should not be constituted by an election *ad hoc*. A majority of its members should be members of the County Council, and it should include an adequate proportion of persons having a practical knowledge of secondary education.

This is an adoption of the mode in which the present Technical Instruction Committees are constituted. Unfortunately the resolution affords the Government little assistance towards helping them to a policy on the most critical part of their new Bill. It is an open secret that the local control of elementary education is the one matter which prevents their education proposals taking a definite shape. Many good

Conservatives are desirous of preserving some of the elements of parish representation now on School Boards, and it is thought this may be done by means of the correlation of powers between District Councils and County Councils. It is to be regretted that the Head Masters' Conference was not a little bolder in facing the graver issues of the controversy.

### *The Training Problem.*

At the present time, when the conditions of establishing a Register of Teachers by the Board of Education are shortly to be laid before Parliament, the question of providing for the training of teachers for secondary schools is a matter of pressing importance. In order to make good their claim to be regarded as members of a learned profession, teachers must be prepared to submit to the same conditions as are imposed for membership of the other learned professions—conditions that include a period, more or less prolonged, of preliminary training. At present it certainly cannot be affirmed that this condition has been fulfilled in the case of the secondary teacher, nor to more than a limited extent in the case of the public elementary teacher. It is to be regretted that the discussion on the subject of training which took place at the College of Preceptors on December 13 was conducted almost entirely by representatives of training institutions, while the opinions of those most nearly concerned—namely, the heads of schools, on the one hand, and assistant masters and mistresses, on the other—were not elicited. The two letters which we print in our correspondence columns make up to some extent for this deficiency, and serve to account for the reluctance on the part of teachers to avail themselves of the means of training hitherto provided.

We are afraid it must be admitted that the demand for specially trained teachers for secondary schools does not at present exist to any great extent, whether for reasons indicated by "Magister" or for others which have not yet been put forward; and as long as men of good academic standing, though without professional training, are preferred to men with training, though with inferior academic attainments, intending teachers can scarcely be expected to make the necessary sacrifice of time and money in order to acquire that which is apparently but lightly esteemed. The case of the trained teachers for the public elementary schools is not precisely in point; for it is generally admitted that what is done in the denominational training colleges is not so much to train students in principles and methods of teaching as to provide for young men and women, who have already during their five years' apprenticeship acquired considerable practical experience, that higher and more intimate knowledge of the subjects of instruction which they have not had the opportunity of acquiring in the school. The position of the secondary teacher is the converse of this: he has in most cases already attained a certain standard of knowledge at the university or elsewhere, and is set to gain experience in teaching by actual practice in the school, under the supervision of the head master.

Is it reasonable to expect that the mere setting up of a Register of Teachers (with or without the requirement of training for admission to the register) will of itself entirely

change the situation? It can hardly be assumed, in the present state of opinion, that registration can be made compulsory on those competing for employment, or that boards of governors can be compelled to make it a necessary qualification for the headship of their schools.

We shall hardly be suspected of undervaluing that professional training which the authorities of the College of Preceptors have so long advocated, and which they have endeavoured, at great cost, to carry out in a systematic way. For many years they have provided for acting teachers means of instruction in principles and methods the validity of which they could constantly put to the test in their daily work. The result of their experiment in making provision for more complete and formal training does not give much ground of hope for the success of schemes laid out on similar lines. If circumstances at present make complete formal training impracticable, might not a serviceable substitute be found, if heads of schools and governing bodies would set themselves to provide means of training for their masters in the schools themselves, in some such way as that indicated in the last paragraph of "Magister's" letter?

### NOTES.

OWING to the fact that the proceedings at the reception of the deputation from the University colleges by the Chancellor of the Exchequer were private, we can only assume that Sir Michael Hicks-Beach will increase the grants if the Chancellor sees his way to getting the money. At present the total Treasury grant stands at £25,000, distributed among eleven colleges. £4,000 is given to each of the three Welsh colleges. Some of the colleges are known to be crippled by a lack of income, which not only prevents development, but in fact affects the efficiency of existing departments. Sir Michael Hicks-Beach, while promising to continue existing grants for the present, emphasized the point that the Exchequer refused to accept liability for University education in England. He also maintained that the object of these grants was to stimulate local effort, which could only be done by attaching to them conditions as to the raising of local funds. We can understand the hesitancy of the Treasury in view of the uncertain extent of its obligations under the forthcoming reorganization of secondary education. It is time that the noble munificence of Sir Josiah Mason and Mr. John Owens should be imitated by other wealthy men. That Liverpool, Manchester, and Cardiff University colleges should have to stand begging at the door of the Treasury is a disgrace to both Lancashire and South Wales.

At the annual general meeting of the Modern Language Association, held at the College of Preceptors, great prominence was given to the advantages of the "New" or "direct" method of teaching. Most of the speakers testified to the good results attained by its use; and there can be little doubt, when the chief end in view is the speaking of a living language, the method is distinctly preferable to the old. As a matter of fact, the method hardly deserves the name of new, as it has been in vogue for many years past in many private schools and coaching establishments. It has the merit of making lessons more interesting, and brings the



child's intelligence, as well as his already acquired stock of linguistic knowledge, to aid his further efforts. Whether it can produce sound and accurate scholarship remains to be seen; although for the majority of boys this is not so important as the power of conversing freely in another language.

MR. BALFOUR'S speech at the Goldsmiths' Institute was refreshing from the fact that it was free from any pessimistic note. The time, however, has not yet arrived when doubt should be suggested as to the efficacy of a multiplication of technical institutions and teachers to restore British industries to their former position. Owing to the apathy of the race, as well as our Government's, they have not yet been fairly tried. The *post hoc ergo propter hoc* argument is, we admit, not a sound one. In Germany industrial prosperity has, it is true, followed the spread of technical instruction; but in the United States it has existed in spite of a striking lack of provision for technical instruction in schools. Mr. Balfour did well to warn his hearers that technical instruction not grounded on a sound knowledge of principles will never achieve a great success. Lord Roberts, speaking the other day to the Woolwich cadets from a riper experience of life, did not forget to lay stress on the training of character, without which no instruction can be of permanent value. This is, we fear, too little recognized both in schools and in technical institution.

On December 20 about seventy old friends and pupils of Mr. Francis Storr entertained him at dinner at the Holborn Restaurant. The chair was taken by Prof. S. H. Butcher, an old Marlborough pupil, and the company included Sir George Young, Sir Richard Jebb, M.P., Sir Joshua Fitch, Mr. P. A. Barnett, Mr. Oscar Browning, Mr. Basil Champneys, Mr. C. Colbeck, Mr. H. W. Eve, Prof. Gonner, Mr. C. R. Hodgson, Mr. F. S. Marvin, Mr. H. Millington, Mr. W. E. Mullins, L.C.C., Mr. Pogson Smith, Mr. M. E. Sadler, Mr. Arthur Sidgwick, Mr. H. Yates Thompson, Dr. Wormell, and a number of friends and pupils in about equal proportions. Unfortunately, the day selected was that on which the Head Masters' Conference was enjoying the hospitality of Trinity College, Cambridge, or that distinguished body would have been strongly represented. Expressions of regret for enforced absence were very numerous, and included letters from the Bishop of Richmond, the Dean of Canterbury, the Head Masters of Marlborough, Haileybury, Bedford, and Birmingham, Dr. Mahaffy, Dr. W. A. Fearon, the Vice-Provost of Eton, the Rev. A. J. Church, Mr. Gilbert Murray, Mr. Pinches, Prof. Hales, "Ascott Hope," and many others. The speeches testified to keen appreciation of Mr. Storr's work in many directions and to warm personal affection. Several old pupils dwelt on his teaching and influence; not only had he inspired them with literary enthusiasm, but he was the first person, it was again and again repeated, who had taught them to *think*, to examine the grounds of their opinions, and to love knowledge for its own sake. The Chairman and other speakers paid a well merited tribute to the services he has rendered to education in general; it was universally recognized that, in the course of the last twenty

years, there had hardly been an educational movement, whether for the improvement of methods, the training of teachers, or the promotion of *esprit de corps* and professional dignity among them, in which he had not taken a leading part, and borne the burden and heat of the day. Rarely has a more cordial send-off been accorded to a schoolmaster retiring from the active duties of his profession, and rarely has it been better deserved. All joined in wishing Mr. Storr health and energy for the many useful educational activities for which he will now have increased leisure.

MR. CARNEGIE'S offer of £2,000,000 to the Government of the United States, towards the formation of a National University, has not been accepted by President Roosevelt. The gift was to be made in Steel Trust bonds, and Mr. Carnegie stipulated that the bonds should be retained by the Government for a long period. As industrial trusts have been the cause of most labour troubles and political agitation in the United States of recent years, President Roosevelt's decision is easily explained. At the same time, Mr. Carnegie can hardly be expected to create a panic in Wall Street by realizing two million pounds' worth of Steel securities in the open market. The result would be the dislocation of the arrangements made by the Steel Trust for the control of the iron and steel industry. The plum, however, is such a fine one, that some solution of the difficulty will, no doubt, be discovered.

WE understand that the Prince of Wales was greatly impressed during his recent tour by the number of school cadet corps taking part in the reception celebrations in the Colonies. Proposals have been made by the Head Masters' Committee to the Commander-in-Chief, with a view to the encouragement of military drill in secondary schools. It is recognized that in the majority of schools it will be found impracticable to form cadet corps, but it is thought there will be no serious difficulty in arranging for a certain amount of military drill with physical exercises in most schools. As a first step, the Education Department, with the assistance of the War Office, is compiling a manual of drill and physical exercises. If the scheme succeeds, it will be further developed by issuing carbines fitted with Morris tubes, which will enable firing practice to be safely carried on where only short ranges are available. Lord Roberts urges the commanding officers of regimental districts to co-operate with any head masters who desire to encourage the drill and training of boys.

THE latest novel suggestion in education is that all children in schools should be taught how to make a will. It is unnecessary to state that the idea hails from America, where novelties of all kinds soon find some person ready to test them experimentally. When we remember that the will of a minor has no legal effect, the instruction on the subject imparted in schools would not be of much use, unless attendance at continuation classes be made compulsory when the child attains twenty-one. Perhaps the suggestion was made in the interests of lawyers, who are reported to drink, at circuit messes, to the health of the man who makes his own will.

## SUMMARY.

### THE MONTH.

In anticipation of the next Government Bill, a statement has been signed by Cardinal Vaughan on behalf of himself and the Roman Catholic bishops of the Province of Westminster, laying down the principles which ought to guide them on the question of the "control of elementary and secondary education by the County Councils."

1. They take it for granted that the payment of public moneys, whether derived from the rates or the taxes, will be made equitably to the maintenance of all schools fulfilling the educational conditions, irrespective of creed.

2. They consider it essential that there should be placed on the Education Committee of the County Council representatives of the great educational interests that have grown up with the Education Department.

For this purpose it is suggested that each of the school associations should nominate one representative to sit among the co-opted members of the Education Committee of the County Council, one and the same nominee, elected by the school association, to represent the interests of both elementary and secondary denominational schools on such Education Committee.

THE bishops urge that such representation is not sought in order to weaken or control the Local Authority of the County Council, but to secure (a) placing the Education Committee in full possession of the needs, &c., of denominational schools; (b) the removal of friction between the Committee and religious bodies having a stake in the education of the nation; (c) the insurance of the smooth working of the machinery by making the Committee include both voluntary and School Board interests. This consideration is stated to be urgent. The Committee, being the heir of the School Board, will, it is argued, be inclined to favour its own schools unless the inclination be adjusted by the presence of representatives of denominational schools. The absence of such representatives is stated to have already been prejudicial in the matter of technical education grants. The Education Committee will, say the bishops, be the educational citadel of each county, and, unless great Christian educational bodies are represented on it, these bodies will be constrained from the first to "take up an attitude of well-founded fear and suspicion." This will "inevitably lead to the introduction into County Council elections of organized politico-religious animosities and contests." The document concludes with the following resolutions:—

3. The bishops consider it essential to the natural growth of Christian schools throughout the country that the clause in the Scotch Education Act of 1872, Section 67, which recognizes the increase of such schools, regard being had to the religious belief of the parents, should be introduced into the English Bill.

4. They hold that it is an essential condition to the existence of their schools that the managers shall retain in their hands the right of appointment and dismissal of teachers; while, at the same time, public bodies responsible for public money may naturally claim a representation of the school management for sanitary, financial, and scholastic purposes, in a proportion not exceeding one in three.

5. In the case of scholarships granted for secondary education, they consider that these should be tenable in every school in the district recognized as efficient.

6. They desire that there shall always be an appeal from the Educational Authority of the County Council to the Board of Education at Whitehall.

THE DUKE OF DEVONSHIRE has addressed a letter to Sir John Hibbert, calling attention to his statement in a letter to him that "in the Education Bill introduced last Session, the Education Committees which it constituted were invested with powers of making schemes, from the operation of which no schools were excepted by the Bill," and to the expression of a fear that such schemes might operate to the detriment of non-local schools. Having stated that he understands Sir John to refer to the schemes mentioned in Clause 1 of the Education Bill, 1901 (No. 1), his Grace goes on to say that those schemes are for the constitution of Education Committees, and are entirely different in their character from the schemes which may be made under the Charitable Trusts Acts or the Endowed Schools Acts. It was not the intention of the framers of the Bill to confer on any Local Education

Authority, by scheme or otherwise, any power of exercising control over, or interfering with, the affairs of any school, except those established, maintained, or aided by the Authority. In case of aid, a Local Authority would, of course, have power to attach conditions to the aid, but a school which did not receive aid would remain independent. Such, says the Duke, was the intention of the Bill, and he has been advised that such was its effect.

On December 13 the sixth annual distribution of prizes was held at the South-Western Polytechnic, in Manresa Road, Chelsea. Mr. Sidney Webb (Chairman of the Technical Education Board of the London County Council) presided, and, in opening the proceedings, said London was far ahead of any other city in the world in regard to the provision in the evening of education in its widest sense for young men and women from the age of sixteen. Mr. Tomlinson, the Principal of the Institute, said, although the volume of work of both day and evening classes had rapidly increased, the increase had been much greater in the day than in the evening classes. He expressed gratification that some place had been found for the Polytechnic in the reconstituted University of London. Prof. Rücker, Principal of the University of London, said:

There were magnificent educational opportunities, and there was magnificent educational material, in London. But all the endeavours that were being made were scattered, and the object of the University was to focus them into one strong effort in order that they might advance as a well ordered army towards one common end. If that could be achieved—if they could knit the colleges and polytechnics into one great educational machine—they might hope to accomplish something worthy of the metropolis and of the Empire. The aims of the University of London would be, above all, practical. They should aim at having great technical institutions which would prepare men for their work in life, and, though they would not merely set up difficult standards for students to pass, they nevertheless hoped that all those who came within the range of the University would acquire something beyond the mere knowledge which enabled them to take their parts in life. He hoped the relations between the polytechnics and the University would become closer, but the University had a difficult task to perform, and they must be given some little time.

EARL SPENCER sent a letter to a meeting of the Education League at Northampton on December 17. Being prevented from taking the Chair, he wrote to say that he had no confidence that the Government Education Bill next Session would meet the requirements of the nation. Those who followed educational questions keenly must fight for the following:—Defend the School Board system for primary education, which had done, and was doing, admirable work in our big towns; strive to get a wide, popular system of secondary education, which was essential in combination with technical education for our manufactures, if the latter were to compete successfully with those of other nations; advocate the principle of representative control for all State- or rate-aided grants for education, whether primary or secondary; defend with the utmost vigilance the right of religious freedom among the pupils in all schools receiving State aid; and oppose payments without rigid safeguards and conditions to schools under denominational control. They should not necessarily demand one Authority for managing all education, but, whatever Authority was created for secondary education, it should be in touch with primary and technical education.

On December 17 Principal Dale presided over a meeting of the Committee appointed to formulate a scheme for the proposed University of Liverpool. Those present at the meeting included Sir John Brunner, Bart., M.P., Sir E. Lawrence, Miss Florence Melly, Miss E. G. Holt, Mrs. G. Holt, Dr. Patterson, Dr. Caton, Profs. Gonner and Grunbaum, the Rev. John Sephton, and Messrs. John Lawrence, J. W. Alsop, R. Muir, Alderman Bowring, Alderman Burgess, Austin Taylor, A. F. Warr, M.P., E. K. Muspratt, C. W. Jones, C. S. Jones, &c. A draft report was submitted, and, on the motion of Sir John Brunner, seconded by Mr. Alsop, unanimously approved. The report will in due course be submitted to the Council of University College, until which time it is considered as of a confidential nature. The report recommends the establishment of a University, with full equipment for the teaching of science and commercial subjects; and that immediate steps be taken to bring the scheme before the public, with a view of enlisting general support and the necessary endowments. In all probability, should the Council approve, the Lord Mayor will be asked to call a town's meeting.

THE Head Masters' Conference began their annual meeting at Cambridge on December 20. The Rev. H. W. Moss (Shrewsbury), who presided, said they were all anxious that the Government should seriously take in hand the question of secondary education. They were weary of delays. The subject was of national importance, and they ought to appeal to members of both parties in the House of Commons to deal with it outside the vortex of party politics. The Rev. W. H. Keeling (Bradford Grammar School) moved: "That in the new Education Bill the new Local Authority for Secondary Education should be so constituted as to secure for each locality the advantages of higher education, and that with this view (1) it should not be constituted by an election *ad hoc*; (2) a majority of its members should be members of the County Council; (3) it should include an adequate proportion of persons having a practical knowledge of secondary education." As to the "*ad hoc*" election, he held that it would lead to a dreary repetition of the scenes with which School Board elections had made them painfully familiar. Secondary education would become a question of political and religious warfare, and the higher training would be largely in the hands of uneducated or half-educated people. The Rev. J. Browne (Stonyhurst) seconded, and the motion was carried. The Rev. R. D. Swallow (Chigwell) moved that secondary schools should have the right of appeal from the Local to the Central Authority. He said, if they were left to be governed by a body like a Local Authority, from which there was to be no appeal, he was afraid in some particulars they would suffer exceedingly. There were County Councils who had shown a disposition to use the power of the purse in an arbitrary fashion to enforce their own views upon schools, and there was a disposition to interfere in the details of the curriculum, which was the proper work of the governing body and head masters, and certainly not of the Local Authority. They need to be protected against the Local Authority. The resolution was seconded by the Rev. A. F. Ratty (St. John's School, Leatherhead), and carried.

On Saturday the Conference discussed the relative advantages of different systems of modern language teaching. It was introduced by the Rev. G. C. Bell, of Marlborough College, who said that no system could be permanently satisfactory which relied largely on the help of foreigners, and the present system ought to be accepted as a temporary method until there could be native-born teachers fully qualified for their work. In 1896 the Modern Languages Association of America appointed a committee of twelve to consider the position of modern languages in secondary education, and to examine into and make recommendations upon methods of instruction, training of teachers, and other kindred subjects. Would it not be possible to organize in England a similar body for similar purposes by the co-operation of Universities with various associations of secondary school teachers? Such a committee could have at its disposal a mass of information about methods and results on the Continent of Europe and America which would help it to solve the problem of modern language teaching in this country. No resolution was proposed, but the Conference expressed its satisfaction with the suggestion by asking the committee to print and circulate the paper among head masters and assistant masters.

THE REV. M. G. GLAZEBROOK (Clifton College) proposed: "That the Committee be instructed to represent to the proper authorities that it is desirable that there should be a uniform limit of age for candidates in entrance scholarship examinations at Oxford and Cambridge, and that this limit should be fixed at nineteen on the following July 1." The Rev. W. C. Eppstein (Reading School), while seconding the motion, thought that there might be some difficulty in making the necessary alterations in the statutes. The Rev. the Hon. E. Lyttelton (Haileybury College) said the proposal would take away the self-government among the boys which was the best educational system in the world. He hoped that any step to take away the best boys from the public schools would be strongly resented. Dr. James (Rugby School) warned the Conference to pause before lowering the ordinary age at which boys went to the University. By fixing a definite limit for all scholars they would not be giving all boys a fair chance. The Rev. H. M. Burge (Winchester School) opposed the motion on the ground that it was not reasonable to expect all boys to mature in the same way and at the same time. The conference rejected the motion by a large majority. Mr. J. S. Phillpotts (Bedford Grammar School) moved:—"That a higher standard of English should be required on entrance into second-

ary schools; and that the study of English ought to receive more encouragement at the schools themselves." Dr. Rendall (Charterhouse) moved to omit the first section of the resolution, but the original motion was carried.

THE Modern Language Association opened its annual meeting at the College of Preceptors on December 19. Mr. F. Storr took the Chair. Mr. Twentyman, Acting Hon. Secretary, spoke to the steady increase in the number of members, and said that a sub-committee had been appointed to consider the question of a report on the French text-books and readers in use in English secondary schools. A presentation was made to Mr. W. G. Lipscomb, late Hon. Secretary, now Head Master of the Isleworth County School. Prof. Rippmann read a paper on "The New Method of Teaching Modern Languages," and dwelt on the importance of logical and practical continuity in teaching.

The principal end was not to make the child acquire information and accomplishments, but to develop and increase the powers of the intellect. First, there must be sound teaching of the mother tongue, without which the teacher of French or German would not be able to do more than tinker. The written form of English was largely historical, and tended to obscure the spoken form, and therefore ear training was important. A child soundly trained would have learnt to see, which was much, but also to express in clear terms what was seen. For the linguistic training of English children, the Professor gave the preference to German over French, in the first instance because of the greater resemblance of the two languages, and because a young child's vocabulary consisted mostly of words cognate with German; later, the child's vocabulary would include more Romance words, and then French should be taught. He expressed his views upon the stages and details of instruction, enforced the importance of sound preliminary instruction in English as enabling more time to be given to the study of modern languages, and remarked that literature should come before the history of literature. He approved of every word of Mr. Eve's article on the teaching of modern languages in the work entitled, "National Education."

MR. R. P. ATHERTON (Haileybury) and Mr. L. von Glehn (Merchant Taylors') read papers on "Practical Results with the New Method." In the course of his paper, Mr. Atherton said that a merchant had told him that he had had to refuse to employ at least a score of public-school boys, whom he would have wished to push forward, because they could not speak either French or German.

PROF. MAHAFFY, of Dublin, the new President of the Association, took the Chair at the second day's sitting. In the course of his presidential address he remarked that, if he knew anything about modern languages, it was due to his good fortune in receiving a practical education and in not having been sent to an English public school. The number of languages in the world at the present time was enormous—some eight hundred, he believed were known—and, as if there were not enough spoken in Europe, we were threatened with a revival of some which we thought we had escaped, such as Czech in the east of Europe and Irish in the west. All these various languages formed a very great bar to the world's civilization. If only some attempt had been made by the English to assimilate their spelling to the pronunciation, he believed English would now be, as he believed it would be in the long run, the language of commerce throughout the whole world. That, however, was not sufficient. We must be able to communicate freely with the French and the Germans, and, though it was a very great waste of time, the ideal throughout Europe must be a trilingual one. Every educated person must try to learn to speak English, French, and German.

## UNIVERSITIES.

(From our Correspondents.)

THE second week in December saw the end of a very uneventful term; if it had not been for the discussion provoked by the proposals of the University Library Syndicate, we should have been able to dispense with the services of an historian. The unlucky controversy to which reference has been made still smoulders. Although the Senate emphatically rejected the scheme put forward by the Syndicate, a fly-sheet issued by the Librarian immediately after the voting proclaims *urbi et orbi* that technically the vote means nothing. The Librarian, maybe, is technically right, but the effect of his somewhat hasty criticisms will be to make certain

unprejudiced voters very shy in accepting any further proposals of the Syndicate without careful and accurate scrutiny. The impending sensation for the next two terms is the memorial addressed by certain members of the Senate to the Council praying for the appointment of a Syndicate to consider what changes are advisable in the present course for an ordinary degree, with special reference to the question of allowing candidates to substitute two "specials" for the present arrangement of one "general" and one "special" as the course for the B.A. degree. The controversy is sure to arouse a certain amount of heat; so that it might be advisable to consider what is the present situation.

The theory of the present scheme is that for, roughly, half a man's academical career he should devote himself to the subjects of ordinary school education; while after attaining to that standard he has to specialize in such subjects as law, theology, history, and science.

The first examination, the Little-go, which is purely school work, can now be passed before the candidate comes into residence; the general examination, which can be taken and disposed of by the end of the fourth term, includes papers on a Latin author, Greek author, period of history, Acts of the Apostles, statics, algebra, hydrostatics, and heat, together with an essay on the subjects of the special period of history. This examination, by a gradual process of improvement, is now really of some educational value, if the word education signifies the training of the mind as opposed to the assimilation of crude material. When the "general" has been passed the candidate is supposed to be trained sufficiently to embark on some special line of study that is to use the perfected machinery of his brain in the acquisition of knowledge in due form. A very wide choice is offered. Practically every department of human knowledge is represented in the list of "specials"—as examples chosen at random, physics, music, political economy, botany, theology, law, and history. The new movement is to do away with the excellent general examination, and to force the candidate to do two "specials." The first criticism which suggests itself is that the very idea of specializing is negatively *pro tanto* by those who require two "specials" to be taken—require four "specials," and where would the specialization show itself? Of course, the whole movement is destined to come to a bad end, but before the memorial is finally disposed of much valuable time will be wasted and much printer's ink expended. The continual tinkering with examinations in the interests of the so-called practical educationalists has disgusted the more moderate men, and it is realized by a few that the new proposals are only a cover for an insidious attack upon Greek as a compulsory subject in University examinations.

The election of Mr. E. H. Griffiths to the Principalship of the University College of South Wales has deprived the University of one of its ablest and most energetic workers. For the past twenty-five years Mr. Griffiths has, in combination with another member of the University, carried on the work of a poll coach with distinguished success; literally thousands of men have passed through his hands, and yet time has been found by this indefatigable worker to pursue a course of experimental work in physics which has been described by the greatest living authorities to be epoch-making. To the success of this research work the University has not contributed in the slightest degree; in fact, though inadequate provision for the teaching of the pollman renders the poll coach a necessity, colleges still ignore the fact that they cannot do what is necessary for their own men. Mr. Griffiths was himself a pollman, there being no Tripos in his time which recognized the subjects in which he took an interest. His scientific studies were the amusement of his riper years, and the result serves to justify the remark of an eminent bishop who attributed his own success to the fact that he never did any hard work till he was thirty. The examination lists for the past term have caused searchings of heart in certain quarters; in particular the lists for the "specials" in History and Mechanical Science have come in for strong criticism; but it is a recognized fact that the standards required raising, and now that the change has taken place somebody is bound to feel it. It has been quite a usual thing for a man to work one term for an examination which, according to the regulations, requires six months, and then grumble because he just falls short of the standard. So many men fail to realize that those who do not pass their Little-go at the end of their first term at the latest must be working against time for the rest of their University career: each pluck renders the accumulated mass of examinations more difficult to deal with, and then comes disaster. The obvious solution of the whole difficulty is for the colleges and

the University to combine in saying that no man can properly enter upon a University career until he possesses sufficient knowledge of school subjects to allow him to pass the Previous Examination.

It has been decided to establish in memory of the late Prof. Sidgwick a lectureship in Moral Science, the stipend being the usual one of £50 per annum. It is curious how bodies consisting chiefly of lecturers add one more to their own numbers. A detailed account of the attendance at some University lectures would furnish interesting reading. The present writer openly confesses himself a heretic, and is disposed to question whether the services rendered by certain professors and lecturers are worth as many pence as the pounds in their respective stipends. This criticism of course leaves out of sight the fact that professorships and similar offices may be considered rewards for past work. If so, let the recipient choose his own form of *solatium*—a lump sum for choice, and rustic retirement.

The Clergy School is now under the judicious management of the Rev. H. J. C. Knight, who has given up a college living to resume work for which he is so admirably fitted. The promotion of Dr. Chase to a professorship and the headship of a house will only nominally sever the connexion of the professor with the school. Dr. Chase's influence will be still available for good, although another may be in actual command.

Personal Items of the Month:—Member's Prize, English Essay, H. W. V. Temperley, King's College; Crosse Scholarship, Campbell West-Watson, Emmanuel College; Whewell Scholarships: (1) G. C. Rankin, Trinity, (2) R. A. Chadwick, St. John's, and H. R. D. May, St. John's.

## CORRESPONDENCE.

### SCHOOL INSPECTION.

*To the Editor of the Educational Times.*

SIR,—Your leading article on "Inspection of Secondary Schools" in the *Educational Times* for November raises questions of great importance to teachers in such schools.

There is still—notwithstanding all that has been said and written on the subject—a very vague idea as to what kind of inspection is needed, and as to the benefits that are to be expected from it.

The Head Masters prematurely assured the Duke of Devonshire that they would *welcome* inspection, and no doubt they had in mind at the time some ideal inspection which would benefit education in general, or their own schools in particular. Others who—desiring to have their schools hall-marked as efficient, or having an idea that other schools than their own are inefficient—are fully convinced that inspection is needed to weed out and clear the ground of many schools that "ought not to be tolerated."

Notwithstanding the declarations of these and of others in favour of inspection, it is doubtful whether either by the public or by teachers there is any general desire for State action in this direction. Yet, though the "breeze" is wanting, it seems to be taken for granted that the inspection timidly introduced will become in time general. Some even venture to hope that it will be compulsory on all schools in the immediate future.

The time, therefore, appears opportune for teachers to consider the matter earnestly as one closely affecting them and their interests, as well as the interests of those under their charge. It unfortunately happens that the various sections of teachers in secondary schools have no unanimity on educational topics; each goes its own way, and the consequence is that their influence on educational reform is weak and unproductive. They may, as a consequence, have ultimately forced upon them a kind of inspection as intolerable and baneful as that experienced in elementary schools for the last thirty years.

What is inspection expected to do for education? If desirable, how is it to be carried out, and what relation should it bear to the teachers and their schools? These are questions that need elucidation and consideration. Those who strongly advocate inspection claim, among other things (1) that many schools exist which ought not to be tolerated; (2) that, in consequence, the health and the education of the rising generation are sacrificed on the altar of public apathy or ignorance; (3) that impostors are by no means uncommon, trading upon the gullibility of the public, by prospectuses which are more or less fraudulent. In other words, they claim that the State should step in, and make itself responsible for the *purity* and *efficiency* of the secondary schools. A large amount of truth mixed up with erroneous ideas is characteristic of these views.

That "the evil is ever mingled with the good" is as true of schools (public or private) as of other matters. It is equally true that the health of the rising generation should be the concern of the State over every section of the people, whether congregated in schools, chapels, churches, factories, houses, Government offices, or even Courts of Justice. It is also desirable that impostors should be amenable to the same treatment as those in other vocations. It must, however, be clearly shown how inspection is to remedy these evils, and how schools are to be adjudged "unworthy to exist." In what other businesses do not some exist and thrive that ought not to be tolerated, that sacrifice the health of their employees for the acquisition of wealth, that are more or less impostors, trading on the credulity of the people? Yet it is not advocated for these businesses that they should be carried on under State supervision and inspection, or that they should be certified as approved by a Department of State. The doctor, the lawyer, the chemist, the dentist, &c., are required to show their credentials, and afterwards are no further amenable to State interference in their avocation.

The Factory Acts protect the health of apprentices and workmen, and a further extension of these Acts could equally protect pupils in schools and those who assemble in other institutions. In other words, the State exercises a "minimum interference" in the interests of the community on institutions that derive no public aid from its funds. True, says the enthusiastic reformer, but there is an Adulteration Act for foods, and there ought to be one for education. This is all very plausible, but it must be remembered that it is easy to determine with accuracy and certainty the adulteration of food, thereby inflicting no injustice on the offender. But can this be said of education? By what test can the spurious be detected from the genuine in the latter case? It is possible to measure the amount and accuracy of knowledge acquired by instruction, but this is no test of education given. For thirty years has this country measured education by the output of information gained by instruction, and has based its payment on such results, only to wake up and acknowledge the fallacy of the test and admit the mistake. If any one doubts this, let him read the circulars addressed by the Board of Education to inspectors, teachers, and managers on the evils of over-instruction and the need for more educative methods. It is not easy for any inspector, however experienced and sympathetic, to gauge the educative value of a school by an annual visit.

Of what value then can inspection be to education? Inspectors can certify premises, report on the aims of the school, discover the needs of the district and ascertain whether such school supplies the kind of education desirable for the neighbourhood, determine whether such school requires supplementing, give advice where desired, suggest aid where deserving or advantageous, co-operate with the head of the school in furthering whatever may be advantageous to education, and keep the State well informed of all that comes under survey. Thus while in no way interfering with the organization of a school, having no control over the curriculum or the working of the institution, leaving the individuality of the teacher unimpaired, aiding by suggestions or advice where appreciated, such an inspector would meet with little or no opposition; nay, would probably be cheerfully received, with advantage to the school and education.

The question, therefore, is can such reasonable limits be put to the officers employed by a State Department? The tendency of such officers is to become autocratic officials, and the tenour of your leader betrays the general misgivings prevalent. The Board of Education has in some degree by circular placed limits on the functions of inspectors in elementary schools. If, therefore, a circular were drawn up stating categorically the functions and duties for those employed in the inspection of secondary schools the path would be somewhat cleared, and the aims of such inspection seen.

One thing is certain—that any form of inspection, voluntary or otherwise, which induces principals to abandon their originality of method or of organization, for the sake of having their schools "hall-marked" as satisfying a State Department, and therefore worthy of public support, will be to such an extent a loss to education. The tendency of the pedagogue is already unfortunately too much inclined to a groove, and it would be lamentable if any State action should increase this tendency.

The Board of Education has already embarked upon "voluntary inspection" with caution and tact, but teachers will do well to remember that there is every probability that before long efforts will be made by over-zealous reformers to bring about compulsory inspection in all schools. If the foundation of schemes

and the manipulation of such delicate matters are left to those who have but an outside interest in education or some specific interest in furthering such schemes, the results may be disastrous. That such schemes are in the air may be seen from the *Educational Times* for November, in the report of the lecture delivered at the monthly evening meeting on "School Hygiene." The lecturer is reported to have said:

I have had in my mind in the preparation of this address the formulation of a scheme whereby the efficiency of our secondary schools may be determined. At present, in a great number of cases, the degree of this efficiency is an unknown quantity. One result of the organization of secondary education, which, as we trust, is on the eve of accomplishment, will be the application of certain criteria and tests to every school in order to ascertain whether a particular establishment lives and works up to its professions and prospectus and whether it is a valuable asset in the educational wealth of the country.

An inspection such as is contemplated would have regard mainly to the following particulars:—(1) the suitability of the school premises, (2) the adequacy and efficiency of the teaching staff, (3) the sufficiency of the apparatus and appliances for teaching, (4) the organization of the school—its curriculum and time-table. The head would be required to send beforehand to the inspector all printed particulars respecting the school, e.g., prospectus, reports, results of public examinations, &c., together with information as to the number of pupils on the books and in average daily attendance; the curriculum and time-table; the classification into forms, with the number of pupils in each, their ages, with the length of time they had been in the school and in the form; the names and qualifications of assistant teachers (class teachers, visiting teachers, and teachers of special subjects); the dimensions of the class-rooms and dormitories, particulars of playground, and the arrangements for physical education.

The inspector would visit the school, see each class in working order, be present at the giving of lessons, and himself put questions to the pupils on the subjects of instruction. To such an inspection as this, conducted, not by a spectre, but by a true inspector—with real human sympathies—no teacher worthy of the name would raise objection; rather would he welcome it as enabling him to correct his own point of view and readjust it with the aid of an expert whose experience must necessarily be wider and his generalizations more complete.

Principals of secondary schools should carefully note that this test is proposed for every school—we presume "aided or unaided"—and that "no teacher worthy of the name would raise objection" to such a scheme.

OBSERVER.

### TRAINING OF SECONDARY TEACHERS.

To the Editor of the *Educational Times*.

SIR,—Among those who were present at the joint meeting of members of the College of Preceptors and of the Teachers' Guild on the 13th instant there must have been some who would have liked to say a word on the subject of discussion from the head master's point of view; but the discussion itself was almost entirely confined to professors of education and those who were interested professionally in training institutions. The advantage of a period more or less long of formal training was, no doubt, taken for granted at the College of Preceptors, whose attempt to realize their ideal, as was admitted by the Dean, had so signally failed; and it may have required some courage on the part of an acting head master to give expression to opinions which could hardly fail to be regarded as savouring of Philistinism. And yet it would, I think, have been well if the current opinion of heads of schools on this really "vexed question" had not been withheld on such an occasion; and, with your permission, I would venture to indicate one or two points on which a good deal of scepticism as to the real value of the training at present provided prevails among them.

A head master who is not a mere routinier regards his school as an organism of which he is the ruling spirit, and his assistants as the instruments of his policy. He expects them to carry out his instructions, to adopt his methods, and to regard themselves as parts of an organized whole. Hence, in engaging his assistants, he may possibly hesitate to give the preference to men with preconceived ideas as to how their work should be done, how the time-table should be constructed, how discipline should be maintained, how this or that subject should be taught—who are disposed rather to criticize their chief than to take their orders from him, and to regard their form as an experimental field on which to put in practice the theories they have learnt in the training college. Again, it cannot be postulated that the men who come from the training college will be better equipped as to their knowledge by the training they have received, while they may not improbably have imbibed notions of their own superiority to the dry bones of instruction,

and an exaggerated notion of the importance of methods of "educating" the young mind, without special regard to the medium through which the work of education is to be carried out. Moreover, in the training institutions which at present exist, at the universities and elsewhere, although the course of training is, as a rule, intended to be post-graduate, it is clear from what was said by Mr. Keatinge that the great majority of the students have not passed their final schools; and, in the present dearth of men desiring to be trained, it is not to be wondered at that the best class of students are not attracted to them. And if inferior men are led to take up a course of training as a substitute for academic distinction, a head master may perhaps be excused if he is not disposed to accept the substitute.

Educational theorists are never weary of declaiming against the tyranny of outside examinations, and of claiming to have their work judged by some ideal standard which makes small account of the accuracy of the knowledge possessed by the pupil. But until a less fallible means of testing the results of teaching has been devised, and accepted by those responsible for the efficiency of a school, as well as by the parents of the pupils, the head master must see to it that his work will stand the recognized tests, and he has a not altogether unfounded suspicion that such means of training as he has become acquainted with will not greatly help him in producing the results expected of him, even if it does not militate against the success of his efforts.

Hitherto the head master of a secondary school has in many cases been content to accept the responsibility for the training of his own teaching staff, and, in doing so, he is in fact working on the plan which is adopted in Germany, where the training of the *Secundarlehrer* is begun, continued, and ended in the school, under the direction of head masters appointed and paid by the State to take upon themselves the extra work involved in such instruction and supervision. Is it too much to hope that in the development and systematization of some such method may be found the solution of the problem of the professional training of teachers for our secondary schools?—I am, &c.,

MAGISTER.

To the Editor of the Educational Times.

SIR,—Mr. Barnett, at the meeting of the College of Preceptors on December 13, no doubt hit upon the true cause of the difficulty in getting those entering the scholastic profession to fit themselves therefor by a preliminary course of training. It is not a good investment of time and money. For of what value is the commodity gained by such expenditure? True, the medical practitioner in his training sinks a larger amount of capital; but, besides that he is obliged to do so, the knowledge and experience he acquires in his training are of recognized value, and are counted at once in the remuneration he gets for his services.

But are the knowledge and experience gained by the intending teacher in the training proposed for him at all generally recognized as of undoubted value? Would those engaging teachers pay more for their possession? Not head masters, I imagine. They would prefer to train their assistants themselves on their own lines. They would give no more consideration to the results of such training than would a tradesman to any smattering his apprentice might have picked up in a technical school. And it is only by the higher appreciation of their services by those engaging them that teachers can look for recouping themselves for the expenses of training.—I am, yours, &c.

A. M.

#### TEACHERS' TENURE IN NEW YORK.

To the Editor of the Educational Times.

SIR,—Referring to the paragraph relative to the school system of New York on page 478 of your issue of December 2, 1901, I beg to invite your attention to the fact that the nearly twelve thousand officials of the school system of New York are under the strictest sort of Civil Service regulations. They may only be dismissed for cause, and after a hearing secured to them by law. They may only be appointed from an eligible list which is prepared without the slightest reference to personal, political, or religious influence. It gives a wrong impression to permit the inference to be drawn that the teachers and principals of the schools of New York are at the mercy of political changes in the city government.—Respectfully,

NICHOLAS MURRAY BUTLER, Acting President.

Columbia University, New York.

December 11, 1901.

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## FORECASTS AND COMMENTS.

January 1, 1902.

THE Half-yearly Meeting of members of the Fixtures. College of Preceptors will be held on Saturday, January 25.

\* \* \*

AN Educational Conference of members of the Teachers' Guild will take place in the Lecture Hall of the College of Preceptors on January 13 and 14.

\* \* \*

THE annual meeting of the Head Masters' Association will be held at the Guildhall, on January 9, 10, and that of the Assistant Masters' Association at St. Paul's School, on January 10 and 11.

\* \* \*

THE Oxford School of Geography has made the following arrangements for Hilary Term, 1902. The lectures and laboratory instruction will be given in the Old Ashmolean Building, Broad Street. The Reader in Geography, Mr. Mackinder, will lecture weekly on "The Historical Geography of Europe" (continued), on Mondays at 12 noon, commencing Monday, January 27. The Reader will give informal instruction at hours to be arranged with students. The Lecturer in Physical Geography, Mr. Dickson, will lecture weekly (1) on "Map Projections," on Fridays at 10 a.m., commencing Friday, January 24; (2) on "The Climatic Regions of the Globe," on Saturdays at 10 a.m., commencing Saturday, January 25; and (3) on "Military Topography," at hours to be arranged. Practical instruction in surveying and mapping will be given by Mr. Dickson and Mr. Darbishire on Fridays and Saturdays from 11 a.m. to 1 p.m., and at other hours to be arranged.

\* \* \*

THE Lecturer in Regional Geography (Mr. Herbertson) will lecture (1) twice weekly on "The Regional Geography of Continental Europe," on Tuesdays and Thursdays at 12 noon, commencing Tuesday, January 21; (2) weekly on "The British Isles," on Mondays, at 5 p.m., commencing Monday, January 27; and (3) weekly on "Types of Land Forms," on Wednesdays, at 12 noon, commencing Wednesday, January 22. He will give practical instruction in regional geography on Tuesdays and Thursdays, from 10 a.m. to 12 noon; in geomorphology on Wednesdays, from 10 a.m. to 12 noon; and at other hours to be arranged. He will also be in attendance at the school on Mondays, Tuesdays, and Thursdays, from 4 to 6 p.m. The Lecturer in Ancient Geography (Mr. Grundy) will lecture weekly on "The Topography of Greece in relation to Herodotus and Thucydides," on Saturdays, at 11 a.m., commencing Saturday, January 25. The Lecturer in the History of Geography (Mr. Beazley) will lecture weekly on "The Period of the Great Discoveries, 1486-1650," on Fridays, at 5 p.m., commencing Friday, January 24.

\* \* \*

THE great success which has attended the Conferences of Science Teachers held during the Christmas vacations of recent years has encouraged the Technical Education Board to arrange another Conference, which, it is hoped, will be attended by a very large number of teachers from elementary and secondary schools and technical institutes. The Conference will be held on Thursday, January 9, and Friday, January 10, 1902, and there will be two meetings on each

day, from 11 to 1 and 2 to 4. The meetings will be held at the South-Western Polytechnic, Manresa Road, Chelsea, S.W. A discussion will follow the addresses on each occasion.

THE programme of the Conference is as follows:—

*First Meeting.*—Thursday, January 9, at eleven o'clock. Chairman: Mr. T. A. Organ, Vice-Chairman of the Technical Education Board of the London County Council. Addresses will be delivered by Miss Alice Ravenhill, Inspector to the Technical Education Department of the West Riding County Council, on the "Teaching of Hygiene," and by Francis Warner, M.D., F.R.C.S., F.R.C.P., on "Mental School Hygiene."

*Second Meeting.*—Thursday, January 9 at two o'clock. Chairman: Sir Henry E. Roscoe, F.R.S., Vice-Chancellor of the University of London. Addresses will be delivered by Frank E. Beddard, M.A., F.R.S., Vice-Secretary and Prosector of the Zoological Society of London, on the "Teaching of Natural History"; and by Prof. W. B. Bottomley, M.A., F.L.S., of King's College, on "The Value of Natural History Collections for Teaching Purposes."

*Third Meeting.*—Friday, January 10, at eleven o'clock. Chairman: Prof. A. W. Rücker, F.R.S., Principal of the University of London. Addresses will be delivered by Prof. R. Hedger-Wallace (formerly of the Department of Agriculture, Victoria, and the Government Horticultural College, Melbourne), on "American Systems of Nature-Study"; and by Mr. D. Houston, Lecturer in Biology to the Essex County Council, on "Nature-Study in Schools."

*Fourth Meeting.*—Friday, January 10, at two o'clock. Chairman: The Countess of Warwick. Addresses will be delivered by E. E. Hennesey, B.Sc., Principal of the Lady Warwick School, Bigods Hall, Dunmow, on "Technical Education in Rural Secondary Schools," illustrated by lantern slides; and by Prof. Meldola, F.R.S., of the Finsbury Technical College, on "Pioneer Work in Secondary and Technical Education in Rural Districts."

A COLLECTION of home-made apparatus for science teaching in schools will be on view during the days of the Conference; and the chemical, physical, and mechanical laboratories of the Polytechnic will be open for inspection. The assistance of teachers who have designed such apparatus is specially desired, in order to make this section of the work as useful as possible. Packages of apparatus should be sent to Mr. H. B. Harper, South-Western Polytechnic, Manresa Road, Chelsea, S.W., not later than Saturday, January 4. Free admissions will be granted to as many teachers as the Conference room will accommodate. Applications for tickets of admission should be made to Dr. Kinmins, Park Lodge, Harrow-on-the-Hill; or to Mr. C. A. Buckmaster, 16 Heathfield Road, Mill Hill Park, W.

ON Friday, January 10, Mr. Holman, H.M.I., will deliver a lecture before the London Branch of the British Child-Study Association in the Ruskin Room of the Sesame Club, 29 Dover Street, Piccadilly. The chair will be taken by Dr. Fletcher Beach at 8 p.m.

THE Chamber of Commerce has arranged for two courses of lectures on the machinery of business during the coming term. Mr. Charles Duguid, Financial Editor of the *Westminster Gazette*, author of "The Story of the Stock Exchange," "How to read the Money Article," will deliver two lectures on "The Stock Exchange and its Machinery." The lectures will commence at 6.30 p.m. on Thursdays, the 13th and 20th February, 1902.

MR. C. ROZENRAAD, Fellow of the Institute of Bankers, and Fellow of the Royal Statistical Society, will deliver two lectures on "Foreign Exchanges." The lectures will commence at 6.30 p.m. on March 20 and 27, 1902. The syllabus of the lectures to be delivered by Mr. C. Duguid, and Mr. C. Rozenraad, with other particulars, will be announced early in the New Year. Admission to the lectures will be by ticket only. Students in the lectures and classes held at the offices of the London Chamber of Commerce will be admitted to the above lectures free of charge. Others desirous of attending these lectures should apply for tickets of admission

to the manager of the Educational Department of the London Chamber of Commerce, 10 Eastcheap, E.C.

THE Reid Fellowship of Bedford College, London, in Arts or Science, of the annual value of £50, tenable for two years, will be awarded in the Easter term, 1902. Candidates must be Associates of the College, and graduates of the University of London.

DR. J. LAWRENCE, M.A., will give a course of lectures in the Lent term on Tuesdays at 4.30 p.m. on Icelandic, with reading of "Gunnlaugssaga." This course is held under an inter-collegiate arrangement between Bedford College and University College, for the encouragement of honours and post-graduate work in the higher study of the English language and literature.

THE Lent term of Bedford College for Women (University of London) will begin on Thursday, January 16. Students come into residence on Wednesday, January 15. The first lecture of the course on Icelandic will be given by Dr. Lawrence on Tuesday, January 21, at 5 o'clock. The first lecture of the course on Anthropology will be given by Dr. Marett Tims on Monday, January 20, at 4.30 o'clock.

WE have it frankly from the mouth of a  
Education Conference head master that he and his col-  
Gossip. leagues, when declining to take part in another  
professional Joint Committee on the principles

which should be contended for in a Secondary Education Bill, had no desire to make light of the value of solidarity. They would, with pleasure, have renewed the discussions and resolutions of the past few years if they had been able to hope for any practical outcome of joint representation to the Duke of Devonshire.

WHILST we are in the domain of gossip it may be added that some of the coolest heads at Whitehall and South Kensington refuse to be sanguine as to the passing of a comprehensive Education Bill this year. We do not concern ourselves with the reasons given.

IT is hoped, in some quarters, that the Treasury grant to the University Colleges, which has stood at £25,000 since 1897, will be further increased this year. Reading and Exeter have not yet secured a place in the Treasury List; but they are hoping, in spite of the warnings of the Chancellor of the Exchequer, that their application this year may be successful.

THE PRINCE OF WALES will be one of the youngest of Chancellors. As he has expressed his readiness to accept the nomination of the Welsh Court to a position formerly held by his father, he will be definitely elected on January 10.

THE desire of Carnarvon to provide a site for the University College of North Wales appears to have put the Bangor folks on their mettle. Bangor is not a wealthy town; but she promises to buy and present to the college six acres of the Bishop's Park, at a cost of about £5,000.

GREAT gifts are sometimes great oppressions; but we doubt whether any University or college would be wise enough to refuse any integral part of a million on that account. It requires a wealthy and prudent State to do that. Mr. Carnegie was, perhaps, a little too ingenuous in asking the United States Government to accept a trust of "ten million dollars Steel debentures" on behalf of a new research University. President Roosevelt and his advisers appear to have come to the conclusion that the State had better not become a trust debenture holder.

EVERY ONE will remember the difficulty which arose out of Mr. Stanford's provisional endowment of the Californian University as a memorial to his son. The terms of the will, administered by his widow, were not quite clear; but she was allowed the usufruct of a considerable share of her husband's estate. She has now executed a trust by which the Leland Stanford Junior University receives a total endowment of over five millions sterling.

CARDIFF has a somewhat new idea for an educational association. A few days ago the Mayor of Cardiff presided over a meeting in the women's "normal department" of the University College with the object of forming a general educational society, to include representatives of all kinds of educational agencies, such as the University College, technical schools, intermediate, higher-grade, elementary, free libraries, the local Press, &c. The objects of the society were explained by Prof. Mackenzie, and, subsequently, thirty-seven members were appointed to draw up a constitution. The list included the Mayor (Mr. Frank J. Beavan), Principal Griffiths, and many others.

THE PRINCE OF WALES has promised to visit Manchester in March, in order to open the new hall of Owens College.

A PETROLEUM INSTITUTE has been opened in Bevis Marks by Dr. Dvorkovitz, who asks us to announce that five studentships, each of the value of £50, will be offered for competition next year.

SEVERAL Carnegie Research Scholarships are offered by the Iron and Steel Institute, on Mr. Carnegie's foundation, for competition next year. Candidates must not exceed the age of thirty-five.

THE Worcestershire County Council has determined to contribute the annual sum of £1,500 towards the endowment of Birmingham University.

OF the two candidates whom we mentioned last month as selected for the Principalship of Cardiff University College, the final choice fell on Mr. Griffiths, M.A. of Cambridge, who was warmly supported by Lord Kelvin.

THE Council of Almoners of Christ's Hospital have selected the Rev. A. W. Upcott, Head Master of St. Edmund's School (the Clergy Orphan School), at Canterbury, to succeed, at Horsham, the Rev. Richard Lee as Head Master of the school.

THE Head Mastership of the Perse School, Cambridge, has been accepted by Mr. W. H. D. Rouse, assistant master at Rugby, and formerly Fellow of Christ's College. Mr. Rouse, who has written an authoritative history of Rugby School, besides a number of volumes which appeal to school-boys or to scholars rather than to the general public, has been an invaluable secretary to the Assistant Masters' Association, who will find his place difficult to fill. It will also be remembered that Mr. Rouse is Secretary of the Committee of the Education Section of the British Association.

CAPTAIN JOHN BROUGH, R.M.A., is nominated Assistant Professor of Fortification at the Royal Naval College, Greenwich.

MR. H. W. RICHMOND, M.A. of King's College, Cambridge, has been appointed University Lecturer in Mathematics for a period of five years.

DR. EMANUEL LASKER, the champion chess player, has been appointed Lecturer in Mathematics at Owens College, Manchester.

THE Head Mastership of Leeds Grammar School is vacant by the resignation of the Rev. J. H. D. Matthews, who has accepted preferment in the Church.

MISS LEAHY, Head Mistress of the Oxford High School, has been appointed to succeed Miss Neligan as Head Mistress of the Croydon High Schools. Both positions are under the Girls' Public Day School Company.

MISS HILDA MARTINDALE, formerly a student of Bedford College for Women, holding the Bedford College Hygiene Certificate, has been temporarily appointed on the staff of the Factory Department of the Home Office.

It is always pleasant when an academic appointment falls to a man or woman who is known to us by other than strictly academic merits. Mr. W. H. D. Rouse, of Rugby, who assumes the Head Mastership of the interesting Perse foundation at Cambridge, is academic enough. It is not long since we noticed his admirable little classical charts and his freshly conceived introduction to Latin verse-making.

To students of Modern Greek, and to such as are dubbed Philhellenes, Mr. Rouse is very well known for his wise and persistent advocacy of Hellenic claims, literary and otherwise. He has also translated into English a considerable number of Greek stories.

A FEELING not entirely alien in its character will be associated in some minds with the appointment of Dr. Lasker to one of the Mathematical Lectureships at Owens College. Do they run strong in chess at Owens? In any case, we have always understood that Dr. Lasker was well reputed for mathematics at his own German University; and he has contributed several papers to the London Mathematical Society.

THE writer of a short article on "American Education," in Murray's *Monthly Review* for December, observes that it is curious to note that, "while we in England are attempting to-day to bring the Local Authorities into closer touch with the schools, the tendency in the States seems to be in the direction of placing the school outside politics." It is to be doubted whether any strong party of Englishmen would wish to establish a political control of popular education. It is certain that no such control would satisfy the nation. No doubt there are party anarchists amongst us. All the more reason why we should work steadily for the co-opted experts.

THE Coronation being a subject which ought to inspire the mind of every British writer of verse, *Good Words* is offering £75 in cash prizes (the first prize being £50) for the best Coronation odes submitted before the following dates:—If posted in the British Isles or any part of Europe, by March 31, 1902; if posted in any part of North or South America or the West Indies, by April 10, 1902; if posted in any part of India or His Majesty's Asiatic possessions, by April 20, 1902; if posted in any part of Australasia, by April 30, 1902. The odes must be received at the office of *Good Words* by the above dates. The editor informs us that invitations to compete are being sent to all the remotest corners of the British Empire.

MAXIM GORKY is at present a prophet with much honour, not only in America and England, but also in his own

country, Russia. So great, indeed, is his influence becoming that the Russian Government, having ordered him to leave St. Petersburg, prevented him, it is said, from travelling to Moscow, and despatched him in the direction of the Caucasus. Gurky's life is now familiar to all book lovers. Several of his short stories have been published in this country, where, as in America, his great novel, "Foma Gordyef," or "Thomas the Proud," is selling largely.

### TRAINING OF TEACHERS FOR SECONDARY SCHOOLS.

ON Friday, December 13, a joint meeting of the members of the College of Preceptors and of the Metropolitan Sections of the Teachers' Guild was held in the Lecture Hall of the College of Preceptors, Bloomsbury Square, for the purpose of discussing the present position and future prospects of training institutions for teachers in secondary schools. The chair was taken by Mr. FRANCIS STORR.

The discussion was opened by Mr. P. A. BARNETT, who said he had not undertaken to read a paper or give an address. He merely intended to open a discussion on the present position and future prospects of training institutions for teachers in secondary schools, and to present as many points as he could think of as suitable for the discussion, which he hoped would carry them to some profitable conclusion. In regard to the present position, that was much easier to deal with than to say what were the future prospects, and he did not propose to imperil his reputation for prudence by venturing into the regions of prophecy. It would be convenient if he endeavoured to explain the present condition of things and how it had grown up, because, unless they could see how they had arrived at it, they could hardly comprehend the difficulties that presented themselves and the slow progress which the training of teachers had made, so far as secondary institutions were concerned. First, it must be evident that the training of secondary teachers in England bore all the marks of being a native product, and bore all the marks—as, in fact, was the case—of having arisen out of economic circumstances, and of never having been properly, systematically, and scientifically thought out. About sixty or seventy years ago it was found that there was a great dearth of teachers for the people, and certain public bodies formed for that purpose set themselves to supply teachers for public elementary schools. But they were face to face with this very obvious difficulty—that there were not enough people sufficiently well trained to deal with the vast area that had to be covered. Then arose the two great societies—the British and Foreign School Society and the National Society; and those societies, on the same lines, and guided in the main by the same traditions, set themselves to supply the want which they had discovered. In consequence of the operations of those two great societies, various training schools were established up and down the country, and became the origin of the training colleges of the public elementary system with which they were acquainted. He dwelt upon that point particularly for this reason: that the training of secondary teachers, as we know it in England in its chaos, was directly connected with the traditions which had established training schools for primary teachers; and, if they would only bear that in mind, they would be able to account in some measure for the defects of the present arrangements for supplying secondary teachers with training, and to understand the foolish and very often perfectly baseless prejudice with which the training of teachers is sometimes regarded. For when people attacked the training of teachers they might be sure that very many of them thought only of a particular sort of institution, a particular routine, a Government-devised programme, a Government-examined institution, and all the inconveniences that attached themselves to a bureaucratic organization. As a matter of fact, secondary training institutions in this country had grown up round those primary institutions; because, although the primary colleges—those supported by the State—had not made any particular excursions into secondary training, the adoption of primary training by the local University colleges had led them, after providing for primary training, to address themselves also to the task of establishing facilities for the training of secondary teachers. Except in one conspicuous case—that of Oxford, where the two systems had been kept rigidly apart—he thought they would find that the same authorities at universities were administering the training of both primary and secondary teachers. They must not suppose that progress was not being made because only a very few people come in to be trained; they must not think that therefore there was a deficient sense of the necessity of training. He believed that the battle, so far as it was a purely academical one, had been fought and won. There were few people outside certain circles who did not admit the necessity of training for secondary teachers. There were, however, here and there rather extraordinary exceptions. An American friend a few days ago told him that, in talking over training and education with a very distinguished headmaster of a very distinguished public school, he was told by this gentle-

man that he knew nothing about Pestalozzi, and could not conceive that he would be any better if he did; which probably would be true in that particular case. But so long as that feeling existed in some quarters, so long as that insensibility prevailed, there would always be small corners which they could not touch. Yet he felt sure that most teachers—any teacher, indeed, who had thought the matter over and read what had been written on the subject—must feel that it must be better for him to be criticized, to criticize himself, and to profit by what other people had done and what they could teach him. They would probably have access to a paper that had just been put into his hands, drawn up by the Incorporated Association of Assistant Masters in Secondary Schools, which pointed out that there are secondary training departments established at Oxford, Cambridge, Owens College, Manchester; King's College, London; the Yorkshire College, Leeds; at Aberystwith, Bangor, and Birmingham; and they might have added at Sheffield, and he thought also at Liverpool. All these institutions trained in some measure on the same lines, but there were one or two remarkable differences. They would notice that the course of training in most cases was intended to be a post-graduate one, and there was a very great difference of opinion as to the propriety of that. At Birmingham the point of departure had been practice in the schools. That is to say, the Birmingham authorities offered a limited and qualified training, and, of course, the consequent certificate after examination, to those people who already had passed a sort of apprenticeship by actual work in the schools for some time. Now, it seemed to him that was a hint they might very well lay to heart. It would not do for them to approach the great body of teachers, and say they ought not to have a teaching diploma until they had got their degree, for this reason: that it was certainly possible for a man or woman to be a very good teacher up to a certain definite point under the B.A. standard, and yet be unable, for one reason or another, to get a full degree. The fact was there were people who could do many things well, and who did so without being able to explain why. He thought Birmingham had been wise in this particular, that it had said to the teachers already in actual practice of their craft: Come and complete your knowledge as well as you can under the circumstances, and you shall have a diploma. This, then, was the condition of things at the present time; and, when people complained that teachers did not come in their hundreds to be trained, he thought they ought to remember this also, that they could not expect a large body of people who had to earn their bread to put themselves through a severe course of training, and then at the end of it get salaries which it would be too much to say were anything like an adequate return on their investment. He did not himself think there could ever be any material improvement or increase in the number of persons who presented themselves for training, until the country woke up to the fact that teaching was a learned profession, and that it ought to be adequately remunerated. Just before he entered the room a letter was put into his hands from a man whose word would carry great weight wherever teachers came together—Prof. Withers, of Owens College, Manchester—who said: "There can, I think, be no question that all other remedies for the defects in English education are, in comparison, unimportant when weighed against an improvement in the career and the qualifications of the teaching staff of our schools. An impression still prevails in this country, even among teachers themselves, that teaching is unskilled labour, for which no technical preparation is required; hence the low status of the schoolmaster's profession and the wretched rate at which he is paid. Unless this matter of training is grappled with by the teachers and by bodies like the College of Preceptors and the Universities, in conjunction with one another, it is not likely that anything effectual will be done to raise the efficiency, and therefore the dignity, of the teaching profession." He was not going into the region of prophecy, but there was one thing pretty certain, that when the conditions of registration were made more stringent, they would have moved a little way on towards their goal. He still thought that at the basis of this question—which so many would persist in treating *in vacuo*—there was an economic difficulty; and, if they wanted people to do their work properly and to come forward and prepare themselves for it, they must offer them an adequate return.

Mr. J. W. ADAMSON (King's College) said he noticed one or two points in Mr. Barnett's address which he could not very well reconcile. They were told that teaching was a learned profession, and they were urged somewhat to lower the qualifications for entrance into that profession on the ground that many of them could do some things well for which they could not give the reason why. He did not see that that could be said to be a mark of a learned profession; and on that ground he should rather insist upon something in the nature of a post-graduate course for the teacher. They had been reminded that the majority of the colleges and organizations which made arrangements for the training of secondary teachers were connected with primary schools, and from his point of view the danger lay in that very fact. For reasons of which there was no need to remind them, it had always been the rule in primary training schools to combine the students' general education with technical training, and carry them on side by side. That was done not so much because it was thought to be an ideal system, but because there

was no choice in the matter. Mr. Barnett's remark about doing things well without knowing the reason why pointed to the fact that there was an art in teaching as well as a theory. Training, as he understood it, meant not merely the communication of the theory of teaching, but really meant initiating the student into the practice of his art; and, as they all knew, that required a very considerable amount of time, if it were only for the sake of the art, to say nothing of the theory. That being so, it seemed to him that, in the case of University students, the course of training proper should come after the general course of study had been completed—that is, after graduation. If they carried on the practical work at the same time, it must reduce the amount of time and attention a man could give to his general education; and, in the case of a teacher, his degree would mean something less than it perhaps might for other people. He did not think any teacher, whether primary or secondary, was in a fair position if he were compelled to carry on his general education *pari passu* with his professional training. It meant that one of the two things would be neglected.

Mr. M. W. KEATINGE (Oxford) said so far the principal point discussed had been whether training should be after the degree or before the degree. At Oxford, where they had had something like a hundred and eighty students in training during the last four years, the men were allowed to take up training when they had passed Moderations, and a few of them did so, so that he had experience of men who were reading for the finals and of men who had completed their degree. He need scarcely say that no college tutor would like a man who was reading for Honours to mix up his reading with anything else; so that men who had begun the work with him before their degree had been men of not the highest calibre. He could only say that his experience of these men had been extremely unsatisfactory. In most cases he found that his work had gone to the wall, and he had been obliged to tell the men they must come to him again after they had taken their degree. There was another point in this connexion. As a rule, when the men first came to him, the first thing he had to persuade them was that the work was worth doing; and he found the best way was to ask them to work eight or nine hours a day, and to see that they did it. If a man was working for anything else, it was impossible to insist upon a great deal of work from him. There appeared to him to be one or two obstacles which he could point to in the way of secondary training. In the case of a good class of student with a good degree, who could be persuaded to work at the thing in earnest, the first hindrance that he met with was that there were hardly any really first-class books to give a student to read, especially if he could not read German. A good deal of the English and American literature on the subject was of such a character that it was difficult to put it into the hands of a critical young man, as it did not tend to impress him with the dignity of the subject. A second difficulty was to a certain extent bound up with the first—viz., that those who were engaged in training had not definitely decided what the science of education was to include. They had not put it within a ring-fence, so to speak; and it was his firm conviction that they were greatly hampered by the old nomenclature. A third obstacle from which they suffered badly was the lack of funds.

Mr. H. W. EVE, Dean of the College, said one great difficulty in the training of secondary teachers was to find suitable practising schools. In the experiment they had conducted at the College they had, indeed, succeeded in obtaining permission to do a little work at one or two secondary schools. There was also the difficulty of finding men to avail themselves of the opportunity. In reference to the point made by Mr. Barnett with regard to the economic position, he was afraid there was a very real danger ahead of them—namely, an attempt to set up schools at low fees—which must inevitably tend to lower salaries. If the schools were not set up at low fees, parents would not send their children to them; so, it seemed to him, they were—not, he hoped, in an *impasse*—but in a situation which it would take a great deal of statesmanship to solve. With regard to the question of post- or pre-graduate courses, there was one consideration which it was worth bearing in mind—namely, that it was an advantage to a teacher to be learning some fresh subject with a view to teaching it. Take the very common example of men going abroad to learn foreign languages, after their degree. They set themselves deliberately to work, not to learn modern languages as if they were going into the diplomatic service, but with the view of teaching constantly before them. The German Government was being approached to found an institution in England for such students, where their studies might be directed. It would be a good thing if some one would set up an institution of the kind in France and Germany. In the same way, he should like to see people studying such a subject as arithmetic with a definite view of teaching it. He was constantly finding out that there were things which he did not teach properly, and he was sure there were others in the same position. He was inclined to think that if men, instead of aspiring to low honours, would read for a pass degree, and, during their reading, study the pass subjects with the view of teaching them, they might make very good teachers. It would require some time for that to be appreciated, because at present it was taken for granted that the highest Honourman was the best teacher, as indeed was very often the case.

Prof. J. WELTON (Yorkshire College, Leeds) said he was afraid he could not throw much light on the question whether training should be post-graduate or not, for his own mind was not made up on the subject. Probably he would answer the question differently for different classes of institutions. He could not, with all deference, agree with Mr. Keatinge as to the necessity for the ring fence. Most students he had trained for secondary schools had certainly been doing two things at the same time. Of course a difficulty was experienced in the division of interest on the part of the student; but the greatest difficulty of all was to secure a sufficient amount of practical work, and that was a difficulty which he had not been able to solve. This obstacle to training was much felt at Leeds, where considerable difficulty was experienced in prevailing upon head teachers to allow students in training to teach in secondary schools. Another obstacle was the lack of available funds for carrying on the training.

Prof. FOSTER WATSON (University College of Wales, Aberystwyth) said he was greatly interested in what Mr. Keatinge had mentioned as to the number of secondary students he had had in training, and asked as to the class of schools into which such students had gone. Whilst the teachers for the primary schools were now obtaining in day training colleges, and in many of the residential colleges, a good University education, and were becoming many of them excellently equipped academically as well as professionally, the secondary teachers were scarcely facing the problem of professional training. Nothing in the way of preparation could be too good for the teacher—either further academic opportunities for the elementary teacher, or the best of professional training for the secondary teacher. But for both he urged that the training should be post-graduate. All training should be on the broadest lines possible—the elementary teacher in training should see something of secondary-school teaching, and the secondary teacher in training should be in touch with primary-school teaching. Further, both should, if possible, have some acquaintance with good infant-school teaching and good higher-school and college teaching. In short, whilst teachers were in training on specialistic lines for either primary or secondary work, it was invaluable that they should grow into the idea of the continuity and unity of all teaching, through seeing different grades of teaching work, even if the emphasis in their own training had to be laid on the work of one kind of school.

Miss WALKER said that the financial question was really the chief factor of the training problem, and that question was not the same for primary and secondary teachers, seeing that the latter had to pay their own expenses. She would like to know how many secondary schools gave higher salaries to trained assistant masters or mistresses, and how many governing bodies made the possession of a teaching diploma a condition of eligibility for headship of a school.

Miss WOODS (Maria Grey Training College) bore out what had been said by Mr. Keatinge as to the difficulty of getting the best class of material for training in the existing colleges. Women who had passed through a University course, and had obtained the coveted distinction of a University degree, were apt to regard technical training as a work of supererogation; and, while they were in some cases desirous of adding to their academic *testamur* the nominal advantage of having gone through a short course of instruction in principles and methods which might pass muster as "training," many were unwilling to sacrifice a year's income and to pay out as much as they would have earned in the time, in order to obtain that thorough professional training which was not at present adequately appreciated by heads of schools. Thus the authorities of training institutions were unable to insist on a sufficiently high standard of general attainments in applicants for admission; and the system was unfairly handicapped by comparative inferiority in the intellectual quality of part of the output. It was not easy to see how the difficulty was to be met, unless by recognition of the necessity of training as an essential qualification for admission to a Register of Teachers.

Mr. ANDERTON agreed with what had been said by Mr. Eve as to the advantage of making a special study of a subject with a view to teaching it.

Mr. BARNETT, in reply, said it had been pointed out that the main defect in the present condition of things was the difficulty of getting the right people to come forward, and getting them to work under proper conditions. He believed that the whole difficulty was an economic one. They would not get any considerable number of people to come forward, after taking their degrees, unless they were offered something better than £70, £80, or £90 a year. Until teachers arrived at a proper sense of the importance of the work, and until the public could be got to pay properly for the services performed, they could not, and ought not to, expect that all intending teachers would take their degrees before they submitted themselves to professional training. His own belief was that the best results of training had hitherto come from the presence of two or three carefully selected students in a school under the supervision of the head master or mistress. He had in mind several schools where that was the practice, and the teachers who had come from those schools had proved themselves most efficient.

The CHAIRMAN, in winding up the discussion, said the question appeared to be an economic one at the bottom, and he thought they would not solve it by any kind of trade union, but by raising the pro-

fession of teaching, and then the economic laws would come into play. The reason why teachers were so miserably paid now was because the market was overstocked; and that was because there was no proper test for a teacher. When they got a Register of Teachers—and it was a crying shame that they had been kept waiting so long, that (if he was rightly informed) the Board of Education had not yet considered the recommendations of the Consultative Committee—things would be different. He hoped that when the regulations for registration were published training would be found to be one of the conditions of teachers being placed on the Register. He congratulated the meeting on the thoroughly practical character of the discussion.

A vote of thanks to the Chairman concluded the proceedings.

### TENURE OF MASTERS IN ENDOWED SCHOOLS.

THE following letter has been addressed by the Council of the Incorporated Association of Head Masters to the Board of Education:—

SIR,—On behalf of the Council of the Incorporated Association of Head Masters, we are instructed to ask you, as Secretary of the Board of Education, whether you will consent to receive a deputation from this Association on the subject of the tenure of masterships in endowed schools.

Under a recent Order in Council the Board now possesses the powers heretofore exercised over endowed schools by the Charity Commission, including the power to make and to amend schemes for administering such schools. In particular the deputation would draw your attention to the provisions in such schemes relating to the tenure of masters, i.e., appointment, dismissal, and appeal in the case of dismissal.

Our present application arises from the fact that the Board of Education is now called upon to initiate, as well as to authorize, schemes which contain provisions regulating the tenure of masterships in endowed schools. The practice under the Charity Commission has been of late, and for many years, to assign to the governing body on the one hand full responsibility for both the appointment and the dismissal of the head masters, and to assign to the head masters, on the other hand, full responsibility for the appointment and the dismissal of the assistant masters. This practice, though general, has not been universal, since in a small proportion of schemes, in case of dismissal, an appeal to the governing body was provided for assistant masters.

The question of tenure has recently attracted considerable attention from the public; without calling evidence or conducting any investigation, certain Local Authorities have passed resolutions suggesting changes in the provisions for the appointment and dismissal of assistant masters. Such action on the part of Local Authorities is, perhaps, consequent upon the practice of the Charity Commission in supplying them, as having a legal interest in the matter concerned, with copies of all local schemes. It is, moreover, usual for such Authorities to be represented on governing bodies.

It thus appears that besides the two administrative agencies recognized under endowed school schemes, viz., the governing body and the head master, there are two parties whose claims to an interest under such schemes will doubtless receive the attention of the Board when school schemes are either made or amended.

Under these circumstances the Council of this Association earnestly request that you will allow them to place before you for the consideration of the Board reasons why the Board might see fit to refer the question of tenure to the Consultative Committee for investigation and report before introducing into existing endowed school schemes changes affecting the conditions of such tenure.

The Association consists largely of head masters under endowed school schemes, and, in asking for a deputation, desires to urge that any changes to be introduced may be made in the interests of the general efficiency of the schools, and not only in a partial consideration of the interests concerned.—We are, yours faithfully,

R. P. SCOTT } Honorary  
R. D. SWALLOW } Secretaries.

37 Norfolk Street, December 7, 1901.

### NEW LIGHT ON BRAIN FUNCTIONS.

CONSIDERABLE interest attaches to the publication by Mr. Grant Richards of Dr. Bernard Hollander's "Mental Functions of the Brain." We have had many works on the brain and its relation to mind during the past forty years, one of them at least almost epoch-making so far as the study of the encephalon is concerned. But it is doubtful whether even Ferrier's great work will, with

the next generation, rank in importance with Dr. Hollander's. So far as original research is concerned Ferrier's is undoubtedly the greater work. He set about his investigations, as we may say, without any *parti pris*. Dr. Hollander, on the contrary, starts out with the firm conviction not only that Dr. Gall, the founder of phrenology, was on the right track so far as brain function is concerned, but that many of his facts and assumptions were correct. We all know how Gall was maligned and ridiculed, and how even to the present day his alleged *capitulum* method of "mapping out" the brain is still scoffed at and derided by many, and those not the least acquainted with science. Slowly but surely, however, through the labours of a multitude of observers, modern investigation is coming back to the point reached by Gall a hundred years ago. Most of those observers were probably unconscious of the trend of their facts. They wrote down their record and then left it; and Dr. Hollander's service to science has been in the main to search out and collate these records, hundreds in number, to co-ordinate them, and to show how they bear upon Gall's great discovery. For there can be no doubt to-day that his theory of the division of the brain into a number of organs, each with its separate function, is the true one. Many educated people nowadays are ready to acknowledge not only that the brain is the organ of mind and emotion, of the sensory and motor powers, but that the different mental functions, or faculties as we call them, have their seat in different parts of the cerebral mass. While they are ready to acknowledge this much, however, they draw the line at phrenology. That they hold to be a pseudo-science, self-condemned, as they affirm, by its unscientific methods. Yet, strange to say, every one of Dr. Hollander's eight hundred or more facts and cases, gathered from medical and scientific journals and works by leading authorities on physiology and mental science, support not only Gall's theories, but his system of organology. In other words, the "organs" of the phrenologist, discovered or located in the first instance from observation of the contour of the skull, are proved in a large number of cases to be correct by clinical and pathological observations. Thus we are given a hundred and fifty cases which incontrovertibly establish the fact that melancholia arises from a morbid or diseased condition of the "convolutions lying under and around the parietal eminence—viz., the angular and supra-marginal gyri," that is, the convolutions allocated by phrenology to the organ of cautiousness: caution, fear, or circumspection being the normal action of the faculty. In many of the cases given a simple surgical operation cured the patients, and sent them forth "as normal men."

In the same manner several hundred cases are cited which demonstrate that there is an intimate relation between lesions of the brain "in the middle portion of the cortex of the temporal lobe and the manifestation of irascibility and of destructive mania, as shown in various forms of insanity." Now this middle portion of the temporal lobe is the position allocated in the phrenological system to "destructiveness," or, as it is sometimes called, "energy." Similarly, we have localizations of kleptomania or theft, corresponding with the organ of "acquisitiveness" of hunger and thirst, corresponding with the organ of "gustativeness," Ferrier's "gustatory centre"; and of the affections, such as maternal love, in the occipital lobe, where phrenology locates the organs of philoprogenitiveness and friendship. Under this head one very curious case is given. A youth, sixteen years of age, killed his father and brother, and attempted to poison his mother. He was religiously inclined. *Post-mortem* examination showed the frontal lobe well developed, while the occipital lobe was defective. Other cases, running on almost parallel lines, are given, and, although they may not be accepted as conclusive in regard to the fact they go far towards establishing, they cannot be set aside as unimportant.

Equally interesting are the author's observations touching the localization of "special memories"—namely, for words, places, events, numbers, music, &c. His theory—and, of course, it is that of phrenology—is that memory is not a single faculty, but that each mental faculty has its own memory. "There exist partial, special, and local memories, each of which has its special domain, and which are so independent that one of them may get enfeebled and disappear without the others necessarily presenting any corresponding change." There is nothing more striking in Dr. Hollander's book than the verification, so far as his facts go, of the localization of the perceptive faculties as mapped out by phrenology. It is, of course, impossible to give them in detail in a short article. One or two instances, therefore, must suffice. In one case—that of a railway fireman the frontal part of whose brain was punctured by the spout of an

oil-can—there occurred loss of memory of previous events, of forms, of objects, and places, “the lesion corresponding to the location of phrenologists.” In another case—that of the wife of an Army officer—the subject, “though intellectually quite normal, . . . could not distinguish either time or locality, and mistook objects.” The *post-mortem* examination revealed “intermeningeal hæmorrhage at the anterior root of the superior and middle convolutions,” the location of the phrenological organs of “time” and “locality.” From the *Australian Medical Journal* (July 15, 1893) is quoted the case of a man who suffered “a fracture of the base of the skull just behind the orbits, there being a fissure about a quarter of an inch in width. . . . Much lacerated and contused brain was removed. On recovery the patient had lost the conception of the quality and position of foreign bodies, their weight and resistance, through the sense of touch.” In this case, also, the lesion is said to have corresponded “to the localization of phrenologists.” Another physiological record describes the case of a man “who, after fracture of the skull, forgot the shape of objects, and, though he could draw well an object before him, made a shapeless blur when the object was withdrawn.”

Similar cases are given bearing upon the colour-sense and upon that of music or “tune,” the location again agreeing with that of the phrenologists. These, it must be acknowledged, bear out the contention of the followers of Gall, who place the seat of the intellect in the anterior lobe of the brain. It might be thought that there was no need to state this as a fact at the present day, when most people acknowledge the truth of the observation; yet we have men like Drs. Bastian and Hughlings Jackson affirming that the posterior lobes of the brain had more to do with the intellect than the anterior.” In view of the cases given by Dr. Hollander bearing upon the functions of both the posterior and the anterior lobes, it will, one would think, be impossible for Drs. Bastian and Jackson to persist in their opinion as to the localization of the intellectual powers.

Our author proceeds from the anterior lobes of the brain to the convolutions occupying the dome of the skull. These are held by the phrenologists to be concerned with moral and religious powers. In support of this theory, Dr. Hollander brings some striking facts, though they are hardly so conclusive as those relating to the propensities and emotions. Still, it is impossible to get away from such facts as those exemplified in the quoted cases of religious mania in which *post-mortem* examination showed tumour or lesion at the vertex of the brain—the location, it must again be pointed out, of the phrenological organ of veneration.

In a work recently published on psychology, the author, after referring to some experiments in regard to the sensory and motor areas of the brain, hazards the remark: “Hence it will be seen there is no truth in phrenology.” One can hardly doubt that a great deal of what has passed current as “gospel,” according to the old phrenology, will have to go; but it appears equally indubitable that, after a century of rejection, Gall’s doctrine will have to be accepted, and his facts acknowledged or rejected on evidence. What a revolution that means in our systems of philosophy, in our educational methods, and even in our theory of morals may easily be imagined.

ALFRED T. STORY.

### MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.

A MEETING of the Council was held on December 14. Present: Dr. Wormell, Vice-President, in the Chair; Rev. J. O. Bevan, Mr. Butler, Mr. Charles, Mr. Chettle, Miss Crookshank, Miss Dawes, Mr. Eve, Rev. Dr. Hiron, Mr. Ladell, Mr. Pinches, Dr. R. P. Scott, Rev. Dr. Scott, Rev. T. W. Sharpe, Rev. J. Stewart, and Rev. J. E. Symms.

The minutes of the last meeting were read and confirmed.

The Secretary reported that the Christmas Certificate and Lower Forms Examinations had been held on December 10-13, and that the number of candidates was about 7,800.

He reported that the Medical Council at their last meeting had accepted the scheme submitted by the College for a preliminary examination for intending medical students. The new examination would come into operation on January 1, 1902.

He reported that the number of entries for the forthcoming Diploma Examination, to take place in the second week in January, was over 450, and was considerably in excess of the number entered for any previous examination of teachers conducted by the College.

The Diploma of Licentiate was granted to Miss E. M. Dobbs, who had passed the required examination.

Professor Sully was appointed to deliver the psychology course of lectures at the College in the early part of 1902.

Saturday, January 25, was fixed as the date of the next Ordinary General Meeting of the members of the College.

Dr. K. Breul, Cambridge, was elected a member of the Council, to fill the vacancy caused by the resignation of the Rev. Dr. Poole.

The draft Report of the Council to the General Meeting was considered, and was referred to the President, Vice-Presidents, and Dean, for final revision.

Mr. L. Skyrn, Highfield Terrace, Heckmondwike, Yorks., was elected a member of the College.

The following books had been presented to the Library since the last meeting of the Council:—

By the BUREAU OF EDUCATION, WASHINGTON, U.S.A.—Report of the Commissioner of Education, 1899-1900, Vol. I.

By the SMITHSONIAN INSTITUTION, WASHINGTON, U.S.A.—Reports of the United States National Museum, 1897, Part II., and 1899; Report of the Smithsonian Institution, 1899.

By MISS CROMBIE.—Portrait of George Combe.

By G. BELL & SONS.—Bell’s Latin Course, Part III.

By BLACKIE & SON.—Atkinson’s Selections from Lesage’s *Gil Blas*; Barnett’s *Émémides of Eschylus*; Clark’s Selections from Molière’s *Le Médecin malgré lui*; Downie’s *Byron’s Child*; Harold’s *Pilgrimage*, Canto II.; Matthews’ *Kotzebue’s Der gerade Weg der beste*.

By C. J. CLAY & SONS.—Kirkpatrick’s *Psalms xc.-cl.* (Cambridge Bible for Schools and Colleges); Verity’s *Shakespeare’s Macbeth*.

By W. B. CLIVE.—London University Guide and University Correspondence College Calendar, 1901-2.

By HACHETTE & Co.—Conversational Exercises and Object-Lessons based on Holzel’s Conversational Wall Pictures (Italian, Spanish, and Dutch, Part I.); Rey’s *De Sœur’s Histoire de la Princesse Rosette* and *La Petite Souris Grise*; Soreau’s *Moréau’s Contes à ma Sœur*.

By MACMILLAN & Co.—Hall’s *Algebraical Examples*; Poiré’s *French Course*, Second Year.

By RIVINGTONS.—Household’s *Anson’s Voyage Round the World*, Calendar of University College, Nottingham.

## REVIEWS.

### HISTORY OF PHILOSOPHY.

*A Student’s History of Philosophy.* By Arthur Kenyon Rogers. Ph.D. (Macmillan.)

Prof. Rogers, of Butler College, now follows up his “Brief Introduction to Modern Philosophy” with a substantial volume surveying the whole course of philosophy (in the West) on a scale and a method adapted to class-room work with students. His “chief aim has been simplicity, in so far as this is possible without losing sight of the real meaning of philosophical problems.” Such an aim puts a severe strain on the writer, for practically it amounts to the task of shaping his exposition for popular use within an inadequate space. Minor names have to be ruthlessly suppressed, “unless some literary or historical interest creates the presumption that the student is already acquainted with them in a general way”; that is to say, “some literary or historical interest” is allowed to interfere *pro tanto* with the writer’s essential purpose, which is philosophical. This deviation, if not so good for the book, may yet probably be good for the student or popular reader. On like principle, Prof. Rogers omits the minor points of the teaching of the philosophers to whom he gives substantial recognition. Having cut away so many details, he addresses himself to the larger names, dealing with the main problems with which they have made an impression, and directing special attention to the spirit in which they philosophized. Opinions would, in any case, differ as to the right omissions in a work of this kind. It seems a pity, however, that the mediæval period, which is admitted to be “intrinsically of great importance,” should have been severely cut down owing to “marked disadvantages” from the standpoint of an introductory course. And when Prof. Rogers says, and says with too evident truth, that he “has not attempted to trace the more technical lines of influence from one philosopher to another,” he seems to abrogate a very essential requirement of the historian of philosophy. The apology he offers—that such lines of influence “are almost impossible for the student to grasp”—appears to lead him to something perilously suggestive of self-stultification. Where is the use of a history of philosophy to students that need to be coddled in this fashion? Surely the first thing is to put your student through a course wherein he is technically indoctrinated in all the main problems; and the next thing is to show him the historical development. If the necessary technical basis is well and truly laid, there can be no excuse for handling the history so gingerly; if it is not well and truly laid, it comes to be more or less a waste of time to lead him through a history that he is not fitted to understand. Fortunately Prof. Rogers’s practice issues in happier results than his theory of procedure invites one to anticipate.

Prof. Rogers’s second aim has been to give the thought of the writers in their own words, whenever he conveniently could—

"particularly where the literary interest can be made to supplement the philosophical." This is a distinct advantage. What we do not like about it is the author's nervous distrust of the philosophical interest in and by itself. No adventitious aid, literary or other, need be depreciated or ignored; but any student of philosophy that fails to find the interest of the problems a sufficient attraction does not deserve to be catered for, any more than a student of geometry that wants to be coaxed by Euclid in verse. The special advantage of "the thought of the writers in their own words" is precision of presentment and avoidance of the dangers of paraphrase. So we can still regard Prof. Rogers as having gone the right way to work, though his main grounds for the course he has taken seem comparatively weak. His third principle has been to exhibit the history of philosophy through the systems of individual men, at the same time "bearing in mind the need of relating these to the more general history of civilization." His main effort in this latter object is what he calls "a somewhat mild reproduction of the Hegelian philosophy of history," which is surely not the last word on the subject, and might in various points have been modified with advantage. The time-honoured principle of expounding "the systems of individual men," of course, has its obvious recommendations. We confess, however, we should now like to see some writer attempting the plan of following each great problem separately in its continuous development. Such a course would seem to have a specific educational value; and a general history could then follow with much more tangible results.

The Greek philosophy, together with the middle ages and the transition to modern philosophy (which, as we have already indicated, is rather severely compressed), occupies just over one-half of the volume. Modern philosophy is thus somewhat limited in treatment, the period from Hegel being disposed of in thirty pages. The chief representatives are Schopenhauer, Comte, and Spencer, with brief incidental notice of Darwin; while Herbart, Fechner, Bentham, and the Mills are just mentioned. If even mere mention is made of Hartmann, Lotze, or Bain, we have missed it. However, it still remains to be acknowledged that, within the limits we have specified, Prof. Rogers has written a thoughtful and solid book, which will be helpful to general readers as well as to students in the class-room. The chief writers selected are treated with reasonable fullness and with adequate knowledge; and, though the style is sometimes heavy, the intellectual interest is always soberly maintained. The volume is a very favourable example of the abounding energy of academic thinking and teaching in the American Universities.

*The Lore of Cathay; or, The Intellect of China.* By W. A. P. Martin, D.D., L.L.D. (Oliphaunt, Anderson, & Ferrier.)

Dr. Martin is a citizen of the United States, well known as the author of "A Cycle of Cathay," "The Siege in Peking," and other works on China. For a quarter of a century he was at the head of the Tung Wen College, an outcome of the collision with the West in the second Chinese War at the end of the fifties. In 1897 he was made President of the Chinese Imperial University, established after the disastrous war with Japan. The present work deals with Chinese science, literature, religion, and philosophy, including a full account of their education and of the famous examination system. Of the chances of progress the writer, as may be gathered from his opening chapter, "The Awakening of China," takes a sanguine view. Both the great revolutions of remote ages and the events of the last fifty years seem to justify his opinion. He reminds us, of course, of their anticipations of Western discoveries, such as printing and gunpowder, and points out that they seem to have reached, at any rate, an approximation to such modern ideas as those of the luminiferous ether and the conservation of energy. To Chinese literature more space is devoted. Of their poetry, which constitutes so important an element in the intellectual life of the educated classes, some attractive specimens are given. One by an exiled Minister of State, who flourished about 200 B.C., reminds Dr. Martin of Edgar Poe's "Raven." The concluding lines are thus translated (the bird of ill omen is speaking):—

Fortune's wheel is ever turning,  
To human eye there's no discerning  
Weal or woe in any state;  
Wisdom is to hide your fate.  
That is what it seem'd to say  
By that simple "Well a day."

No less charming are the lines which are said to have won from Confucius the hand of his daughter:

A speck upon your ivory fan  
You soon may wipe away;  
But stains upon the heart and tongue  
Remain, alas! for aye.

In prose, he tells us, great perfection of style is attained. Conciseness and antithesis are its chief characteristics. The polished essay, *wen chang*, an exposition, in stereotyped form, of some text from the classics, is practised by old and young. Originality of thought is quite absent from these compositions, but infinite pains are taken with the subtle combination of words and the introduction of apposite and suggestive allusions to the classics. The writer finds a parallel in the assiduous practice of Latin verse, in the form in which it was cultivated before it became, as it often is now, an initiation into the close study of the best English poetry.

The account of Chinese education is particularly interesting. It is for boys only. Women who have succeeded in acquiring knowledge are, no doubt, highly honoured; but, as a general rule, girls are not educated at all. The State has no need of them in official positions. Early home education is practically non-existent. The mother and nurses are themselves uneducated; and usage generally prohibits the father from instructing his own children. The work of the teacher begins about the seventh or eighth year, and is inaugurated by an elaborate ceremonial. The first four or five years are of the dreariest; they are devoted to reading, copying, and learning by heart the classics, which, it should be borne in mind, are written in what is to the modern Chinaman a dead language. No attempt is made to explain their meaning. Moreover, each child works by himself, and that under the ferule; the stimulus of class work is entirely wanting. The next stage brings in translation, too often reduced, as is not quite impossible with us, to a mere effort of memory. Composition, in its elementary forms, is introduced at the same time, and becomes the main object of the third stage. Throughout, the aim is to cultivate style, not thought or originality. The conception of education is, in fact, totally different from ours: its object is not the development of the faculties of all members of the community, but the conservation of the repose of the State, the maintenance of an adequate supply of educated officials.

Of the examination system a full account is given. It does, indeed, afford a perfect illustration of one form of the *carrière ouverte aux talents*. At the first examination, which turns wholly on penmanship and grace of style, only one per cent. are allowed to pass. In the second stage, intended to test reading and scholarship, penmanship no longer plays a part. The exercises are copied by an official scribe before being submitted to the examiners. Here, again, only one per cent. qualify, or one in ten thousand of the original competitors. The last stage, in which about three per cent. are successful, alone admits to the chance of entering the public service. Even beyond this there are further examination successes to be won. Of the fairness of the procedure the writer is evidently convinced, and he points out its incidental advantages. It serves as a safety-valve for the ambitious, who might otherwise become fomenters of sedition; it acts as a counterpoise to absolute monarchy; and it enlists the educated gentry on the side of existing institutions. It is worth mentioning that the chapter on these examinations was originally drawn up in the interest of Civil Service reform in America.

With the other chapters we have no space to deal; they give information as to the Universities, the three religions of China, and some episodes of Chinese history.

#### THE PRINCIPALITY.

"The Story of the Nations."—*Wales*. By Owen M. Edwards, Fellow of Lincoln College, Oxford. (Fisher Unwin.)

Almost incredible as it may seem, this work is the first attempt at a complete history of Wales that has ever been published. The dearth of historical literature in the Welsh language is a curious phenomenon not easily explained in the face of the undoubted conservative instincts of the race. The history of a Celtic race, owing to continual tribal strife and family feuds, is far more difficult to unravel than that of a Teuton nation. History, in a scientific sense, showing how the national forces and environment in one epoch explain the course of the nation's development in the succeeding age, is almost impossible in the case of the Celtic races. In fact, many chapters of Mr. Edwards's "Wales" illustrate this difficulty, suggesting rather a boiling



cauldron in which the solid elements appear and disappear, controlled by no apparent law, than a river flowing onward in its destined course. The author has, however, earned the gratitude of his countrymen by making an honest effort to wipe away the reproach which has clung to their literary reputation from the days when the old monastic chroniclers of Strata Florida laid down their pens after sorrowfully registering the death of Llewelyn and the loss of their nation's independence. The early history of the race down to the Norman conquest is but slightly treated, and no clear line is drawn between legend and fact. The moot point whether Druidism was ever a cult of the Brython Celt, as distinguished from the Goidel, among other matters of some difficulty, has no light thrown upon it. Even the "Gododin" and the works attributed to Llywarch Hen and Taliesin are not dealt with as a means of affording some indication of the condition of the nation between the departure of the Romans and the influx of the Normans into South Wales. It is a period which in spite of Prof. Rhys's labours remains tantalizingly obscure. We cannot hope to penetrate closely into the history of the Celtic race in Wales during the Roman occupation. The Roman was not observant, and treated the race with an indifference which has been imitated by their neighbours in later times. This may be accounted for by the fact that the Celt does not interest his fellow-men as a nation, but only as an individual.

Mr. Edwards makes full use of the monastic annalists in treating of the Norman and English conquests of Wales. At times he seems, indeed, to reproduce too closely the style of the chronicles of the "Brut" when writing of a hero he admires. "Of medium height was Griffith ap Conan, with flaxen hair and round ruddy face. . . . His neck was round, his skin white. Mighty he was of limb, straight and fair to see." He makes full use of Gerald's "Itinerary" to present a clear picture of Welsh life at the end of the twelfth century, and goes some way towards satisfying his readers that Owen Gwynedd and Lord Rees—the great Arglwydd Rees of the Chronicles—as well as Llewelyn the Great in the first half of the thirteenth century, had a truly unselfish national policy. Mr. Edwards will find English and German historians loth to admit the existence of constitutional ideals among the Celts before their subjugation by the Teuton. Mommsen's hard saying is based on too solid fact to be easily questioned, and even in Mr. Edwards's pages the constant family feuds and treacherous self-seeking of the chief actors go far to show that the Welsh would have failed to develop stable political institutions. The last struggle for independence and the changes brought about by the introduction of English rule are clearly dealt with. We expected to find a fuller treatment of the period immediately preceding the rising of Glendower. Mr. Edwards does not seem to have seen before writing this part of his work the valuable paper on Owain Lawgoch in the last volume of the *Cymmrodorion Transactions*. In later times authority in matters of Welsh history is more distinct, and the author's difficulties arise from the necessity of selection. He has trodden an unbeaten track with skill and judgment, and, if the impression left of the nation and its development lacks something in definiteness, we must not forget the difficulties attendant upon a pioneer journey into such a wide expanse. The book is admirably produced and well illustrated.

#### SHILLETTO.

*Greek and Latin Compositions.* By Richard Shilleto, M.A. (Cambridge University Press.)

It augurs well for the endurance of Shilleto's reputation that there should be an eager demand for his compositions a quarter of a century after his death. To many—perhaps, to most—scholars of the present day many passages included in the large selection that Mr. Graves has made are already quite familiar. The copies have been passed on in manuscript from generation to generation of Cambridge men; and for them it has been

among their purest joys  
To work them off upon their boys.

Indeed, Shilleto's composition is, in its way, a joy for ever. We doubt if there has been any other scholar who could point to so large a body of first-rate work. Evans had as much to show in verse; and his best work was not inferior to Shilleto's. There are living scholars who can write as good Greek and Latin as he wrote, had they the need to write or the opportunity; but in Shilleto's case it is the quantity that astonishes; for, bulky as this volume is, it by no means represents all that he wrote, and we specially regret that no room has been found for any of those

original squibs in Greek with which, like Evans, he was wont to amuse his friends at Cambridge.

Shilleto excelled in Attic Greek, and that language has had no more enthusiastic disciple. His enthusiasm was contagious, and infected even mathematicians who heard him dilate upon the most scholarly, the most glorious language that the world has ever known. He thought in Attic, standing, as a caricature shows him to this day, before the fire-place of his lecture room; and Attic was his theme as he chatted with the Master of his adopting college, who on that subject was perforce content to be a listener. Over Latin his mastery was less absolute, though in that tongue his proficiency was such as can be attained by few; but in Greek he was pronounced the greatest scholar that England had produced since Gaisford; and it is matter for rejoicing that at last an authoritative selection of his composition enables the present generation to know how extraordinarily intimate was his knowledge of the classics.

This, too—the tenacity of his memory—is a matter that may well excite admiration and astonishment. Constant reading of the texts with many pupils had made his mind a store-house of phrases and idioms. He must have written Greek and Latin with great rapidity: he never falters for the word or phrase that he wants. In Latin it is possible that his reminiscences occasionally tricked him; but in his Greek it is impossible to detect an expression that can be questioned.

Is it still possible that other "remains" of his might be published? There are the skits in Greek, English, and Latin, once the jest of combination rooms. How many of these survive we do not know, but some are undoubtedly in the possession of old pupils. The papers of Mr. Graves, Mr. A. W. Spratt—himself an excellent composer—the lamented R. A. Neil, and others who knew him well, might supply some. And a portion of his *adversaria* still remains in manuscript.

Schoolmasters have been very well supplied with good models of late; and, as Dr. Postgate has written, "the volumes of versions recently issued by the two Universities are generally admitted to mark a distinct advance upon their respective predecessors. They show no less spirit and more fidelity, a nicer appreciation of idiom and a more conscientious use of the file." Shilleto's copies, unfortunately, were never revised by their author; yet composition masters will certainly be eager to avail themselves of work that on every page shows some signs of the master hand that wrought it.

#### A SCHOLAR'S MEMORIAL.

*Aristophanes, The Knights.* Edited by R. A. Neil. (Cambridge University Press.)

From the "Confound it all" of the opening line to the dog-and-donkey sausage of the *finale* Mr. Neil's commentary on "The Knights" is not only the best work on Aristophanes that has appeared in England, but it is one which need not fear comparison with the best Continental editions. Neil had a most retentive memory, he read assiduously and widely, he collected and collated unremittingly. But that he was something more than a scholar of the best type his intimate friends well knew, and his pupils somehow instinctively felt. He was the kind of scholar whom journalists, after a single visit to a college common-room, persist in declaring to be extinct in the old Universities. In the old days, when teaching was left to coaches, and life fellows and two-bottle men flourished, the brain power that was not expended during the day was available for post-prandial usage. Nowadays the best force is used up in the lecture room. Here was a man with a touch of genius occupied daily and hourly during term with the routine work of a great college and a University readership; so that his own work had to be left for the late hours. "The night cometh," he would say, "when all men must work"; and with that he would go off to his reading, which was continued not infrequently far into the night. His early death, before he had put the finishing touches to the book at which he had worked for some twenty years, was a deplorable loss not only to his University, but to English scholarship.

The introduction is only a fragment; but it serves to show how completely Neil was master of his learning. It is bright, fresh, and full of striking observations. It shows too that Neil's acquaintance with modern literature was scarcely less close than his knowledge of the ancient classics. Apparently Neil intended to write a general introduction to the Old Comedy; but he was stopped by death just as he was getting into the subject. The commentary, which appears to be complete, shows us an ideal interpreter of Attic comedy, for the commentator, besides.

possessing the nicest appreciation of the meaning, had explored every side of ancient life and thought, and had collected an immense mass of illustrative material. It is seldom, indeed, that so much valuable information is compressed into the modest dimensions of a college commentary. The translations are admirable, racy as well as scholarly. Neil's learning was, indeed, the reverse of ponderous; and he never runs into the danger of burying Aristophanes' wit under a load of information. Of the three appendices, two deal with linguistic points; but the most generally interesting is the third, the subject of which is tragic rhythm in comedy. The editor maintains that "Aristophanes seldom, if ever, uses a purely tragic iambic line without an intention; and thinks that even in Plautus and Terence we may notice 'the tendency to use a less resolved rhythm where dignity or pathos is a desired effect.'" If this is so, it is surely curious that a tendency to the use of resolved feet is to be observed in tragedy just where a pathetic effect is sought.

We do not doubt that this edition of "The Knights" is final; and it is a worthy monument of a lamented scholar's taste and erudition.

#### CHILD STUDY.

*The Mind of a Child.* By Ennis Richmond. (Longmans.)

When most of us are feeling that child-study has been carried to somewhat absurd lengths and in absurd directions, it is good to take up a book which treats the matter in a sane way and from a common-sense point of view. The author deprecates the over-busy child-analysis of the present day, and thinks that we are in danger of thrusting ourselves in at a point where interference is an impertinence greater than any mistake of which our forbears were guilty. She considers the spiritual side of child life is neglected for the scientific, and we are too anxious to separate the "is" from the "ought." But surely no satisfactory work can be done unless these are kept separate, and so long as those who pursue the purely scientific aspect—the "is"—keep entirely to this aspect, no harm can be done. It is, in fact, in the confusion of the "is" with the "ought" that the difficulties arise of which Mrs. Richmond speaks. She herself in this book contributes a few powerful essays on the "ought"—on the spiritual side, as she terms it.

An unusual sense of proportion is displayed in these pages: the child is not treated as an all-important unit, but as a part of the family. Let us live *with* our children rather than *for* our children is the key-note; and it will certainly appeal to the average parent in a way that more extravagant outbursts on the importance of the child mind have failed to do. To mention a few points, by way of illustration. "Parents are too apt," says Mrs. Richmond, "to connive or even laugh at children's faults, until they become inconvenient, when they are punished clumsily, recklessly, and unreasonably, often ineffectively, since neglect has caused them to grow from faults into vices. Moral teaching must in all directions be more positive than negative." Although this is an ancient educational *dictum*, and familiar to all from the parable of the seven devils, it is here driven home with fresh vigour and excellent practical illustrations, as to inculcating a love of Nature, of art, and so on. The extreme importance of teaching a child to take no thought about his own happiness is well put: he is to be dependent on others for it, to *expect* them to see to it, as he is to regard it as his business to see to theirs. Closely connected with this is the much neglected virtue of gratitude. "The spirit in a child which 'takes for granted' is the spirit we want to get rid of; and the only way of doing this is so to train a child that he always sees the giver standing behind the gift." Good advice is given as to a child's endless babbling, with which every one is familiar. Many child-enthusiasts speak with ridiculous awe about such streams of questions. Mrs. Richmond takes the saner attitude of Richter on the point, and would say "Don't talk nonsense," although she would be the first to recognize an intelligent request for information. There is an unfortunate amount of repetition in the book, especially on the subject of respect to parents. The description of Wordsworth's "Anecdotes for Fathers" is not quite correct, the subtlety of the little poem being thereby missed.

#### IN THE DAWN OF RENAISSANCE.

"Periods of European Literature." Edited by Prof. Saintsbury.—V. *The Earlier Renaissance.* By Prof. Saintsbury. (Blackwood & Sons.)

Seven out of the twelve projected volumes of Messrs. Blackwood's "Periods of European Literature" are now complete; and

those who have subscribed to the series, and have been glad, *faute de mieux*, to receive the works of the several contributors as they appeared, without regular chronological sequence, will begin by this time to appreciate their nearer approach to continuity. The general editor has reserved for himself, in addition to "The Flourishing of Romance and the Rise of Allegory" and "The Later Nineteenth Century"—volumes with which we have already dealt—the specially interesting and unbackneyed period of the later fifteenth and earlier sixteenth centuries. This was the epoch of the last literary blossoming of the Greek and Latin humanities in Western Europe, the last phase of which Italian scholars, followed by Elizabethan and their French contemporaries, called the Italianation of England and France. The revival of learning was to bear its harvest before the vernacular in the three Western nations assumed a literary form; and its most characteristic fruit was moulded on the Latin classical metres.

Mr. Saintsbury is in his element when reviewing and comparing the humanists of the fifteenth and sixteenth centuries—Politian, Pontanus, Vida, Bembo, and others. A few extracts from the poems which he describes would have made his pages more interesting to the general student—who, apart from the texts, cannot find much to edify him even in the *cinquecento*. The ripening of the vernaculars, and the constant efforts to utilize them for literary expression, are very interesting to trace. We have mentioned some of the fresher aspects and less trite features of Prof. Saintsbury's work, and we may add that he is neither trite nor conventional in dealing with the better known men of the on-coming age—with Ariosto, and Rabelais, and Marot, and Marguerite de Valois. Altogether, the editor has made an excellent contribution to his own series, which will send many of his readers to consult at first hand with the mediæval Latin humanists.

## GENERAL NOTICES.

### CLASSICS.

*Horæ Latinae.* Studies in Synonyms and Syntax. By Robert Ogilvie, M.A., LL.D. (Longmans.)

The late Dr. Ogilvie, who occasionally contributed to this journal, was for thirty years Inspector of Schools for Scotland, and before he received that appointment he had been a schoolmaster, first at Banchory-Devenick and afterwards at Fochabers. It was from Dr. Melvin, of Aberdeen Grammar School, that he early acquired the interest that he retained through life in the discrimination and definition of Latin words, especially of apparent synonyms. He moved through life with a classical author in his hand—or, at the least, in his pocket—and was for ever "a-takin' notes." Thus he amassed a great quantity of valuable information upon Latin usage and of apposite examples. All this material he had thoroughly digested; and, as to his enthusiasm he added the gift of clear exposition and accurate classification, the work of his spare hours acquired a permanent value. It is now published, partly as a memorial of a versatile and scholarly man, partly in the expectation that the collection will prove useful to those who have to write Latin. For the latter purpose the articles have been arranged alphabetically by Mr. A. Souter under the English headings. Although the five hundred articles are of a miscellaneous character, and much that they contain is current in ordinary grammars and dictionaries, the expectations entertained by those responsible for the publication of Dr. Ogilvie's book are likely, we think, to be realized. Its utility to students of Latin prose will, in all probability, be considerable. But we cannot commend the judgment of the editor. The form and price of the book are such that it cannot become a student's hand-book. Its place will be in school and college libraries. Perhaps the most valuable articles are those that deal with the Latin equivalents or substitutes for the simplest English vocables, such as *a, the, yes, no*. In other cases, on the contrary, such as the rules about *quisquam* and *dubito*, Dr. Ogilvie only states what every well taught pupil knows already; and we think that the bulk of the book might have been reduced with advantage by judiciously selecting from the articles and omitting those that deal with such elementary points. We do not suppose that any one who would be likely to consult such a book would need to be told the difference between *nubere* and *ducere*, between *amare* and *diligere*, between *diu abesse* and *longe abesse*; and it can only be the pardonable enthusiasm of a collector that prompted Dr. Ogilvie to record such elementary distinctions. His editor, then, should have omitted the obvious, and have published only what has some claim to novelty or is not to be found in ordinary books of reference. Probably the exercise of such a choice would have reduced the size and price of the work by quite one-half, and would thereby have rendered it more available as a manual for students.

*The House of Atreus; being the Agamemnon, Libation-bearers, and Furies of Æschylus translated into English Verse.* By E. D. A. Morshead. (Macmillan.)

Mr. Morshead's translation of the "Oresteia" is a welcome addition to the charming "Golden Treasury Series," and has fairly earned its place there. The version was meant for those to whom the Greek of Æschylus is a closed book, but it won the good opinion of scholars as well. The edition is a reprint of that issued in 1899, and we may take it that Mr. Morshead does not propose to introduce any further changes. It is, therefore, necessary to point out that in many places he offers an interpretation of the text that wins no support from the recent commentators. Thus, for instance, who is prepared to say that

Though they can silence and annul the prayers  
Of those who on us cry

is a possible rendering of *ὅτων δ' ἀτέλειαν ἐμαῖσι λιταῖς ἐπικραίνειν*, as though *ἀτέλεια* meant "non-fulfilment"? Despite the good qualities of his rendering, which is smooth, readable, and neat, it certainly seems defective now in the matter of scholarship, with which Mr. Morshead has, apparently, taken no pains to keep abreast. Still, to this objection it may fairly be replied that the rendering was never meant for scholars, and, if they find it worth while to meddle with it, they must accept it as it is. For English readers it remains the most successful attempt to convey to them some idea of the trilogy.

*The Private Life of the Romans.* By H. W. Preston and L. Dodge. (American Text-Book Agency.)

This little book, well printed and illustrated, gives, in 150 pages, a readable account of Roman life. Of course, it is very far from being exhaustive; but the authors have seized the salient points, and students of the Roman poets will find this short sketch a valuable companion. Where so much compression has been necessary, it is strange to find here and there little bits of padding that might have made way for more valuable matter. Still, the book is very well done, and should make those who use it realize that the Romans were quite human people like themselves. It makes one feel at home with the ancients to read that "entire wigs were much worn in the first century." For our part we should have liked to hear a little more about rank and fashion under the Empire. Did great ladies ever wear gray hair in those days? We doubt it much, since gold-dust was always to be had. And then the Appian Way and its branch roads—we should like to hear more about them, as about other matters that perplex the reader of Empire poetry. But, in the main, we have got as much as could fairly be expected from so short a manual.

*Q. Horati Flacci Satirarum, Liber I.* Edited by James Gow, Litt.D. (Pitt Press.)

This edition, as might be expected from the editor's excellent notes on the Odes, is a valuable contribution to the study of Horace. The notes, without being too elaborate, not only give all that schoolboys require, but will be found suggestive to scholars. They contain some interesting suggestions by Prof. Postgate, published in the *Classical Review* for July last. For example, in I. 108, for the difficult "qui nemo ut avarus se probet" the reading "nemo ut quia avarus se probet" is suggested; in III. 59, for "nullique malo latus obdit apertum," the rendering "bars his side (i.e., his company), so that it is open to no bad man." Specimens of suggestive notes of Dr. Gow's are that on

"Quis manus insudet volgi Hermogenisque Tigelli,"

"It would appear that Hermogenes talked about books, but never bought any"; that on "avidus aegros," "sick persons who eat too much, a comparison between thoughtless *aegri* and thoughtless *teneri*"; and the analysis of the argument at the beginning of Satire VI.

*Caesar's Gallic War.* Book II. Edited by J. Brown. (Blackie.)

This is a reprint, with illustrations, of an edition which seems to have had some popularity. The introduction and its illustrations are the same as those of Book I, already noticed in these columns. The illustrations to the text are fancy pictures poorly engraved. The notes are rather uninteresting and decidedly inferior to those in Mr. Peskett's well known edition. For example, "nullo certo ordine" is described as an ablative absolute; it is surely an example of the ablative of attendant circumstances, of which the ablative absolute is a particular case. Again, *castris* in "castris continuit" and *oppido* in "oppido recipere" are called "local ablatives, the preposition being omitted." It is clearly pointed out in Roby that the local ablative—or, rather, locative—is confined to names of towns, a few stock phrases, and cases where "the place is also the means." Besides, omission of prepositions is dangerous doctrine. The book needs careful revision with the best modern grammars.

#### MODERN LANGUAGES.

*Interlinear German Reading Book.* By F. Hahn and C. A. Thimm. (Marlborough & Co.)

This is a reprint of an old book, with the spelling corrected according to the new system. The value of interlinear translations in learning a language is a matter of opinion. In any case, the text should be printed a second time without the translation if the book is to be of any use in schools.

*French Test Papers for Civil Service and University Students.* By E. B. Le François. (Blackwood.)

The author confides to us his low estimate of examinations: "they are like lotteries—the lucky numbers win. These test papers must infallibly contain some of those lucky numbers—questions that will be set sooner or later." Again: "The students who have worked these tests carefully will, at the appointed time, solve satisfactorily to themselves and to everybody else concerned the puzzles set before them either by the Civil Service Commissioners or the University Syndicates." On looking at these papers we recognize at once what examinations the author had in mind; they are based on the French papers set at the Army Entrance Examination, which are about as bad as they possibly could be. Practically all their weak points are reproduced here—passages from unseen translation taken largely from authors of a previous age; questions on literature and history which presuppose cram of the worst kind; questions on grammar which are quite in the old style, and in many cases badly worded. That such a book should be produced and expected to sell is a sad commentary on the low state of some of our modern language examining. In order to substantiate our statements we select a few questions as typical: "Give a few French words of (a) German, (b) Italian, and (c) historic origin. When must you use *mon, ma, ton, ta, son, sa* before a noun feminine? Sketch briefly the life of Louis XIV. Say what you know of M. de la Rochefoucauld and Mme. de la Fayette: mention their literary productions. Who were the following persons:—Stanislas Leszczynski, Don Carlos, Damiens, Duc de Choiseul, Duc d'Aiguillon? What was the old form of most words ending in *au* or *ou*, like *oiseau, marteau, cou, fou, sou, beau*? State which most important parts *que* can act in French—illustrate. Give a list of the most celebrated French prose fiction writers of the nineteenth century, mentioning some of their works. What parts of a French verb take a circumflex accent? Who were the 'Encyclopadists'? Describe their influence on the times. Give the names of a few philosophers of the eighteenth century," &c. We wonder what our classical colleagues would say if any one proposed to set Latin test papers of this type to their classes.

*Neue Russische Grammatik für Kaufleute und Gewerbetreibende.* By F. Glikin. (Leipzig: Gloeckner.)

The appearance of this, the first Russian grammar of the kind, marks the progress of commercial education in Germany. A vigorous attempt has of recent years been made by German traders to seize the Russian market, and in this they have the aid of the commercial schools, where the Russian language is becoming more and more a recognized subject. The present manual forms one of a series which has at different times received notice in these columns; and it fairly represents the advantage gained from studying the language of commerce as supplying all the illustrations needed for rules of grammar. The author's aim has been to simplify the study of the verb, which he has exhibited under three "aspects," and has shown how the noun admits of being treated under no more than four declensions. Whilst limiting himself to what is essential, he has succeeded in affording a complete view of the language. One of the chief drawbacks to the extension of British trade connexion with Russia is the unwise dependence of exporters here upon German or Jewish commission agents. If some young Englishmen were but encouraged to go to Russia with the view of acting as resident agents, and others offered employment as travellers, each class being soundly acquainted with the language, the need of a work in English like the present German publication would be quickly manifest. As it is, those readers acquainted with German who wish to master commercial Russian would do well to obtain M. Glikin's book. Both the Society of Arts and the London Chamber of Commerce already offer facilities for intending examinees, of which but too few have yet availed themselves. Here is an efficient help. The reading lessons, exercises, and forms of letters are all excellent.

*Russian Self-Taught, with Phonetic Pronunciation.* By C. A. Thimm and J. Marshall. (Marlborough.)

This is one of the useful "self-taught" series, and an intelligent learner will be able to get a good deal out of it. It is mainly a question of memory; in addition to the elementary grammar there are long lists of words, vocabularies, and idiomatic phrases.

*The Practical Sound and Sight Method of Language Teaching: French.* By H. T. Mark and F. R. Prellberg. (Sonnenschein.)

This is intended as a text-book for teachers using the "direct" method. The designation "sound and sight" is explained as meaning that the method "supplements the spoken word with the printed word," a process hardly unfamiliar to most of us. The first part consists of questions and answers, not, of course, to be learnt by heart. They are arranged so as to teach a good deal of simple construction without too large a vocabulary. There are rather long explanations of the meanings of nouns, adjectives, and so on, which the teacher can use or not as he likes. There is one picture of a boy gathering apples, but no use is made of it in the French part of the work. In the second part there is more systematic grammar, illustrated by rather longer questions and answers. There are also some pieces for reading, of which hardly enough use is made in the questions and answers. The type is remarkably large and clear. Digitized by Google

## MATHEMATICS.

*First Year's Algebra.* By C. H. French, M.A., and G. Osborn, M.A. (Churchill.)

This little book will probably be welcomed by many, and more especially by those who are already acquainted with the "Elementary Algebra" by the same authors. In the present publication the writers have issued, without alteration and by themselves, the first fifteen chapters of the larger work just named. The short course carries students up to, but does not include the solutions of, simultaneous equations.

From the same authors and publishers we have a second edition of the *Elementary Algebra*.

*Algebra.* By E. M. Langley, M.A., and S. R. N. Bradly, M.A. (Murray.)

This is an algebra for beginners, and satisfies the requirements of the First Stage of the Directory of the Board of Education. The authors, in their preface, dwell on the fact that, for junior pupils, written text, however good, is of but little value as compared with competent oral instruction: hence their book, for the most part, leaves the task of explanation to the teacher, and consists mainly of a statement of rules and a series of fully worked illustrative examples, followed at short intervals by sets of exercises to be attempted by the pupils themselves. There is a certain proportion of theory introduced, but this is probably intended for teachers rather than for their scholars, and embodies the suggestions of experience as to the best methods of establishing the various rules. The connexion between arithmetic and the more elementary portions of algebra is throughout the volume, as far as possible, brought out, and in many cases numerical examples and exercises are given as preliminary to similar ones involving algebra. The writers also insist on the use that may be made of geometry and of concrete illustrations as aids to the study of algebra.

## MISCELLANEOUS.

*Stanley's Life of Dr. Arnold.* Teacher's Edition. With Preface by Sir Joshua Fitch. (Murray.)

Stanley's "Life of Dr. Arnold" has been selected by the Board of Education as a subject of examination for intending teachers, so that this edition will be heartily welcomed. Mr. Findlay has already published selections from the "Biography," bearing especially on Arnold's school work; but many will prefer to have the entire book. As Sir Joshua Fitch (who has already written on Arnold) points out in his interesting preface, it is well that teachers of all grades should be reminded, not only of Arnold's actual achievements in education, but also of his wide interests and that sympathy with all the best movements of his time which added so much to his influence as a schoolmaster. It may not be out of place to reproduce Dr. Martineau's estimate of his work, quoted by Mr. Findlay:—"The peculiar character of the English gentleman being assumed as an historical datum, the aim of education should be to penetrate and pervade this with a spirit of Christian self-regulation. He was aware how great was the revolution implied in the accomplishment of this end; that moral heroism must take the place of feudal independence, devout allegiance of personal self-will, respect for faithful work of the ambition for careless idleness, manly simplicity and earnestness of gentlemanly *poco-curante-ism*, the true shame for evil of the false shame for good; that contempt of pleasure must be added to the contempt of danger and of pain, and courage to defy corrupt fashion and opinion to the hardihood which resists the aggression of unjust authority." It may indeed be that, in some respects, Arnold's influence, perpetuated as it has been by a long line of high-minded successors—and that by no means at Rugby alone—has been a hindrance, as well as a help, to educational progress. It has tended to maintain something like a monopoly for classical study, while raising and ennobling it, and to rivet the link between the professions of schoolmaster and clergyman, now believed by many to be an obstacle both to the promotion of the fittest and to the growth of professional solidarity. But, for all that, his work will always be remembered as one of the noblest achievements of the nineteenth century.

*Scientific Research: a View from Within.* By Stephen Smith. (Elliot Stock.)

The research here referred to is that by means of vivisection. The author is a member of the Royal College of Surgeons, and the book purports to be an account of what he himself has seen. The coloured illustrations show the operations performed on frogs, dogs, and rabbits at such institutions as the Physiologic Institute of Strassburg, Leipzig, or Florence. The author asks and answers in his own way the question: Does such scientific research on the bodies of living animals involve cruelty? This evidence is an affirmative answer overwhelming in its conclusiveness. It is of the nature of the words of a barrister who had to reply to one maintaining that the wheels of a certain machine could not exceed a certain size: "Gentlemen, these are the wheels."

*Intermediate Practical Physics.* By John B. Wilkinson. (Chapman & Hall.)

This is a description of experiments in mechanics, hydrostatics,

sound, heat, light, magnetism, and electricity likely to be set at the Intermediate and Preliminary Scientific Examinations of the London University. They are, however, not always the simplest or most exact form of experiment for the purpose in each case. For instance, to determine the refractive index of a solid or liquid that can be put into a cell with transparent parallel sides, the easiest plan is to interpose the substance between the lens and the screen when an image made by a convex lens is cast on the screen. The descriptions, however, are very clear, and will be easily followed in the laboratory.

*A Class-Book of English History.* By Arthur Hassall, M.A. (Rivingtons.)

Historical research has recently been very active, and our English history has in consequence to be re-written. This class-book by the editor of "Periods of European History" incorporates the results of recent investigations, and is brought down to the close of the nineteenth century. It contains about 600 pages, is well arranged, and maintains a due proportion—or what the author calls historical perspective—in all its parts. Notes, subjects for class, and blackboard illustrations are added to each chapter.

*Mathematical Law in the Spiritual World.* By Eustace Miles, M.A. (Bell & Sons.)

"Mathematics," says the author, "cannot really be a cold unreligious science; religion cannot really be an inaccurate, unmathematical emotion." The book is, however, little more than an application of mathematical phraseology to the illustration of religious truths. In this there is necessarily, perhaps, some distortion. The argument occasionally reminds us of a skipper's proof that 2 and 3 do not necessarily make 5. He acted as surgeon of his ship, having a book of symptoms and a cabinet of numbered mixtures. In one case, as mixture No. 5 was exhausted, he put together 2 and 3 and killed his patient.

*A Geography of Wales.* By A. E. L. Hudson, B.A. (Macmillan.)

There are plenty of excellent maps in this handbook, and a number of interesting illustrations of scenery from photographs and drawings; there is also a thorough topography of the country. But the style of the book is not suited for pupils; there are no broad lines of description appealing to the imagination and memory, but a mass of facts concerning railways, population, municipal government, and so forth, calculated to damp the ardour of the most sanguine seeker for information, and it must be admitted that the average boy or girl is not naturally drawn to detail of this kind. But, as a book of reference for the teacher, it will no doubt prove exceedingly useful, since Wales has had but scant attention from writers of geography.

*The Castaways of Meadow Bank.* By Thomas Cobb. (Methuen.)

Three boys and a girl take a boat one afternoon during the floods to see a house the lower part of which is under water. They climb in at the window, and the boat drifts away. For four days they manage to exist in the deserted house, and the terrible situation brings out their diverse characters. One boy makes a punt, and, by means of it and courageous swimming, rescues the others. The story is very clearly and vividly told, and well illustrated. The size of the book is small, as the old-fashioned children's books used to be, and we fancy this will prove an additional attraction.

*Boys and Girls of Other Days.* By John Finnemore. (A. & C. Black.)

This is the second series of stories in English history, the first dealing with the earliest times to Henry VII. This volume takes the tale down to Sedgemoor, and includes such splendid opportunity for romantic incidents as the Armada, the Gunpowder Plot, and the Great Plague. The book is in every way as interesting and well illustrated as its predecessor.

*An Idler's Calendar.* By G. L. Apperson. (G. Allen.)

The essays contained in this volume have, for the most part, appeared as "turnovers" in the *Globe*, and deal with such subjects as "Jack Frost," "Spring Poets," "Honeysuckle," "The Voices of the Sea," "Fireside Travels," and so on. They are written in good English, without preciosity, and make pleasant reading for an idle half-hour. There are plenty of poetical quotations—some new to most readers, others old friends one is glad to be reminded of—and a good deal of miscellaneous information about old customs and the like, such as may be gathered from books like "The Book of Days." The book has the qualities most to be desired in such unpretending *causeries*—good taste and suggestiveness.

*Philips' Geographical Summary for Advanced Competitive Examinations.* By G. Webb. (G. Philip & Son.)

This summary is intended to be used with an "Advanced Geography" issued by the same publishers, and is intended for the use of Civil Service candidates, for whose benefit some two hundred questions from old examination papers are appended. One of the strong points of the book is the full description of railway and ocean routes—in which, by the way, New Zealand is rather shabbily treated. The defects are that no distinction is drawn between important and trivial facts, and that the lines on which the book runs are too purely topographical, with little or no suggestion of the exercise of the reasoning powers, which, as we are beginning to realize, is the most valuable side of geographical teaching.

*Biblia Innocentium.* Part II. By J. W. Mackail. (Longmans.)

Parents who find the Bible a somewhat difficult book for children will perhaps be able to make use of this instead. It is a history of the establishment of Christianity in one-page chapters, beginning with the birth of Christ and ending with the Apocalypse, but embracing a great deal of extra-Biblical legend. The language of the Bible is followed so closely that it seems a pity that any variation was deemed necessary: for instance, "The Son of Man has nowhere to lay His head" is in no way easier than the expression we are all familiar with; and many will feel that something is lost in this departure from our common literary heritage. Others again will object to the mixture of legends of the Saints with the Biblical record, no distinction whatever being made between historical facts and the merest fancy—between, for instance, St. Paul's mission at Athens and the story of St. Christopher.

*The Temple Reciter.* Edited by E. E. Speight, B.A. (Marshall.)

Here we have verses in Scotch, Irish, German-English, American, and even Cockney dialect, and the subjects range from Browning's "Holy Cross Day" to Thackeray's "Little Billee." Although divided into four parts, there is apparently no classification of the extracts, nor any reason for such division. Teachers will find the book handy for composition lessons and occasional readings.

*Deborah's Dressing; and Other Stories.* By Catherine E. Vernham. (National Society's Depository.)

This is a pleasantly written collection of stories, some of them turning on the good side of lads who had the credit of being *mauvais sujets*. The stories are simply told, without false sentiment.

*The Teacher's Manual of Composition.* By Robert S. Wood. (Macmillan.)

Teachers will find this little book a great boon to them in the really difficult matter of making English composition lessons attractive to little people. While thoughts and ideas are new, attention to methods of expression is always irksome, and a teacher is often at his wits' end to think of fresh plans to induce children to speak and write well. There is material here that will suffice him for a long time, from infant classes to children in their teens.

WE HAVE ALSO RECEIVED the following publications and new editions:—

"Warwick Edition" of George Eliot's Works.—*Theophrastus Such, Essays, &c.*

*The Spanish Gypsy, Jubal, &c.* (Blackwood.)

*Sir Walter Scott's Talisman, Abridged for the use of Schools.* (Macmillan.)

*Otto's German Reader, Books I, II.* Seventh edition; and *German Conversation Grammar*, method Gaspey-Otto-Sauer for the study of modern languages. Twenty-eighth edition. Revised by Prof. Lange. (Julius Groos, Heidelberg; and Sampson Low.)

"Blackwoods' English Classics."—*Scott's Marmion.* Edited by Alexander Mackie, M.A.

"Blackie's English Classics."—*Byron's Childe Harold's Pilgrimage.* Canto II. Edited by John Downie, M.A.

"Blackie's Junior School Shakespeare."—*King Richard III.* With Introduction and Notes. By F. G. Webb, M.A.

"English Classics for Schools."—*Anson's Voyage Round the World.* Text reduced; with Introduction, Notes, and Glossary. By H. W. Household. (Rivingtons.)

"Longmans' Ship Series Pictorial Geographical Readers."—*The British Isles.* (Longmans.)

"Rivingtons' Handbooks to the Bible and Prayer-Book."—*St. Luke.* By Rev. Morley Stevenson, M.A.

*The Agapé and the Eucharist in the Early Church: Studies in the History of the Christian Love-feasts.* By J. F. Keating, D.D. (Methuen.)

*The Child and the Prayer-Book.* Elementary Lessons on the Book of Common Prayer. By John Dickinson, B.A., Sub-Inspector of H.M. Board of Education. (Church of England Sunday School Institute.)

*Bible Scenes and Pictures.* By the Rev. Robert R. Resker. (Same publishers.)

*The Boy's and Girl's Companion for 1901.* (Same publishers.)

*The Church Worker.* Vol. XX. 1901. (Same publishers.)

*The School World.* Vol. III. (Macmillan.)

*Calendar, 1901-2, University College, London.* (Taylor & Francis.)

*London University Guide and Correspondence College Calendar, 1901-2.* (University Tutorial Press.)

"Arnold's School Series."—Introductory Book and Books I, II, III, IV, of *Britannia History Reader.*

Chambers's Geographical Readers of the Continents."—*Australasia.* Chambers's *English Manuals.* Book VI.

"Chambers's Continuous Readers."—Mr. G. A. Henty's historical tale *The Sole Survivors.*

"The Pitt Press Shakespeare."—*Macbeth.* Edited by A. W. Verity. (Cambridge University Press.)

"Dinglewood Shakespeare Manuals."—*Julius Cæsar.* With Questions and Notes. By Stanley Wood, M.A. (John Heywood, Manchester.)

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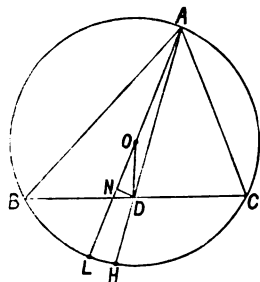
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Let ABC be a triangle, O its circum-centre, and D the middle point of its base BC. Produce AO, AD to meet the circum-circle again in L, H; draw DN perpendicular to AL. Then



$$\begin{aligned} &= 2AL \cdot AN \\ &= 2AH \cdot AD \quad (\text{since DHLN is cyclic}) \\ &= 2(AD^2 + BD^2). \end{aligned}$$

If D, instead of being the middle point of BC, divides it so that

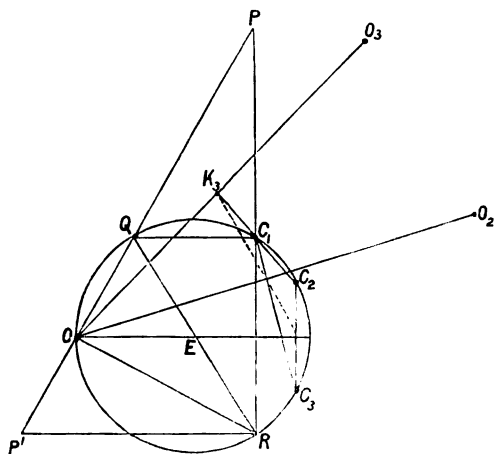
$$BD : CD = q : p,$$

then  $p \cdot AB^2 + q \cdot AC^2 = (p + q) AL \cdot AN = (p + q)(AD^2 + BD \cdot CD)$ , as before.

**14927.** (A. M. NESBITT, M.A.)—Defining a cardioid as the locus of the extremities of a straight rod of length  $2a$ , which moves so that its middle point describes a circle of diameter  $a$ , while the rod is constrained to pass through a point on the circumference of the circle, prove geometrically that, "If three circles through the cusp of a cardioid touch the curve, their three points of intersection are collinear."

*Solution (I.) by the PROPOSER; (II.) by JOHN PRESCOTT.*

(I.) If OQC<sub>1</sub>R be generating circle, centre E, and OR be perpendicular to the rod PP', then RP is normal to cardioid at P, and Q is mid-point of rod, so that C<sub>1</sub> is centre of circle through O which touches cardioid



at P. Thus the centres of the three circles are (C<sub>1</sub>, C<sub>2</sub>, C<sub>3</sub>) three points on generating circle; and common chord of circles with centres C<sub>1</sub>, C<sub>2</sub> will be OO<sub>3</sub>, where O<sub>3</sub> is image of O in C<sub>1</sub>C<sub>2</sub>, i.e. OO<sub>3</sub> = 2OK<sub>3</sub>. But K<sub>1</sub>K<sub>2</sub>K<sub>3</sub> is the SIMSON line of O with respect to triangle C<sub>1</sub>C<sub>2</sub>C<sub>3</sub>; therefore O<sub>1</sub>, O<sub>2</sub>, O<sub>3</sub> are collinear points.

[The rest in Volume.]

**14937.** (Professor S. SIMCOM.)—D, E, F are any points taken along the sides BC, CA, AB respectively, of the triangle ABC. Prove that  $(AE \cdot BF \cdot CD) / (AF \cdot BD \cdot CE)$  is unaltered by projection.

*Solution by H. C. PLUMMER.*

Let AD, BE meet in O; CO and AB in F'. Let

$$(AE \cdot BF \cdot CD) / (AF \cdot BD \cdot CE) = x.$$

$$\text{But } (AE \cdot BF' \cdot CD) / (AF' \cdot BD \cdot CE) = 1.$$

$$\text{Therefore } x = (BF \cdot AF') / (AF \cdot BF') = \{ABF'F\},$$

and is unaltered by projection.

**14655.** (J. A. THIRD, M.A., D.Sc.)—From the vertices of a triangle ABC lines AX, BY, CZ are drawn to the opposite sides, such that the angles CAX, ABY, BCZ, taken the same way round, are together equal to 180°; and AX', BY', CZ' are drawn from the vertices to the opposite sides, parallel to CZ, AX, BY respectively. Show that the circumcentres of AX'X', BY'Y', CZZ' are collinear.

*Solution by Professor SANJANA, M.A.*

Suppose through A two lines are drawn to the base BC, such that CAX' = φ<sub>1</sub>, BAX = θ<sub>1</sub>; let us find the trilinear coordinates of the circum-centre of AX'X'. The coordinates of A are (p<sub>1</sub>, 0, 0); of X, [0, p<sub>1</sub> sin(A - θ<sub>1</sub>) / sin(B + θ<sub>1</sub>), p<sub>1</sub> sin θ<sub>1</sub> / sin(B + θ<sub>1</sub>)]; hence those of the mid-point of AX are

$$\left[ \frac{1}{2}, \frac{\sin(A - \theta_1)}{2 \sin(B + \theta_1)}, \frac{\sin \theta_1}{2 \sin(B + \theta_1)} \right],$$

omitting the factor 1/2 p<sub>1</sub>. The line through A perpendicular to AX is  $\beta \cos \theta_1 + \gamma \cos(A - \theta_1) = 0$ ; hence the perpendicular bisector of AX is

$$\beta \cos \theta_1 + \gamma \cos(A - \theta_1) = k(\alpha \sin A + \beta \sin B + \gamma \sin C),$$

where k may be determined from the fact that the mid-point above lies on this line; this gives for k the value 1/2 sin(B + θ<sub>1</sub>), and we get for this bisector the equation

$$\beta \sin(B + 2\theta_1) + \gamma \sin(B - A + 2\theta_1) - \alpha \sin A = 0.$$

Similarly the perpendicular bisector of AX' is found to be

$$\gamma \sin(C + 2\phi_1) + \beta \sin(C - A + 2\phi_1) - \alpha \sin A = 0.$$

Solving these equations simultaneously, we obtain for O<sub>1</sub>, the circum-centre of AX'X',

$$\alpha / \cos(A - \theta_1 - \phi_1) = \beta / \cos(B - \phi_1 + \theta_1) = \gamma / \cos(C - \theta_1 + \phi_1) \dots (1).$$

So, also, if lines through B are drawn to CA such that ABY' = φ<sub>2</sub>, CBY = θ<sub>2</sub>, and through C to AB such that BCZ' = φ<sub>3</sub>, ACZ = θ<sub>3</sub>, the coordinates of O<sub>2</sub> and O<sub>3</sub>, the circum-centres of BY'Y' and CZZ' respectively are

$$\alpha / \cos(A + \phi_2 - \theta_2) = \beta / \cos(B - \theta_2 - \phi_2) = \gamma / \cos(C + \theta_2 - \phi_2) \dots (2),$$

$$\alpha / \cos(A + \theta_3 - \phi_3) = \beta / \cos(B + \phi_3 - \theta_3) = \gamma / \cos(C - \theta_3 - \phi_3) \dots (3).$$

In the present case, as CAX + ABY + BCZ = 180°, we get ACZ = BAX + CBY, that is, -θ<sub>3</sub> = θ<sub>1</sub> + θ<sub>2</sub>; also, as BY' is parallel to AX, φ<sub>2</sub> = -θ<sub>1</sub>; so θ<sub>3</sub> = -φ<sub>1</sub> and φ<sub>3</sub> = -θ<sub>2</sub> = θ<sub>1</sub> + θ<sub>3</sub> = θ<sub>1</sub> - φ<sub>1</sub>. Thus the three circum-centres are given by (1) and

$$\alpha / \cos(A - \phi_1) = \beta / \cos(B + 2\theta_1 - \phi_1) = \gamma / \cos(C + \phi_1) \dots (2'),$$

$$\text{and } \alpha / \cos(A - \theta_1) = \beta / \cos(B + \theta_1) = \gamma / \cos(C + 2\phi_1 - \theta_1) \dots (3').$$

The line joining the last two will be found to be

$$\alpha \sin(B - C + 2\theta_1 - 2\phi_1) + \beta \sin(C - A + 2\phi_1) + \gamma \sin(A - B - 2\theta_1) = 0,$$

and O<sub>1</sub> may be easily shown to lie upon this.

**14751.** (H. MACCOLL, B.A.)—The chance that A is true (assuming nothing as to B) is a; the chance that B is true (assuming nothing as to A) is b; and the chance that A is true, assuming B true, is k times the chance that B is false, assuming A false. Show that the dependence of A upon B is  $(1 - a)(k - kb - a) / (1 - a - kb)$ , except when the numerator and denominator of this fraction both vanish. Discuss this exceptional case. (See Reprint, Vol. LXXII, pp. 79, 80.)

*Solution by the PROPOSER.*

We assume that A and B are neither certainties nor impossibilities; so that a and b must each be > 0 and < 1. Let a' = 1 - a and b' = 1 - b. From the formulæ A'/B = 1 - A/B, and A/B = a/b · B/A, we get

$$\frac{B'}{A'} = 1 - \frac{B}{A'} = 1 - \frac{b}{a'} \cdot \frac{A'}{B} = 1 - \frac{b}{a'} \left( 1 - \frac{A}{B} \right) = 1 - \frac{b}{a'} + \frac{b}{a'} \cdot \frac{A}{B}.$$

And from our data we have A/B = k B'/A'. These two equations give us

$$A/B = k(a' - b) / (a' - kb);$$

$$\text{and, by definition, } \delta(A/B) = A/B - a = (1 - a)(k - kb - a) / (1 - a - kb).$$

The numerator and denominator of this fraction both vanish when k = a + b = 1. In this case δ(A/B) may have an infinite number of values all consistent with the data. For example, let a = 2/3, b = 2/3, k = 1. To illustrate geometrically, let x points (see Fig. 1) be marked in the circle A outside the circle B, y points in B outside A, 6 points in the area common to A and B, and 6 points outside both A and B. Let the symbol A as a statement assert that a point P taken at random out of the whole x + y + 12 points marked in the circle E will be one of the x + 6 in A, and let B assert that it will be one of the y + 6 in B. From our data

$$(x + 6) / (x + y + 12) = a = \frac{2}{3},$$

$$(y + 6) / (x + y + 12) = b = \frac{2}{3}.$$

These two equations are not independent, each being equivalent to 2x - 3y = 6, so that an infinite number of values of x and y will satisfy them; and, whatever values of these we take, the

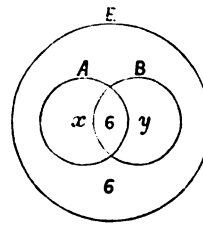
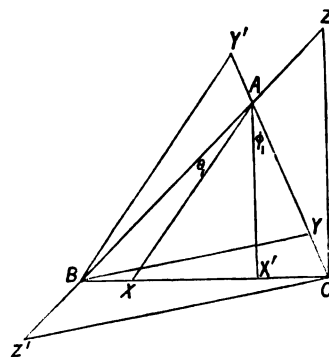


Fig. 1.

expression given for  $\delta(A/B)$  will assume the form  $\frac{p}{q}$ . Yet all the values of  $\delta(A/B)$  corresponding to the arbitrary values assigned to  $x$  and  $y$  will be real and different. For example, when  $x = 6$  and  $y = 2$ , we get  $\delta(A/B) = \frac{2}{3}$ . When  $x = 9$  and  $y = 4$ ,  $\delta(A/B) = 0$ . When  $x = 12$  and  $y = 6$ ,  $\delta(A/B) = -\frac{1}{15}$ . And for all these different values of  $\delta(A/B)$  we have the same data,  $a = \frac{3}{2}$ ,  $b = \frac{1}{2}$ ,  $k = 1$ ; which shows that these data alone are insufficient to determine  $\delta(A/B)$ .

But when the number of points marked in the area common to A and B is not equal to the number outside both A and B the formula for  $\delta(A/B)$  will not take the form  $\frac{p}{q}$ , and will always determine the one and only possible value of the dependence  $\delta(A/B)$ . For example, suppose (as in Fig. 2) we have  $a = \frac{3}{2}$ ,  $b = \frac{1}{2}$ ,  $k = \frac{3}{2}$ . It is evident from the figure that  $\delta(A/B) = -\frac{1}{3}$ , and this result will also be obtained from the formula without any reference to the figure. Any values of  $a, b, k$  which will make  $\delta(A/B)$  in the formula greater than 1 will indicate inconsistency of data, as, for example,  $a = \frac{3}{2}$ ,  $b = \frac{1}{2}$ ,  $k = \frac{3}{2}$ . When  $a = \frac{3}{2}$  and  $b = \frac{1}{2}$ ,  $k$  cannot exceed  $\frac{1}{2}$ .

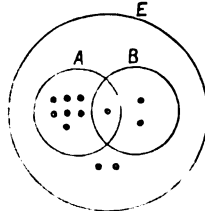


Fig. 2.

**14985.** (Professor NEUBERG.)—Ramener l'un à l'autre les déterminants

$$\begin{vmatrix} x_1 + x_2 - x_3 - x_4 & y_1 + y_2 - y_3 - y_4 & x_1x_2 + y_1y_2 - x_3x_4 - y_3y_4 \\ x_1 + x_3 - x_2 - x_4 & y_1 + y_3 - y_2 - y_4 & x_1y_3 + y_1y_3 - x_2y_4 - y_2y_4 \\ x_1 + x_4 - x_2 - x_3 & y_1 + y_4 - y_2 - y_3 & x_1y_4 + y_1y_4 - x_2y_3 - y_2y_3 \end{vmatrix},$$

$$\begin{vmatrix} 1 & x_1 & y_1 & x_1^2 + y_1^2 \\ 1 & x_2 & y_2 & x_2^2 + y_2^2 \\ 1 & x_3 & y_3 & x_3^2 + y_3^2 \\ 1 & x_4 & y_4 & x_4^2 + y_4^2 \end{vmatrix}.$$

Solution by Dr. MUIR, F.R.S.

Calling the first determinant  $D_3$  and the second  $D_4$  and denoting  $x_i, x_j, y_i, y_j$  by  $\sigma_{ij}$ , we increase the fourth column of  $D_3$  by  $\sigma_{23} + \sigma_{24} + \sigma_{34}$  times the first column, and diminish it by  $\sigma_{12}$  times the second column, and by  $\sigma_{13}$  times the third column, the result being

$$\begin{vmatrix} 1 & x_1 & y_1 & -\sigma_{12} - \sigma_{13} - \sigma_{14} + \sigma_{23} + \sigma_{24} + \sigma_{34} \\ 1 & x_2 & y_2 & -\sigma_{12} + \sigma_{34} \\ 1 & x_3 & y_3 & -\sigma_{13} + \sigma_{24} \\ 1 & x_4 & y_4 & -\sigma_{14} + \sigma_{23} \end{vmatrix}.$$

If this be multiplied columnwise by  $-8$  in the form

$$\begin{vmatrix} -1 & 1 & 1 & 1 \\ 1 & 1 & -1 & -1 \\ 1 & -1 & 1 & -1 \\ 1 & -1 & -1 & 1 \end{vmatrix},$$

we obtain

$$-8D_3 = \begin{vmatrix} 2 & -x_1 + x_2 + x_3 + x_4 & -y_1 + y_2 + y_3 + y_4 & 0 \\ 0 & x_1 + x_2 - x_3 - x_4 & y_1 + y_2 - y_3 - y_4 & 2(-\sigma_{12} + \sigma_{34}) \\ 0 & x_1 - x_2 + x_3 - x_4 & y_1 - y_2 + y_3 - y_4 & 2(-\sigma_{13} + \sigma_{24}) \\ 0 & x_1 - x_2 - x_3 + x_4 & y_1 - y_2 - y_3 + y_4 & 2(-\sigma_{14} + \sigma_{23}) \end{vmatrix} = -4D_3;$$

and therefore

$$2D_4 = D_3.$$

**14988.** (Major P. A. MACMAHON, F.R.S.)—Prove that that portion of the expansion of the algebraic fraction

$$\frac{1}{\{1 - s_1(a_1x_1 + a_2x_2)\}^p \{1 - s_2(b_1x_1 + b_2x_2)\}^q} \quad (p \geq q),$$

which is a function of  $s_1x_1$  and  $s_2x_2$  only has the expressions

$$\frac{1}{D^q (1 - s_1 a_1 x_1)^{p-q}} \left\{ 1 + \binom{p-1}{1} \binom{q}{1} \frac{d}{D} + \binom{p-1}{2} \binom{q+1}{2} \frac{d^2}{D^2} + \binom{p-1}{3} \binom{q+2}{3} \frac{d^3}{D^3} + \dots \right\},$$

where  $D = 1 - a_1s_1x_1 - b_2s_2x_2 + (a_1b_2 - a_2b_1)s_1s_2x_1x_2$  and  $d = a_2b_1s_1s_2x_1x_2$ .

Solution by Professor E. B. ELLIOTT, F.R.S.

Writing  $a_1, a_2, b_1, b_2$  for  $s_1a_1x_1, s_1a_2x_1, s_2b_1x_2, s_2b_2x_2$ , respectively, and  $y$  for  $s_2x_1$ , the problem is to extract from

$$\{1 - (a_1 + a_2y)\}^{-p} \{1 - (b_2 + b_1y^{-1})\}^{-q}$$

the part whose expansion in powers of  $a_1, a_2, b_1, b_2$  is free from  $y$ . The part is clearly the infinite expansion

$$(1 - a_1)^{-p} (1 - b_2)^{-q} \left\{ 1 + pq \frac{a_2b_1}{(1 - a_1)(1 - b_2)} + \frac{p(p+1)q(q+1)}{1.2} \frac{a_2^2b_1^2}{(1 - a_1)^2(1 - b_2)^2} + \dots \right\};$$

but a finite expression for it is desired.

Now the expansion here is also the part free from  $y$  in that of

$$(1 - a_1)^{-p} (1 - b_2)^{-q} (1 - y)^{-p} \left\{ 1 - \frac{a_2b_1}{(1 - a_1)(1 - b_2)} y^{-1} \right\}^{-q},$$

i.e., of  $(1 - a_1)^{-p} (1 - y)^{-p} \{ (1 - a_1)(1 - b_2) - a_2b_1y^{-1} \}^{-q},$

i.e., of  $(1 - a_1)^{-p} (1 - y)^{-p} \{ D + d(1 - y^{-1}) \}^{-q},$

i.e., of  $D^{-q} (1 - a_1)^{-p} \left\{ (1 - y)^{-p} + q \frac{d}{D} (1 - y)^{-p} (y^{-1} - 1) + \frac{q(q+1)}{1.2} \frac{d^2}{D^2} (1 - y)^{-p} (y^{-1} - 1)^2 + \dots \right\}.$

But,  $r$  being any positive integer, the part free from  $y$  in the expansion of  $(1 - y)^{-p} (y^{-1} - 1)^r$  is that in the expansion of  $(1/y)^r (1 - y)^{r-p}$  which is zero unless  $r < p$ , and if  $r < p$  is

$$\frac{(p-r)(p-r-1)\dots(p-1)}{r!}, \text{ i.e., } \binom{p-1}{r}.$$

Hence the finite expression required is as stated.

**14971.** (ROBERT W. D. CHRISTIE.)—Find factors of  $N^4 + 1$  by an easy general solution where  $N^2$  takes the form  $(M^2 - 24)10$ . (See Quest. 13707.) Ex.  $14506^4 + 1 = 210469913$  and  $210378169$ .

Solution by Lt.-Col. ALLAN CUNNINGHAM, R.E.

The present solver has given in a communication to the London Mathematical Society (as yet unpublished) a method of considerable generality of factorizing the functions  $N^2 - (x^2 + y^2)$ , called *Quartans*; the following is a slight sketch of what is here wanted.

Let  $N = x^2 + y^2 = (x^2 + Cy^2) - y^2 = P^2 - Q^2.$

This requires  $z^2 = 2Cx^2 + (C^2 - 1)y^2.$

If this diophantine be solvable in integers  $(x, y, z)$ , it will yield an infinite train of factorisable quartans. Also, it was shown that every quartan, even if prime, would yield (several) values of  $C$ , each leading to a solvable diophantine.

Ex.—Take  $N_0 = 17 = 2^4 + 1^4 = 9^2 - 8^2$  as base-quartan. Here  $x_0 = 2, y_0 = 1$ , giving  $2^2 + C.1^2 = \pm 9$ , whence  $C = 5$  or  $-9$ . Taking  $C = 5$  gives the diophantine  $z^2 - 10x^2 = 24y^2$ . Assuming  $y = 1$ , the diophantine  $z^2 - 10x^2 = 24$  will yield a train of  $N = x^4 + 1^4$ .

The initial solution  $8^2 - 10.2^2 = 24$ , together with the unit-form  $19^2 - 10.6^2 = 1$ , yields, by the usual rules, two infinite trains of solutions

$$z = 8, 32, 1208, 45872, \&c., \&c.; \quad 272, 10328, \&c.;$$

$$x = 2, 10, 382, 14506, \&c., \&c.; \quad 86, 3266, \&c.;$$

each solution giving the factorization of a quartan.

Thus the fourth case gives the required  $N$ ,

$$14506^4 + 1^4 = (14506^2 + 5.1^2)^2 - 12.45872^2 = 210424061^2 - 45872^2 = 210378169.210469913.$$

A table, prepared by the SOLVER (not yet published) of the roots of the congruence  $x^4 + 1 \equiv 0 \pmod{p}$ , shows that  $N$  has no factors  $< 10,000$ . With this start, LAURANCE'S process now shows both these large factors of  $N$  to be prime.

**14854.** (Rev. T. WIGGINS, B.A.)—Take a point P within a triangle ABC. Denote the lines PA, PB, PC by  $x, y, z$ , and the angles PAC, PBA, PCB by  $\alpha, \beta, \gamma$  respectively; show that (1)

$$\frac{ax}{\sin(C - \gamma + \beta)} = \frac{by}{\sin(A - \alpha + \gamma)} = \frac{cz}{\sin(B - \beta + \alpha)};$$

(2) if  $C - \gamma + \beta = 90^\circ$ , then  $a^2x^2 = b^2y^2 + c^2z^2.$

Solutions (I.) by T. FRAZER; (II.) by CONSTANCE I. MARKS, B.A.

(I.) 1.  $\frac{x}{PZ} = \frac{\sin B}{\sin(A - \alpha + \gamma)}$ ,  $\frac{y}{PZ} = \frac{\sin A}{\sin(C - \gamma + \beta)}$ ;

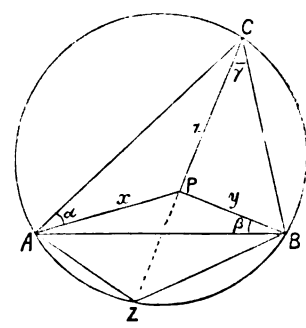
hence  $\frac{x}{y} = \frac{\sin B \sin(C - \gamma + \beta)}{\sin A \sin(A - \alpha + \gamma)}$ ;

$\therefore \frac{ax}{by} = \frac{\sin(C - \gamma + \beta)}{\sin(A - \alpha + \gamma)}$ .

Similarly, by producing BP to meet the circle,

$$\frac{ax}{cz} = \frac{\sin(C - \gamma + \beta)}{\sin(B - \beta + \alpha)}$$

Hence  $\frac{ax}{\sin(C - \gamma + \beta)} = \frac{by}{\sin(A - \alpha + \gamma)} = \frac{cz}{\sin(B - \beta + \alpha)}$ .





$$2. \frac{b^2y^2 + c^2z^2}{a^2x^2} = \sin^2(B - \beta + \alpha) + \sin^2(A - \alpha + \gamma) \text{ [since } C - \gamma + \beta = 90^\circ \text{]}$$

$$= \sin^2(180^\circ - \beta - C - A + \alpha) + \sin^2(A - \alpha + \gamma)$$

$$= \sin^2(180^\circ - 90^\circ - \gamma - A + \alpha) + \sin^2(A - \alpha + \gamma)$$

$$= \sin^2[90^\circ - (A - \alpha + \gamma)] + \sin^2(A - \alpha + \gamma) = 1.$$

$$a^2x^2 = b^2y^2 + c^2z^2.$$

Hence

(II.) Let  $A'B'C'$  be a new triangle formed by joining the feet of the perpendiculars from  $P$  on  $BC, CA, AB$ .

Draw  $PK$  perpendicular to  $A'B'$ .

The quadrilaterals  $PA'B'C', PC'A'B, PB'C'A$  are cyclic.

Hence it follows that the angles  $A', B', C'$  are respectively equal to  $C - \gamma + \beta, A - \alpha + \gamma, B - \beta + \alpha$ , and that  $z \cdot PK = PA' \cdot PB'$ . Now

$$A'B' \cdot PK = PA' \cdot PB' \sin C = z \cdot PK \sin C,$$

$$\text{whence } A'B' = z \sin C.$$

Similarly, it may be shown that

$$C'A' = y \sin B \text{ and } B'C' = x \sin A.$$

Therefore, since the sides of any triangle are proportional to the sines of the opposite angles,

$$\sin(A - \alpha + \gamma) : \sin(B - \beta + \alpha) : \sin(C - \gamma + \beta) = by : cz : ax,$$

$$\text{or } \frac{ax}{\sin(C - \gamma + \beta)} = \frac{by}{\sin(A - \alpha + \gamma)} = \frac{cz}{\sin(B - \beta + \alpha)}.$$

If  $C - \gamma + \beta = 90^\circ$ ,

$$b^2y^2 + c^2z^2 = a^2x^2 [\sin^2(A - \alpha + \gamma) + \sin^2(B - \beta + \alpha)]$$

$$= \frac{1}{2}a^2x^2 \{2 - [\cos 2(A - \alpha + \gamma) + \cos 2(B - \beta + \alpha)]\}$$

$$= a^2x^2 [1 - \cos(A + B - \beta + \gamma) \cos(B - A + 2\alpha - \beta - \gamma)]$$

$$= a^2x^2 \text{ [since } \cos(A + B - \beta + \gamma) = \cos \frac{1}{2}\pi = 0 \text{].}$$

8874. (Professor GENESE, M.A.)—The locus of the centres of sections of the conicoid  $f(x,y,z) = 0$  by planes containing the axis of  $z$  is the conic determined by  $df/dz = 0, x(df/dx) + y(df/dy) = 0$ .

Solution by C. A. LAISANT.

$$\text{Let } y = mx \text{ ..... (1),}$$

the equation of a particular plane containing  $OZ$ . Then  $f(x, mx, z) = 0$  is the equation of the projection, on  $OXZ$ , of the variable conic.

The centre is given by (1) and

$$\frac{\partial f}{\partial x} + m \frac{\partial f}{\partial y} = 0, \quad \frac{\partial f}{\partial z} = 0 \text{ ..... (2).}$$

Hence, eliminating  $m$ ,

$$\frac{\partial f}{\partial z} = 0, \quad x \left( \frac{\partial f}{\partial x} \right) + y \left( \frac{\partial f}{\partial y} \right) = 0.$$

Note.—We have here: (i.) the conjugate plane of the direction  $OZ$ ; (ii.) the conicoid locus of the middle points of the chords passing by  $O$ ; the intersections give the answer.

QUESTIONS FOR SOLUTION.

15026. (The late Professor SYLVESTER, F.R.S.)—It is well known that, if a prime number  $p$  is of the form  $6i + 1$ , we may always write  $4p = m^2 + 27n^2$ . Required to show that  $\frac{1}{3}(p + 1^4m + 1)$  may be made integer by assigning the right sign to  $1^4$  and that, according as this integer is even or odd,  $\frac{1}{3}(p - 1)$  will be a cubic residue or non-residue of  $p$ .

15027. (ROBERT W. D. CHRISTIE.)—Find the primes having 2 as a root. Show that  $f$  has primitive roots are 2,  $p - 4, \frac{1}{3}(3p - 1), (p + 1)2$ , where  $p$  is a prime of form  $4m - 1$ . Hence  $bc^2 + d^2 = \{(m - 1)(9m - 5)\}p$ . Generalize this result for primes having  $r$  as a root. Show incidentally  $p = 2n^2 - 1$  cannot have 2 as a root.

15028. (Professor SANJANA, M.A.)—If  $K_n = 2^{2n}B_n$ , where  $B_n$  is the  $n$ th number of BERNOULLI, and if  $c_n, s_n$  represent  $\cos n\phi, \sin n\phi$  ( $\phi$  being any angle), prove that

$$\frac{K_n}{(2n)!} c_1 - \frac{1}{3!} \frac{K_{n-1}}{(2n-2)!} c_3 + \frac{1}{5!} \frac{K_{n-2}}{(2n-4)!} c_5 - \dots$$

$$\dots + \frac{(-1)^n}{(2n)!} c_{2n} + \frac{(-1)^{n+1}}{(2n+1)!} c_{2n+1} = 0,$$

$$\frac{1}{2!} \frac{K_n}{(2n)!} s_2 - \frac{1}{4!} \frac{K_{n-1}}{(2n-2)!} s_4 + \frac{1}{6!} \frac{K_{n-2}}{(2n-4)!} s_6 - \dots$$

$$\dots + \frac{(-1)^n}{(2n+1)!} s_{2n+1} + \frac{(-1)^{n+1}}{(2n+2)!} s_{2n+2} = 0.$$

In particular, when  $\phi = 0$  each formula reduces to

$$\frac{K_n}{(2n)!} - \frac{1}{3!} \frac{K_{n-1}}{(2n-2)!} + \frac{1}{5!} \frac{K_{n-2}}{(2n-4)!} - \dots + \frac{(-1)^n}{(2n)!} + \frac{(-1)^{n+1}}{(2n+1)!} = 0.$$

15029. (Professor H. LANGHORNE ORCHARD, M.A., B.Sc.)—Show that the value of

$$\left[ \int_0^\infty \left( \frac{x^4 + 9}{3x^2} \right) e^{-(x^4 + 9)/3x^2} dx \right] \left/ \left[ \int_0^\infty \left( \frac{x^4 - 9}{3x^2} \right) e^{-(x^4 - 9)/3x^2} dx \right] \right.$$

lies between 4 and 6.

15030. (Major P. A. MACMAHON, F.R.S.)—Prove that the sum of the fourth powers of the binomial coefficients of order  $n$  is

$$\sum_{p,q} \frac{(2n-p-q)!}{p!q!(n-2p-q)!(n-p-2q)!(p!)^2(q!)^2}$$

for all positive integral values of  $p$  and  $q$  for which the expression has a meaning.

15031. (ALETROP.)—Résoudre en nombres entiers  $x^{-2} + y^{-2} = z^{-2}$ .

15032. (R. KNOWLES.)—In DE MORGAN'S *Calculus*, p. 257, the following examples are given:—

$$2.3.4 + 3.4.5 + 4.5.6 = \frac{4.5.6.7-1.2.3.4}{4} = 204;$$

$$2.3 + 3.4 + 4.5 + 5.6 = \frac{5.6.7-1.2.3}{3.1} = 68.$$

Show that these results can be obtained by means of the coefficients in the expansion of  $(1-x)^{-n}$ .

15033. (R. TUCKER, M.A.)—Three circles are given by

$$x^2 + y^2 + C = 0, \quad x^2 + y^2 + Ax = 0, \quad x^2 + y^2 + By = 0.$$

Find the area of the triangle formed by the polars of their radical centre with respect to the three circles. [Has the question been considered in the general, or any particular form, geometrically or analytically?]

15034. (Professor NEUBERG.)—Construire en grandeur et en direction les axes de l'hyperbole équilatère qui touche les côtés  $AB, AC$  d'un triangle aux sommets  $B$  et  $C$ .

15035. (Professor SANJANA, M.A.)—Two tangents  $TP, TQ$  are drawn to a conic from a point  $T$ , such that the centre of the in-circle of the triangle  $TPQ$  lies on the conic. Prove that  $T$  lies on a confocal conic  $K$ , and the chord of contact envelops another conic  $K'$ ; that the internal bisector of the angle  $PTQ$  envelops the conic  $K$ , and that it is equally inclined to the axis with the chord of the contact. In the parabola  $y^2 = 4ax$ ,

$$K \equiv y^2 + 4ax - 8a^2 = 0, \quad K' \equiv y^2 + 4ax + 8a^2 = 0;$$

in the ellipse  $x^2/a^2 + y^2/b^2 = 1$ ,

$$K \equiv \frac{x^2}{a^2} - \frac{y^2}{b^2} - \frac{a^2 - b^2}{a^2 + b^2} = 0, \quad K' \equiv \frac{x^2}{a^2} - \frac{y^2}{b^2} - \frac{a^2 + b^2}{a^2 - b^2} = 0;$$

for the hyperbola, change the sign of  $b^2$ .

15036. (Professor NANSON.)—Prove that two conics have twelve common normals, and that the orientation of the common normals is not altered if either conic is replaced by a confocal. [By orientation is meant sum of angles made with an arbitrary line.]

15037. (C. E. YOUNGMAN, M.A.)—Given two triangles  $ABC, A'B'C'$ , inscribed in the same conic  $S$ , and each in perspective with the triangle  $A_1B_1C_1$  formed by  $AA', BB', CC'$ : take any point  $P$  on  $S$  and draw  $PA', PB', PC'$  to cut  $BC, CA, AB$  respectively at  $D, E, F$ . Prove that  $AD, BE, CF$  meet at  $Q$  on the conic  $S'$  circumscribed to  $ABC$  and inscribed in  $\Delta_1B_1C_1$ ; and that  $P, Q$  are in line with the fourth intersection of  $S$  and  $S'$ . In particular, the focus and the GERGONNE point of any parabola inscribed in  $ABC$  are in line with the STEINER point.

15038. (Professor N. BHATTACHARYYA.)—If  $\Omega, \Omega'$  be the BROCARD points of a triangle  $ABC$ , and  $O$  be the centre of the BROCARD ellipse, prove that

$$(\Omega A^2 - \Omega' A^2)/c^2 + (\Omega B^2 - \Omega' B^2)/a^2 + (\Omega C^2 - \Omega' C^2)/b^2$$

$$= (\Omega' A^2 - \Omega A^2)/b^2 + (\Omega' B^2 - \Omega B^2)/c^2 + (\Omega' C^2 - \Omega C^2)/a^2$$

$$= 2(1/b^2 + 1/c^2)(\Omega A^2 - OA^2) + 2(1/c^2 + 1/a^2)(\Omega B^2 - OB^2)$$

$$+ 2(1/a^2 + 1/b^2)(\Omega C^2 - OC^2)$$

$$= 1 - 16\Delta^2/(b^2c^2 + c^2a^2 + a^2b^2),$$

where  $\Delta$  is the area of the triangle.

15039. (Professor MORLEY.)—Let the two points at which the sides of a triangle subtend equal angles (to modulus  $\pi$ ) be called the equiangular points of that triangle. Let the isogonal conjugate of the point at infinity on the EULER line of  $abc$  be  $d$ . Prove that the eight equiangular points of the four triangles  $bed, eda, dab, abc$  lie on a circle.

15040. (R. CHARTRES.)—Find the mean value of the  $n$ th power of the area of a cyclic quadrilateral whose perimeter ( $2s$ ) is constant, and deduce the results for (1) a kite, (2) a triangle.

15041. (D. BIDDLE.)—Two equal circles being in external contact, a straight line crosses both, entering the one at  $P$ , and issuing from the other at  $Q$ . Find the mean length of  $PQ$ .

**15042.** (H. BATEMAN.)—Eliminate A, B, C from the equations  
 $\sin 2A \sin A = l \sin B \sin C,$      $\sin 2B \sin B = m \sin C \sin A,$   
 $\sin 2C \sin C = n \sin A \sin B.$      $A + B + C = \pi.$

**15043.** (Professor COCHEZ.)—Étudier les courbes  
 (1)  $x^4 - x^2y + 4x^2 - xy + 1 = 0,$     (2)  $x^4y^2 - x^3 + 4x^2y^2 - x + y^2 = 0.$

OLD QUESTIONS AS YET UNSOLVED (IN OUR COLUMNS).

**8093.** (H. MACCOLL, B.A.)—The integral  $\int dy \int dx$  is subject to the restrictions that  $y$  and  $x$  are each between the limits  $a$  and  $-a$ ,  $a$  being positive, and also that  $y + ax - c$  is negative,  $c$  being positive. Determine the limits of integration for each of the different cases which depend upon the values of the constants.

**8330.** (T. C. SIMMONS, M.A.)—On a square table having no rim,  $n$  equal circular discs A, B, C, ... are thrown at random, and  $n$  random lines  $a, b, c, \dots$  all drawn, in this order, parallel to some one edge. Prove that, if the length of the table =  $l$ , and the diameter of each disc =  $d$ , then (1) the chance that every disc will fall on its own corresponding line is  $P_n = (2l)^{-2n} (4dl - d^2)^n$ ; but (2) the chance that all the discs will fall on the one first-drawn line is

$$p^n = \frac{2}{l^{n+1}} \left\{ \int_0^{ld} (\frac{1}{2}a + x)^n dx + \int_{ld}^{2ld} a^n dx \right\} = \frac{d^n}{(n+1)l^{n+1}} \{n-1+2^{-n}\}.$$

**8416.** (A. GORDON.)—Required a curve such that the expression  $d^2y/dx^2 - (a+b)(dy/dx) + aby$  shall be a maximum or minimum at every point, the curve passing through two given points and the origin.

**9300.** (GEORGE HEPPEL, M.A.)—If a whole number, when divided by prime numbers  $m$  and  $n$ , gives remainders  $a$  and  $b$  respectively, what will be the remainder when it is divided by  $mn$ ?

**9839.** (Professor KALIPADA BASU.)—A triangle of given species circumscribes a given triangle; prove that, when the area of the circum-triangle is a maximum, the perpendiculars at the vertices of the given triangle to the sides of the variable are concurrent.

**10501.** (W. J. GREENSTREET, M.A.)—A length equal to five-fourths of the radius of curvature is measured off on the normal at any point to the curve  $r^3 = a^3 \cos 3\theta$ . Show the locus of points so obtained is the curve  $r^{\frac{1}{3}} \cos \frac{2}{3}\theta = (\frac{1}{2}a)^{\frac{1}{3}}$ .

**10652.** (Professor SYLVESTER.)—Prove that the equation  
 $a \left( 1 + x + \frac{x^2}{1.2} + \frac{x^3}{1.2.3} + \dots + \frac{x^m}{1.2.3\dots m} \right)$   
 $+ b \left( 1 - x + \frac{x^2}{1.2} - \frac{x^3}{1.2.3} + \dots \pm \frac{x^m}{1.2.3\dots m} \right) + c = 0$   
 cannot have more than two real roots.

**10824.** (J. L. MACKENZIE, B.A., B.Sc.)—The tangents at points A and B on a circle, and their chord of contact, cut a given line in L, M, P respectively. Any circle through L and M cuts the given circle in H and K, and PH, PK cut the given circle in X and Y; prove XY parallel to LM.

NOTICE TO CORRESPONDENTS.

It is requested that all Mathematical communications should be sent to the Mathematical Editor,

Miss CONSTANCE I. MARKS, B.A., 10 Matheson Rd., West Kensington, W.

**NOTICE.**—Vol. LXXV. of the "Mathematical Reprint" is now ready, and may be had of the Publisher, FRANCIS HODGSON, 89 Farringdon Street, E.O. Price, to Subscribers, 5s.; to Non-Subscribers, 6s. 6d.

THE LONDON MATHEMATICAL SOCIETY.

Thursday, December 12, 1901.—Major MacMahon, R.A., F.R.S., Vice-President, in the Chair. Ten members present.

On the motion of the Chairman, seconded by Prof. A. Lodge, the Treasurer's report was adopted, and votes of thanks passed to the Treasurer and Auditor.

The following were elected members:—G. Birtwistle, B.A., Fellow of Pembroke College, Cambridge; A. Perronet Thompson, B.A., Scholar of Pembroke College, Cambridge; and the Rev. J. Cullen, S.J. Mr. R. J. Dallas was admitted into the Society.

Prof. Love communicated a paper by Mr. J. H. Michell "On the Flexure of a Circular Plate." Prof. Lamb spoke on the subject of the paper.

Lt.-Col. Allan Cunningham, R.E., gave a short sketch of Euler's method of finding "Amicable Numbers," and announced the discovery of two real pairs, A, B; where  $A = fa$ ,  $B = fb'b'$ . Thus in one pair (A, B),  $f = 3^1.7.11^2.19$ ; in the other pair (A, B),  $f = 3^5.7^2.13.19$ . In both pairs  $a = 8747$ ,  $b'b' = 53.161$ .

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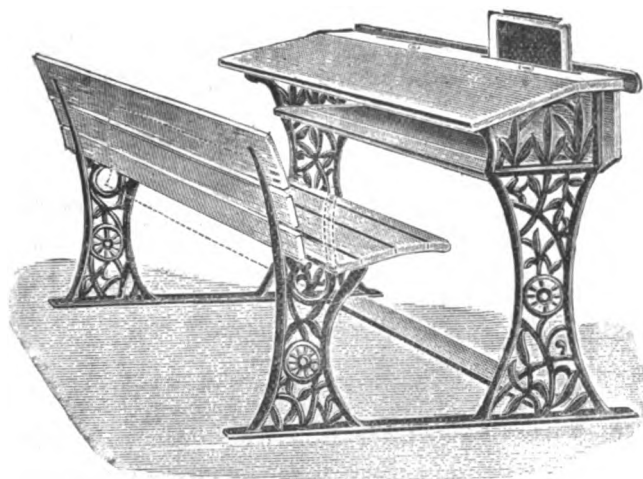
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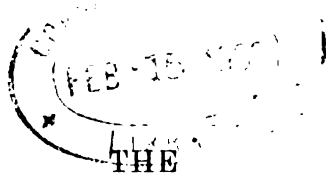
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FEBRUARY 1, 1902.

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**2. CERTIFICATE EXAMINATIONS.**—The Midsummer Examination for Certificates will commence on the 1st of July, 1902.

**3. LOWER FORMS EXAMINATIONS.**—The Midsummer Examination will commence on the 1st of July, 1902.

**4. PROFESSIONAL PRELIMINARY EXAMINATIONS.**—These Examinations are held in March and September. The next Examination will commence on the 4th of March, 1902.

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For Syllabus, see p. 84.

\* \* A Doreck Scholarship, of the value of £20, will be awarded at the Diploma Examination at Christmas next, to the Candidate who, having attended two courses of the Training Class Lectures during the preceding twelve months, and having passed the full examination for a College Diploma, stands first in the examination in Theory and Practice of Education.

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## CONTENTS.

	Page		Page
Registration of Teachers .....	59	Correspondence .....	76
The Tenure of Assistant Masterships .....	59	Adjourned Meeting of the Council of the College .....	76
Notes .....	61	Diploma Pass List of the College .....	77
Summary—The Month .....	63	Reviews .....	78
Universities .....	65	History Teaching Again; The Cœphori of Æschylus; Our Widening Realm; Comparisons from Abroad; Commercial Correspondence; The Stars.	
Forecasts and Comments .....	69	General Notices .....	81
Half-yearly Meeting of the College of Preceptors .....	70	Mathematics .....	86
Co-operative Secondary Schools. By J. S. Thornton .....	73	List of Candidates who have passed the Christmas Certificate and Lower Forms Examinations of the College of Preceptors .....	97
Our Need for Commercial Linguists .....	74		
The Coming Education Bill .....	75		

## The Educational Times.

*Registration of Teachers.* THERE has just been laid on the table of the House of Commons an Order in Council providing for the establishment of a Register of qualified Teachers in all classes of schools. The registration, in the first instance, is to be carried out by an Authority created for the purpose, to consist of twelve members, six of them nominated by the Board of Education and the other six by professional organizations. The term of office of this purely provisional Authority will be for three years only, during which time the conditions of registration will be of a more inclusive character than after this period of probation has elapsed. At the end of the three years of grace a permanent Registration Authority is to be established by another Order in Council, to whom will be entrusted the keeping of the Register.

The Board of Education Act provided merely for the formation of a Register of persons qualified to teach, in alphabetical order, without any provision for classification or grading, and the minimum qualifications for admission to the Register must necessarily be of such a character as to include all whom the State has already certified as qualified to teach in the public elementary schools. The Consultative Committee were confronted with this difficulty, that a purely permissive registration with so low a minimum qualification could not be expected to command the respect of the scholastic profession, or of the public at large, for whose information and protection the Register is primarily intended. In the absence of any provision for a graded Register—*e.g.*, of persons qualified to teach in elementary schools, secondary schools, schools of art, technical schools, schools of commerce, or as teachers of special subjects—the Consultative Committee have hit upon the idea (which has now received the sanction of the Board of Education) of arranging the names of the teachers in three parallel columns. The first of these columns will contain the entire list in alphabetical order, the second column the names of those teachers only who possess the qualification of a Board of Education certificate, and the third column the names of those teachers who satisfy the other conditions laid down by the Consultative Committee. These conditions include (a) the pos-

session of a University degree or its equivalent, (b) a year's training in a special institution or in a recognized school, and a diploma in the theory and practice of education, and (c) a period of probation in teaching in some recognized school. It will be seen that these conditions are sufficiently stringent, and it is certain that the second qualification is possessed by very few indeed of the heads of our secondary schools, public or private. Hence the necessity of the preliminary three years, during which the registrable qualifications would be more comprehensive, so as to admit a large number of teachers who have passed examinations other than those entitling to a University degree.

Forty years have now elapsed since the question of registration of teachers was first taken actively in hand by the College of Preceptors, and it is more than twenty years since the first Registration Bill was introduced in the House of Commons by Dr. Playfair—a Bill which was "backed" by Mr. Arthur Balfour, the present Leader of the House. This Bill, with modifications, was brought in again and again, until, at last, in the summer of 1890, it was referred (with another Bill for a similar purpose) to a Select Committee, which reported to the House in the following year. Then came the Royal Commission on Secondary Education, whose Report, published in 1895, recommended the registration of teachers as part of a complete scheme for the organization of secondary education in England. Thus, the principle having already been accepted by the legislature, the way was paved for the statutory powers conferred on the Consultative Committee by the Board of Education Act of 1899, the exercise of which has resulted in the Order in Council establishing at last the Teachers' Register. The conditions of registration as set out above can hardly be expected to commend themselves to all the many classes of teachers who will be affected by them; but we reserve any comments as to the details of the scheme till the Order itself has passed the scrutiny of Parliament and is published as a legislative enactment.

### *The Tenure of Assistant-Masterships.*

WHILE the larger questions connected with the organization of secondary education are still undecided, it may not be out of place to consider dispassionately some points of administration which have long exercised the minds of the profession. None of those points, perhaps, is of greater

importance than that of tenure, discussed by Mr. Cripps, K.C., at the recent dinner of the Assistant Masters' Association, and none is beset with greater difficulties. We may, therefore, be pardoned for returning to it even after the able and exhaustive memorandum drawn up for the Council of the Incorporated Association of Head Masters in 1900. One must face the fact that masters must from time to time be compelled to retire; possibly dismissals should be more frequent than they are. Actual misconduct is, happily, very rare in the profession, and so, too, is open insubordination; though the persistent *frondeur* is not unknown, and is by no means easy to deal with. The hard cases are of two kinds. Personal feeling, or marked difference of opinion from a colleague on non-professional questions, does occasionally lead a head master into serious injustice, and the influence of the comparatively rare dismissals that fall under this head is far-reaching. On the other hand, there are numerous cases, and some of them very hard cases, where comparative inefficiency makes the retirement of a master desirable. A head master is generally reluctant to act under such circumstances; and, if he does act, he needs support rather than restraint. If a school falls in number and reduction of staff becomes urgent, or if teachers of new subjects are wanted, it is not necessarily the junior men who can be best spared. Nor are cases of growing inefficiency uncommon. Many a man who makes a first start in the profession loses his first enthusiasm; he never opens a book, and his lessons get duller and duller; he fails a little in physical vigour, and his power both of interesting and of controlling boys diminishes, or he fails to play his part in the general life of the school. Then the school suffers. In many occupations it is enough if a man discharges his routine duties punctually. For a schoolmaster's work more is required: freshness and interest are as essential as strict adherence to routine. These are the really hard cases: if the master is dismissed, his chances of finding other employment are small; if he stays on, a number of boys waste months of precious time, or even get a permanent distaste for study. The power of dismissal, and that on grounds not always easy to formulate, must exist: the question is how that power can be exercised not only with justice, but without the appearance of injustice.

The latter point is by no means unimportant. The efficiency of an individual school—in other words, the discharge of its duty to its pupils—is of course the first object of the authorities controlling it. What is less frequently thought of is the efficiency of all schools, involving the general standard of national education. This depends to a great extent on the inducements held out to young men of force of character and ability to enter the profession. More and more is being required in the way of academic and professional preparation, and salaries do not, at present, show any tendency to increase; indeed, the demand for better buildings and better appliances, and for a liberal proportion of teachers to pupils, tends, at least in the case of day schools, to diminish the amount available for payment of masters. Thus reasonable security of tenure for the efficient teacher is a matter of national importance.

An additional complication is caused by the peculiarities of English secondary education. In Germany the teacher is practically a civil servant, and the English primary-school

master is in a position that, to a certain extent, approximates to that condition. But most English secondary schools have to be conducted on principles approaching more nearly to those which regulate ordinary business. This is obviously the case with private schools. However high the ideals of the head master may be, he must conform to this necessity. He must compete with other schools, often under disadvantageous conditions; he must collect and keep together a *clientèle*; he must do his best to meet the demands, often not altogether reasonable, of the parents on whom he depends, and both he and his staff must make themselves acceptable to them. Nor are the majority of endowed schools in a much better position. They also have to face competition, and to comply with demands not always in conformity with their better judgment. They are even, in many cases, handicapped by the necessity of charging fees which do not cover the real cost of education, and by the influence of governing bodies not always enlightened and often crippled by inadequate means. These conditions have of themselves a tendency to reduce assistant masters to the position of mere *employés* of the head master. Moreover, the smaller the school, the less chance is there of public opinion being brought to bear on his relations with his colleagues. It is to the credit alike of head masters and of assistant masters that those relations are generally satisfactory.

Thus the problem is no easy one. The head master, being in many cases really the manager of a business concern, has some reason to claim complete control over the staff with whom he works; the assistant masters, as members of a learned profession, ought not, especially when they have reached a certain standing, to be compelled to hold office at the discretion of a single person. Solutions have been proposed, both by the Bryce Commission and by the Committee of the Head Masters' Association. The Commission recommended that in the case of "third-grade" schools both appointment and dismissal should rest, as laid down in most of the schemes of the Charity Commissioners for schools of that class, with the governing body; that in the "first-grade" and "second-grade" schools appointment should rest absolutely with the head master, but that for dismissal the approval of the governing body should be required, opportunity being given to the assistant master to make a statement on his own behalf. The memorandum of the Association would leave the power of dismissal in the hands of the head master, subject to a report to the governing body, and, in case of an appeal on the part of the dismissed master, would call in the Board of Education as the final tribunal—the governing body acting as a grand jury to settle whether there were *prima facie* grounds for further investigation. No doubt any form of appeal increases the difficulties of a head master's position, especially with an inferior governing body. A successful appeal might leave him with no alternative but resignation, and the fear of it might easily induce him to acquiesce too readily in the retention of a master of proved inefficiency, but locally popular. Perhaps in this case efficient inspection might help him. But, in spite of all difficulties, some form of appeal is obviously better than the present feeling of insecurity, which tends to lower the standing of the profession.

## NOTES.

THERE still prevails a good deal of uncertainty as to the scope of the Education Bill which is to be introduced into the House of Commons at an early date. In the King's Speech it is referred to as containing "proposals for the co-ordination and improvement of primary and secondary education." The words would seem to imply a large and comprehensive measure, involving the placing of both primary and secondary education under Local Authorities, in which the School Boards and Technical Education Committees of the County Councils would be merged. It has been pointed out that such devolution might be effected by merging the School Boards in the Technical Education Committees of County and Borough Councils, or by creating a new authority elected *ad hoc*, to which the work of the School Boards and of the Technical Education Committees would be assigned, or by extending the powers of the School Boards so as to include the control of secondary education within their respective areas. It is evident that the discussion of a measure involving a transfer of functions and powers from one existing public body to another, or the merging of one authority in another, cannot fail to evoke the keenest opposition; and it is difficult to see how, in a Session which will be occupied so largely with the war and the provision of the sinews of war, to say nothing of reform of procedure and other important matters, time can be found for the thorough discussion of radical changes in our educational machinery.

THE example of Birmingham has roused into activity the imitative faculty of the constituent colleges of Victoria University. Both Manchester and Liverpool have already decided to develop their colleges into separate Universities, and it is apparent that the perfervid local patriotism of Yorkshiremen will be satisfied with nothing less in the case of the Yorkshire College at Leeds. With three Universities, in addition to Durham and the Newcastle College of Science, the North of England will not lack provision for higher education. Some, indeed, suggest that the movement is the outcome of local rivalry rather than the result of a well considered ambition to perfect the educational machinery of the kingdom. In a long letter to the *Leeds Mercury*, Prof. Silvanus Thompson asks: "Have Yorkshiremen lost their grit that they should fear the advent of independence and self-government?" Whether for weal or woe, the days of the Victoria University are numbered. Yet Victoria University has not only justified its existence as a degree-granting body, conscious of its duty to maintain a high standard of attainment in its graduates; it has done more. By its Board of Studies, on which the three affiliated colleges are represented, it has succeeded in co-ordinating educational effort in the interests of both economy and efficiency. It has only existed some twenty years, and has been considered such a success that the framers of the charter of the University of Wales sought their model in its constitution. In its present form the constituent colleges are staffed and equipped with special reference to local needs. When each college becomes a University, extravagant ambitions which

do not lead to efficiency will have a tendency to influence the policy of each. The mediæval notion of a University is not entirely obsolete in England, but it is neither progressive nor economical. St. Andrews and Aberdeen, to which the advocates of the new Universities refer their opponents, have much in their history which ought to serve as a warning. To have established chairs in all the faculties and to triplicate the examining machinery will be of small avail if eminent theologians and philosophers lecture to a sprinkling of students while the more practical, if more humble, departments are starved.

BOTH the Head Masters' and Assistant Masters' Associations devoted a substantial part of their meetings to discussing recommendations as to the form of the Education Bill; and we do not doubt that the Government will desire to profit by them. The Head Masters', as well as the Science Masters' Association provided, in addition, food for reflection by Government Departments other than that devoted to education. The former championed the cause of Naval engineer officers, and the latter found much to criticize in the present syllabus governing the examination in science of candidates for the Army. The special grievance of engineer officers in the Navy is that they do not rank with other executive officers; and head masters maintain that until their status is improved they will not feel justified in recommending their more promising boys to enter the service as engineers. There is certainly a greater reason for giving naval engineers combative rank than there was for a similar change of status granted to Army doctors. If doctors, why not Army schoolmasters and chaplains? The *reductio ad absurdum* was reached the other day when an Army doctor (major) found himself in supreme command of five hundred troops on a transport leaving Southampton, although there were several regimental captains on board.

AT the discussion on inspection at the meeting of the Teachers' Guild, Mr. Buckmaster brought out clearly the difference between the official and the professional view of an inspector's qualifications. The official idea is to catch him young, and imbue him betimes with all the traditions of the office; the professional view is that his training should be in the class-room, that a long period of work as a schoolmaster is essential for any one who is to judge the work of other schoolmasters. Just as for most legal appointments only barristers of ten years' standing are eligible, so, as was pointed out in a recent article in this journal, educational appointments should be limited to schoolmasters who have been ten years at work in their profession. The official theory scarcely conduces to what one speaker described as the first requisite in an inspector—modesty.

THE second Annual Conference of Public-School Science Masters ended with a resolution to form itself into a permanent body, Principal Rücker being chosen President. The tendency towards sectional organization among teachers would seem to be on the increase, and this year the Association of Assistant Masters held its first general meeting after incorporation. The Association of Assistant Mis-

tresses in Secondary Schools also held its annual meeting last month. With the Association of University Women Teachers, the Head Masters' and Head Mistresses' organizations, and the Modern Language Association it cannot be said that the voice of the teaching profession lacks means of utterance. Some consolidation will soon be desirable, or, rather, a conference should be arranged, to be attended by delegates empowered to speak on behalf of their own organizations. By this means resolutions on which a general agreement has been arrived at might be brought to the notice of the Board of Education with irresistible force.

THE intelligent interest of the public in education is to be welcomed; but, unless this is met by an increased power of critical selection on the part of the officials of the Board of Education with regard to new ideas brought to their notice, some harm may result. The curriculum of a school, whether elementary or secondary, is not to be lightly tampered with, and it is an interesting fact that in Germany the curriculum of primary schools has only been very slightly altered during the last forty years. Such is the advantage of basing the organization of education on a ground plan of well considered theory. At the recent meeting of the Agricultural Education Committee of the Kent County Council, under the presidency of Sir W. Hart Dyke, the chairman claimed that they had advanced a considerable distance towards remodelling, in an intelligent form, the present system of rural education. The Committee has undeniably done good in prevailing upon the Board of Education to encourage the masters of rural schools to cultivate the intelligence of their pupils by a study of natural objects and processes. Nor can fault be found with the Committee's suggestion—now adopted by the Board—that the curriculum of training colleges should be modified so as enable theoretical and practical instruction in subjects bearing upon rural life to be given. Now the Committee cries for more: it recommends that training college students who desire it may spend a third year at a recognized agricultural institution. Elementary schools are not institutions for technical instruction, and we hope the Board, in the interest of education, will recognize the fact.

NOR content with providing the means for improving the education of a large part of the globe, Mr. Carnegie has at last found time to attend to his own literary needs, and his method is characteristic of his grand manner of meeting a difficulty. He has retained Lord Acton, the Professor of Modern History at Cambridge, to select the books for the library at his residence in Scotland, and the librarian of one of our public libraries has been chosen to decide upon the best editions. With Lord Acton's known taste and great learning, the result will no doubt satisfy even Mr. Carnegie; but we are sorry he should miss the supreme joy of selecting and buying his own books. The chief charm of a library is the personal note suggestive of the owner's tastes and studies, and, sometimes, even of his life's history. We envy Lord Acton his task, and are awed in contemplating the joy of his coadjutor, who is permitted to choose editions and bindings.

A PAPER contributed to *Secondary Education* in December

last, and entitled "Lessons England may learn from the North," has been reprinted as a leaflet. The writer dwells at some length on the extreme freedom allowed to teachers in Denmark and Sweden, and on the readiness with which State aid is granted to efficient schools, whether under public or private management. It is clear from what he tells us that the driving power—the wind for which the Duke of Devonshire is whistling—exists in those Northern countries, and that there is a widespread enthusiasm for general as well as for technical education. The establishment of eleven hundred co-operative dairies in Denmark since 1882—the year in which the present educational policy was started—is a fact worth a good many arguments.

THE *Pilot* of January 18 has a special supplement of sixteen pages entirely devoted to education. Whilst all the five articles are valuable, three may be singled out as specially interesting—the opening one, by Principal Robertson, of King's College, on "Secondary Education"; another on "Technical Education in Action," which complains that "we are degrading our workers to the level of being workers only, and not thinkers," and so "are paying a big price for technical education"; and a third, from "Our Oxford Correspondent," who sighs for the expansion of Oxford studies so as to include the new learning—the humanities, with only modern languages and literatures for their *media*—which must form the staple of the instruction in so many secondary schools of the time to come. How thoroughly and how exceptionally Dr. Robertson has looked the actual situation full in the face will appear from his contention that "no schools which are giving efficient teaching ought to be the losers by legislative changes"; that "even proprietary schools should, under proper conditions, be freely recognized and aided"; and, again, that "education does not consist in the acquisition of knowledge, but in the acquisition of the power to assimilate it and to make use of knowledge."

THE question of prescribed books in examinations was raised at the meetings both of the Head Masters' Conference and of the Incorporated Association, and the general opinion was that it should be possible to pass all public examinations on unseen papers only. Prof. Sonnenschein, in an interesting letter to the *Times*, points out some of the dangers of dispensing with set books, and quotes the practice of the University of Birmingham at its Matriculation Examination, where, as in Oxford Responsions, set books are required, but the choice is left—presumably within certain limits—to the candidates. Whether the Birmingham plan of examining in the set books *viva voce* will prove satisfactory may be doubted. There is no doubt that, in many cases, set books are an unmitigated evil; any one who has had to prepare candidates for the London Matriculation knows that the books chosen are often not adapted for sixth-form reading, and that a very large number of candidates simply get them up with a crib. Probably in all examinations intended to test the fitness of candidates to enter a profession or a University it would be desirable to dispense with them, and to rely entirely on the test of unseen passages done with or without dictionary, according to the standard desired. If candidates cannot do an average



piece of Latin with a dictionary at seventeen or eighteen, it is pretty clear that the time they have spent on Latin has been wasted, and the examining authority should provide an alternative. The case of examinations like the Higher and Lower Certificate and the Local Examinations, which are intended to test and direct school work, is very different. The thorough study of a good piece of literature—and nothing that is not thoroughly good should be prescribed—is an important part of a liberal education. It means not only accurate translation, but the acquisition of a good deal of miscellaneous information. It encourages the habit of careful reading, and forces both teacher and pupil alike to leave nothing unexplained.

THERE are now 156 students in residence at Newnham College, Cambridge, and 10 out students are attached to the three Halls—viz., Sedgwick, Clough, and Old. The second award of a Fellowship, under the provisional scheme initiated by the Associates, has been made to Miss W. M. L. Hutchinson, who is engaged on a work dealing with myths, history and art of Egina. Permission has been granted to her to reside in London during the two winter terms, in order to study at the British Museum. The first award was made to Miss Jane Harrison. These Fellowships are of the value of £100 a year, and they are tenable for three years. The holders must be in the main engaged in work intended to advance knowledge. The Geoffrey Fellow of the College is Miss G. L. Elles. Sixty-three students entered for the various Tripos Examinations in Easter Term, 1901, of whom eleven obtained First Class, twenty-six Second Class, and twenty-two Third Class Honours. The Marion Kennedy Scholarship has been awarded to Miss H. B. C. Sollas, who gained a First Class in the Mediæval and Modern Languages Tripos in 1900. She is now residing at Heidelberg, and is engaged in research work connected with English and German literature. The number of students, past and present, now amounts to 1,330. On the purchase of the freehold of Newnham, completed at Michaelmas, 1900, there now remains a debt of £2,200, of which £1,000 has been borrowed from the Fellowship Fund, and the remainder from friends of the College.

A PRIZE of 10s. is offered by Professor Church for the best translation into English of the following passage of Cæsar, done by a boy or girl under seventeen years of age. It is *essential* to break up the long Latin sentence. Candidates must send with their translation a certificate from their head master or head mistress, or, if not attending a school, from some person in a responsible position, that the translation has been done without any help beyond a dictionary, grammar, and ordinary notes, and that they are under seventeen years of age.

Cicero, qui omnes superiores dies praeceptis Cæsarum cum summa diligentia milites in castris continisset, ac ne calonem quidem quemquam extra munitionem egredi passurum, quod longius progressum audiebat, neque ulla de redivit eius fama afferebatur; simul eorum per-motus vocibus, qui illius patientiam paene obsessionem appellabant, si quidem ex castris egredi non liceret; nullum eiusmodi casum expectans, quo, novem oppositis legionibus maximoque equitatu, dispersis ac paene deletis hostibus, in milibus passuum tribus offendi posset; quinque cohortes frumentatum in proximas segetes misit, quas inter et castra unus omnino collis intererat.

## SUMMARY.

### THE MONTH.

MR. CHAMBERLAIN, as Chancellor, presided on January 8 over the annual Court of Governors of the Birmingham University. The right hon. gentleman said the *crux* of their situation was finance. Money was the beginning and the end of all they had to do. Give him the money for which he had asked, and in return he would provide a University second to none—an institution calculated to do enormous benefit to the great district in which it was situated. He did not, however, plead for anything in the nature of a large endowment. He held the opinion that in all such institutions each generation should be prepared to do its own work, and that, if an institution was made independent of current opinion, it was liable to get out of touch with, and it might become, which would be very undesirable, independent of public criticism. On the occasion of the last annual meeting he was able to inform them that the fund raised for the purposes of the University amounted to £330,000; at the present time, including the generous gift of land which was made to them by Lord Calthorpe, it amounted to something over £420,000. But a very considerable portion of that sum was appropriated before it was received. In the first place, they had to pay off a very considerable deficit which had arisen in the working of the old Mason College. In the next place—and this accounted for a much larger sum—they had, according to promise, to revise the teaching arrangements and to reconsider the amounts of the salaries of the teaching staff. He called special attention to the appointment in the Faculty of Arts for the first time of a separate lecturer in Greek literature, language, and archaeology. He regarded that appointment with the greatest satisfaction; he thought it supplied a much-needed want, without which they would not have had any pretence to be a University. There was, however, one deficiency which he was almost ashamed to confess. Up to the present time the University of Birmingham had no professor of history. That was a deficiency which he hoped would before long be filled.

MR. CHAMBERLAIN then commented upon the noble example of the Birmingham City Council in voting the University a sum of £5,500 per annum—an example already followed by the County Council, and soon, he believed, to be followed by the Councils of Worcestershire, Warwickshire, and Shropshire. Altogether, he anticipated they might safely count upon a sum of not less than £7,000 per annum from this source. That at once set free a capital sum of £200,000, which, added to the balance that remained, placed at their disposal a total sum of £300,000 for the new buildings. He ventured to urge upon his colleagues great boldness in regard to the plans for those buildings. He had in his mind the action of the builders and founders of those magnificent cathedrals which had come down to us from the middle ages. Not one of them was built at once, but all were built with a view to the greatest possible extension. They had received from their architects the rough plan of their future University, of the University as it might be, perhaps, a generation hence, perhaps to-morrow, if they could only find in this country some individuals ready to follow the munificent example set by American millionaires in similar circumstances, and who might be proud to associate their names with so great and important a work. He reckoned that the buildings of this new University could not be erected and equipped for a less sum than a million sterling. They had £300,000 in hand, and accordingly, out of ten working blocks of which the complete University would ultimately consist, they proposed to begin with the erection of three, and these three blocks would give them the schools of mining, metallurgy, of civil, mechanical, and electrical engineering, together with the great hall of the University.

THE Annual Meeting of the Incorporated Association of Head Masters was held at the Guildhall on January 10 and 11. The coming Education Bill was the subject of the President's inaugural address, a report of which is given in another column. Among other questions dealt with were the inspection of schools and the use of prescribed books in language examinations.

AN Educational Conference of Members of the Teachers' Guild was held, on January 13 and 14, in the Lecture Hall of the College of Preceptors, which was granted for the purpose by the Council. The Rev. Canon Lyttelton presided, and the subjects discussed were of a very varied and interesting character. "Observational

and Field Work as the basis of the Teaching of Geography" was the subject of the first paper, in which Miss J. B. Reynolds urged that children should be trained to observe the actual features and forms of Nature before studying maps or other records of them, and suggested that observational work might also be carried on indoors by means of object-lessons. Mr. L. W. Lyde (of Bolton) said he did not agree with the method recommended, and considered that a better plan was to engage the pupil's interest in the study by appealing to his powers of imagination. He thought that commercial geography opened out better avenues of approach, as more directly related to the environment of the children.—Mrs. Bryant introduced the question of "Inspection of Secondary Schools." She remarked on the different purposes of inspection—administrative, educational, and in relation to the school buildings and appliances, and on the existing agencies for carrying out the work, and recommended some scheme of co-operation between the central, local, and university authorities. She urged, however, that inspection should not be carried too far, as over-inspection would be worse than over-examination. The Rev. R. D. Swallow (Head Masters' Association) read a paper on the same subject, in which he advocated a registration of schools consequent on a general inspection of them by a central, and not by a local authority. The inspectors should be men and women of wide sympathies, unprejudiced minds, and ripe experience. He considered that the inspectors hitherto appointed by the Board of Education did not satisfy these essential conditions. Mr. EVE (Dean of the College of Preceptors) was of opinion that inspectors should be men of high attainments, who had had at least ten years' practical experience as teachers. Mr. C. A. BUCKMASTER (Board of Education Inspector) pointed out that, under the present conditions of the Civil Service, the plan of requiring an inspector to serve as an assistant master for eight or ten years, and as head master for a further term, would result, for financial reasons, in the ranks of the inspectorate being filled with those who had not succeeded as head masters. The profession of an inspector was one which, like other professions, had to be learned, and the average inspector must undergo a certain course of training before he could be let loose to act on his own authority, which meant that they must be caught young. As to the work of inspection, in order to judge of the work of a school it was essential that it should be seen in its ordinary routine condition.—On the second day of the Conference Mr. C. E. RICE opened a discussion on "Nature-Study for Children between the Ages of Seven and Twelve Years." He said that nature-study included much of what used to be called natural science, and embodied drawing as a medium of expression. The study of experimental science involved the creation of an artificial set of conditions not necessarily found in nature. Nature-study, on the other hand, implied the surface knowledge to be gained by observation only and under natural circumstances or conditions removed as little as possible from those found in nature. In a paper on the same subject by Miss J. C. VINTER, the teaching of botany and zoology to children between the ages of seven and ten was recommended; at ten, lessons in elementary physics might be taken up, which would form an introduction to a course of physical geography or of general elementary science to be begun at the age of twelve. With regard to methods, she was of opinion that the instruction was best given in the form of object-lessons.—Dr. WORMELL then opened a discussion on "Essentials in the Teaching of Geometry in School," which was followed by a paper on the same subject by Miss J. S. GILL.—The final subject of discussion, "The Teaching of English Literature in Schools" was opened by Mr. P. A. BARNETT (H.M. Inspector), who observed that it was a notable fact that literature as such had comparatively little recognition in the curriculum of English schools, while it was entirely excluded from the syllabuses of a large class of important schools. The greater part of what was called instruction aimed properly at developing the powers of reason and at storing the mind with facts. The cultivation of literary feeling was undertaken by other agencies besides the school. The school, however, was, in his opinion, better able to do the early work well. It should be done almost solely with plain texts, and the æsthetic and rhetorical qualities of books should be dwelt upon rather than details of a less general character. The feeling for literature, like the feeling for goodness, must be quickened and cultivated. For the English teacher, English literature was the least specialized, the most common instrument of humanization. The first and chief business of the English teacher was to make his pupil a good man and a good Englishman. Mr. H. C. BOWEN read a paper on the

same subject, which was followed by discussion, and the proceedings terminated with a vote of thanks to the chairman.

PRESIDING, on January 9, at the Annual Meeting of the Private Schools' Association at the Westminster Palace Hotel, Mr. G. C. T. Bartley, M.P., in the course of his inaugural address, said they must anticipate that during the coming Session the chief feature of legislation would be secondary education. He deprecated the spirit of utilitarianism in education which was abroad. The object should be to give boys and girls such an education as they would be able to use in a wise and proper manner in whatever line of life they were afterwards placed. The question was whether the State was going practically to take over secondary schools, whether the time had come when these schools should be provided out of the rates or taxes. The first thing to be demanded was that there should be an efficient system of secondary education. Private teachers claimed that in the past they had done a great deal to secure the present system, and they claimed that in the future they should have a large share in carrying on secondary education, and that no legislation should be so framed as to do away with private enterprise. It might be taken for granted that the establishment of some Local Education Authority would be one of the main features of legislation. If such a body provided effective machinery to make secondary education efficient where it was now deficient, private teachers, as a body, would do nothing but hail it with satisfaction; but what seemed to him a possible danger was that such a body might so work as to compete with efficient private schools. Those efficient schools should be protected; and, in his view, the keynote of the situation was that schools started by the Local Authority should be required to be self-supporting. The introduction of free secondary education meant the collapse of the private school. If it were not required that the schools established by the Education Authority should be self-supporting, private schools should receive grants to put them on the same level. He was, however, very much opposed to grants, as tending to produce a stereotyped form of school. With regard to the registration of teachers, he could not think the Association would have any objection to systematic registration; and, as to inspection, the only question was, who was to pay for it. It seemed to him a reasonable and legitimate charge to put on the public. The danger in any scheme was the loss of freedom, elasticity, and individuality. He trusted the Association would do their utmost to maintain the efficiency of secondary schools as well as their individual position.

At the annual general meeting of the Association of Assistant Masters in Secondary Schools, which was held on January 11 at St. Paul's School, Hammersmith, one of the chief subjects of discussion was the question of security of tenure. It was urged by Mr. Page that in all secondary schools every assistant master was dependent upon the head master for promotion, and liable to dismissal without reason assigned, any right of appeal to the governing body being illusory. The conditions of scholastic life were such that dismissal at a time of life when other professional men were in their prime left the assistant master in a hopeless position. Though he freely acknowledged that the great majority of head masters were disinclined to strain their strictly legal powers and endeavoured to execute a public trust with judicial fairness, there had been cases, some of which he mentioned, in smaller schools not under the influence of public opinion involving the greatest hardship without possibility of redress. Claiming that the work of education was public service, he argued that assistant masters should be allowed an appeal to the constituted Education Authority. Resolutions urging the Government to proceed with their promised Education Bill, and expressing the opinion of the meeting that the areas of the local Education Authorities should not be less than a county or county borough and that the Education Committees should include persons who were or had been engaged in teaching in secondary schools, and "that the interests of education and financial economy alike demand that provision should be made for safeguarding the position and efficiency of existing secondary schools," were unanimously adopted.

The annual meeting of the Geographical Association, held at the College of Preceptors on January 14, was enlivened by an interesting lecture by the Right Hon. James Bryce, M.P., on "The Importance of Geography in Education." Few met-

living can compare with Mr. Bryce as travellers; he has, indeed, "seen the manners and cities of many men"—and their mountains too. He was the first to ascend Mount Ararat, where the remains of the Ark are supposed to be resting, but quite failed to convince his host, the Patriarch of Echmiadzin, of the reality of his achievement. "Never," said the venerable prelate, "has Mount Ararat been ascended, and it never will be." In the course of his address Mr. Bryce spoke of geography as the meeting point between the physical sciences and those dealing with human affairs, and pointed out its value if properly taught from a basis of *Heimatkunde*, or the study of one's own neighbourhood, as a discipline alike in observation and in reasoning. He further dwelt on the importance of the subject as a handmaid to history in all its branches, and as an essential element in the training of men of business. Perhaps practical schoolmasters who came expecting suggestions that might bear on their own teaching were somewhat disappointed; but the Association could not but be grateful for so clear an exposition of the value of the quiet work they are doing in the propagation of sound methods of geographical instruction in schools.

MR. L. L. PRICE, Fellow and Treasurer of Oriel, has addressed an open letter to the Vice-Chancellor of the University upon the present condition of economic study in Oxford, in which he urges the importance of according it a place more adequate both to its own intrinsic importance and to the position which it seems likely in the near future to occupy. One Group (or portion of a Group) of the Final Pass School is devoted to political economy, and it occupies by no means the least satisfactory position among the different Groups in kindling interest and assisting the development of the mind. But in the Honour examinations the place of economics is inconsiderable. This unimportant position is, Mr. Price pleads, not commensurate either with the place which economics is now taking in the world outside or with its own intrinsic interest and value. In the University of Cambridge the subject occupies a very prominent position in the Moral Sciences Tripos and also fills a larger place in the Historical Tripos than in the Oxford Modern History School; and he points out that Cambridge is continually producing young economists of capacity and attainment. In the reorganized University of London explicit recognition, as a Faculty of the University, has been given to the London School of Economics and Political Science, which has been working with success for some years and attracted students from this country and abroad. Nor can any observer who watches the drift of English popular opinion on educational matters doubt that the stir roused on "commercial education" is likely to beget an increasing tendency on the part of merchants and other business men to send their sons to places of education where they think, rightly or wrongly, that they will receive a training more useful for the careers for which they are destined. For these and other reasons which he mentions, Mr. Price thinks he is putting forward no unreasonable plea when he asks for earnest attention to the present state of economic study in Oxford.

#### UNIVERSITIES.

(From our Correspondents.)

TERM has started in a somewhat dull fashion, and at Oxford. present we hear of no startling movements among the progressives likely to call the *Non-placet* Society into action. There is a rumour, indeed, that the Hebdomadal Council, who have been taking the opinions of various schoolmasters, have discussed, are discussing, or propose to discuss the question of making a modern language compulsory in Responsions. That the encouragement of modern languages "has come to stay" admits of no question. Balliol—alone, we believe, among colleges—compels those men who do not read for Honours in the First Public Examination to take up the study of a modern language. What, however, would be the result of introducing French or German as a compulsory subject in Responsions is hard to say. If either is to be introduced as additional to Greek, then the burdens of the Pass man, pure and simple, will be enormously increased; if the idea is by the thin end of the wedge to gradually eliminate Greek, then, again, we are face to face with an old heroic struggle. There are many who think now that Greek as a necessary pass subject is bound to go to the wall; even some of

its most ardent supporters are gradually cooling down. The demand for scientific and utilitarian education, and the growth of new Universities, which lay themselves out to meet that demand, is bound in time to have its effect even in stationary Oxford. Certainly in scientific education Oxford has made great advances in the last two decades, with new buildings, larger grants of money, new subjects, a more varied staff of teachers, and a much increased body of students. If one studies the lecture list as marshalled in array in the pages of the *University Gazette* for the term, and compares it with the announcements of the same nature in a *Gazette* of a dozen years back, the remarkable change is evident at the first glance. The increasing study of geography and the now ever-growing demand for modern languages are further evidences of the change. Add to these the fact that many, both inside and outside the University, are agitating for a more systematized preparation of candidates for the India and other Civil Service examinations (which are not University examinations), and the conclusion that Oxford is steadily departing from its independent aloofness is very obvious. There are, of course, those who deplore the change, and find signs of decay and disintegration when they discover that *Inter Humaniores*, the boast of the Oxford system, is now regarded by many, not as an end in itself, but as a means.

All this digression has been suggested by the "modern language" rumour. But, whatever be the result—whether Greek be doomed or no—it is to be hoped that, if modern languages do come in, we shall demand a more satisfactory standard of proficiency than is now demanded in Responsions in classics. A prepared book is really a thing of nought—or, at any rate, of memory—when nothing more is demanded than a mere baldly literal translation. Much Latin prose scrapes through under the embracing title of *via satia* which contains mistakes for which in our infancy *manum ferulæ subducimus*. The grammar standard is that of an ordinary public school middle form, and there is no unseen translation.

The two "Boards" for school examination, the "Certificate" and the "Locals," have recognized by now the futility of mere prepared books. In both (now) prepared books are not necessary; in both a certain standard of accuracy is demanded, both in Latin prose and Latin unseen. The Oxford Locals have been slower in adopting the last clause, but it may now be said to be definitely established.

Among other items of University news, we may record the appointment of Mr. Bryce as Romanes Lecturer for the year, an announcement which, at any rate, frees the University from any charge of political animosity; the promulgation of a scheme for reorganizing the salaries as paid to University examiners, especially in respect of Final History, Pass Moderations, and Smalls (the last named, with its £100 a year for four examinations, lasting at the outside about a week each, was very well paid, as pay goes in Oxford; now, a "Master of the Schools" is to receive £80); the pamphlet, in the form of a "Letter to the Vice-Chancellor," published by Mr. Price, pleading for a more serious and universal study of the subject of political economy—another "sign of the times"; the success at the end of last term in the Ireland and Craven examination, of Mr. Jackson, a close exhibitor, who had come up to Queen's from Appleby Grammar School, and had never "done verses" before coming into residence; and, lastly, the remarkable success of Corpus in securing both the Senior and Junior University Mathematical Scholarships—a success not undue probably to the brilliant mathematical teaching ability of Mr. Jolliffe.

On the river are torpids in abundance, but none of surpassing merit. By the time these lines appear the University Eight will probably be in something like its final form: at present it is undergoing a series of permutations and combinations, especially in the bows.

The football team was well represented in the Rugby match England against Wales, Strand-Jones dropping a goal for Wales and Dobson securing one of the two English tries.

THIS Lent term will probably see a fuller development of the controversy concerning the suggested changes in the Poll Examinations. It may be remembered that a memorial was presented to the Vice-Chancellor last term asking for the appointment of a syndicate to consider the question of making certain changes in the Pass Examinations, more especially by allowing candidates to take two Special Examinations instead of the General Examination and one "Special," as at present. The present scheme, which

has been in force for the past twenty-five years, with alterations and improvements from time to time, is briefly as follows:—The Little-go, divided into two parts—Classics and Mathematics—is an elementary examination on ordinary school subjects. The next test is the General, an advanced examination on similar lines, embracing the following topics:—Statics, Algebra, Hydrostatics and Heat, a Latin subject, Greek subject, Acts of the Apostles in Greek, a period of History, and an English Essay. The whole of this examination can be passed in a man's fourth term. After that the candidate is induced to specialize, a choice being given him from a list of subjects embracing all important branches of learning. The fundamental idea of the whole course is that the "General," as its name implies, is a test of general education, the Specials being on topics of a more or less technical and professional character. It is generally admitted by those whose work lies in that direction that the General Examination is quite as satisfactory a test as could be devised for the ends in view.

The memorial in favour of the new suggestion was largely signed, chiefly by college tutors, but the debate in the Senate on January 23 was decidedly disappointing. The case for the memorialists was stated by Mr. Rouse Ball, the Senior Tutor of Trinity, who was supported by Mr. Tilley, of King's, and Mr. Parry, of Trinity. No cogent reasons were adduced by the memorialists, but the general drift of the argument for their side was that the work of the General was useless, and consisted of "snippets" of work which did not interest the candidates. These contentions were strongly opposed by Mr. W. G. Bell, of Trinity Hall, and Dr. Campbell, of Trinity, who, with Mr. Adam, of Emmanuel, and Mr. Whibley, of Pembroke, urged the educational value of the present examination. It was, in the course of the discussion, pointed out in forcible terms that the proposed changes were merely a new departure in the anti-Greek movement; that the wishes of the schoolmasters should only be regarded when the University could be persuaded that those wishes could be granted without detriment to the interests of education—in other words, that it was the function of the University to lead, and not to follow, the schools. Suggestions were freely thrown out that under the suggested scheme, a boy from the upper fourth passing his Little-go before residence might get his degree after passing two such examinations as the Special in Music and Agricultural Science, the last mentioned being a very conglomeration of veritable "snippets" of knowledge strung together on the slender thread of a presumed connexion with agriculture. The real debate will take place when the Council formulate a definite proposal to appoint a syndicate to consider the question; then the fly-sheets will fall like leaves in autumn. One speaker in the course of the debate incidentally expressed his distrust of syndicates and committees generally, suggesting that, as a rule, the genius of the individual is often obscured by the crassness of the corporate brain; still there is no other course open to the University, if the question is to be discussed at all, than to appoint a syndicate to report.

Two deaths have cast a gloom over Cambridge this term. Mr. Hyde Hills, a well known and respected medical practitioner, was carried off by tetanus during the vacation. Mr. Hills had an active and useful public career; and his acts of generosity and charity were suspected rather than known during his lifetime. The other case was that of Mr. C. Green, of Sydney, a man of considerable promise in the scientific world. He had for years assisted the present Principal of the South Wales University College in his experimental work. As a teacher he was rapidly making his way to the front; and his loss will be felt by his numerous friends who appreciated his simple, unostentatious, and upright character.

The appointment of Mr. T. H. Middleton, of Durham, to the Professorship of Agriculture was not altogether unexpected, though the many friends of Mr. T. B. Wood entertained hopes that the Professorship would go to one who had done such good work for the department in Cambridge.

The University crew is getting somewhat more into shape. The Secretary, H. B. Grylls, has now come into the boat, and considerable improvement has in consequence taken place in the swing and rhythm of the rowing, but it is as yet too early to prophesy as to what the crew will be like in the later stages of its training.

The football team (Rugby) have defeated Kensington with ridiculous ease, and the Association eleven are playing a particularly strong game, giving their supporters grounds to believe they can account for the strong team that Oxford will bring against them.

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## FORECASTS AND COMMENTS.

February 1, 1902.

THE first of a course of twelve lectures on Fixtures. "Intellectual Education," by Prof. James Sully, will be given at the College of Preceptors on Thursday, February 20, at 7 p.m.

THE next monthly meeting of members of the College of Preceptors will take place on February 19, when Mr. H. Courthope Bowen will read a paper on "Histories of Literature and their use in the earlier stages of Literary Study."

ON Friday, February 14, Dr. Shuttleworth will address the members of the London Branch of the British Child-Study Association on "What can be done for the Morally Defective Child?" The Chair will be taken by Dr. Fletcher Beach at 8 p.m., and a discussion will follow.

THE Technical Education Board of the Education Gossip. London County Council have lately founded six scholarships for crippled boys between the ages of fourteen and seventeen, to be held for two or three years if the scholars make satisfactory progress. They will grant free maintenance at a recognized institute or polytechnic, with £10 as a maintenance grant for boys below sixteen and £20 above sixteen, provided the parents' income is not over £150 and the medical officer pronounces the candidate fit to follow a sedentary employment. The first general award will be made next July, and applications are to be sent in to the Technical Education Board by June 30. Meanwhile, two scholarships of the kind have been conferred, by special recommendation, on two boys now at the Tavistock Place School, W.C.

It is authoritatively stated that his Royal Highness the Prince of Wales will be present at his installation as Chancellor of the Welsh University. The time and place have not been fixed.

THE governing body of the University of Dublin has appointed a committee to consider and report to it on the subject of admitting women to University degrees, a course which is regarded as indicating a less uncompromising attitude on the question than that previously adopted by the Board.

MR. R. J. PARANJPE, who was bracketed Senior Wrangler at Cambridge in 1900, has now returned to his native country, having accepted a professorship at the Fergusson College at Poona.

A HOSTEL has just been opened for Church of England students attending the Exeter Day Training College for Teachers. It is situated at St. David's Hill. The Lady Superintendent is Miss A. Weston.

DURING the past year 272 women matriculated at the University of Edinburgh. Twenty-nine women graduated in Arts, and 8 in Medicine and Surgery.

THE number of entrance scholarships tenable at Merchant Taylors' School has been considerably increased, and in future ten will be offered for competition every year. This year eighteen scholarships and five exhibitions will be offered in all. There are numerous scholarships tenable by boys already in the school, which make it easy for the parents of boys of ability to carry on their education until the time comes when they are ready to hold the valuable close scholarships from the school to Oxford and Cambridge.

MR. CARNEGIE'S gift to the Scottish Universities has been eclipsed by the munificence of Mr. J. D. Rockefeller, who proposes to hand over £5,400,000 to the University of Chicago, an institution which he has already endowed to the extent of three millions sterling or more.

MR. MYERS, of Birmingham, has founded and endowed a travelling studentship in the University of Birmingham in memory of his son, Dr. Walter Myers, who died of yellow fever when making an investigation of that disease for the Liverpool School of Tropical Medicine. Holders of this studentship, which will be awarded early in October in each year, must possess the degrees in medicine and surgery of the University of Birmingham. They must also possess the degree of B.Sc., which must have been obtained either at the University of Birmingham or London, or at either of the Universities of Oxford or Cambridge, should such degree be obtainable at either of those Universities. They must study for a year at one of certain Universities in Germany, and any papers that they may publish must appear under the name of the Walter Myers Studentship. The studentship, which will be of the value of £150, will not be awarded as the result of an examination, but by the vote of a committee consisting of the Dean of the Medical Faculty, the Professor of Pathology, the Professor of Chemistry, and the External Examiner in Pathology, the last-named to be the Chairman of the Committee.

**Appointments and Vacancies.** W. H. WILCOX, M.D., D.P.H., of St. Mary's Hospital, has been appointed Deputy-Lecturer in Hygiene at Bedford College for Women, owing to the resignation of Mr. W. C. C. Parkes on his appointment as Bacteriologist under the Transvaal Government.

THE REV. C. EDWARD COOPER, M.A., is giving up his work as Head Master of St. John's College, Hurstpierpoint, at Easter. Mr. Cooper was appointed in 1880.

THE REV. DR. JOHN BIRRELL, Professor of Hebrew at St. Andrews University, died recently after a long illness. He had occupied the Chair for thirty years. Dr. Birrell was a member of the Old Testament Revision Committee.

THE REV. J. R. WYNNE EDWARD, M.A., of Cheltenham College, has been appointed Head Master of Leeds Grammar School.

MR. L. H. LEADLEY, B.A., B.Sc., of the Congregational School, Caterham, has been appointed Head Master of Wolverton Institute.

THE Head Mastership of St. Edmund's College, Canterbury, is vacant, owing to the appointment of the Rev. A. W. Upcott, M.A., to the Head Mastership of Christ's Hospital.

MR. W. DARNLEY STUART, modern language master at King Edward's School, Birmingham, has been appointed Vice-Principal of the Middle School at Liverpool College.

MR. R. G. MCKINLAY, B.A., of Bootle Intermediate School, has been appointed Head Master of Stevenage School.

OWING to the retirement of the Rev. J. H. Smith, B.A., the Head Mastership of Alleyn's School, Dulwich, is vacant.

TWO schools belonging to the Girls' Public Day School Company opened this term under new head mistresses. Miss Leahy, late Head Mistress of the Oxford High School, succeeds Miss Neligan at Croydon; and Miss Haig-Brown has been appointed to Oxford in succession to Miss Leahy.

### COLLEGE OF PRECEPTORS.—HALF-YEARLY GENERAL MEETING.

THE ordinary half-yearly General Meeting of the members of the Corporation was held at the College, Bloomsbury Square, on Saturday, January 25.

The Secretary having read the notice convening the Meeting, Dr. WORMELL was appointed Chairman.

The Report of the Council was laid before the Meeting, and was taken as read, a copy having previously been sent to every member of the College. It was as follows:—

#### REPORT OF THE COUNCIL.

THE Council beg to lay the following Report of their proceedings for the past half-year before the members of the College:—

1. They have to report that the number of candidates entered for the Christmas Certificate and Lower Forms Examinations is about 7,800. At the Midsummer Examination the total number of entries was 5,160; thus the total for the year 1901 is about 13,000.

2. The Professional Preliminary Examination for intending medical students and others was held in the first week in September, and was attended by 154 candidates. The Medical Council at their meeting in November last approved the Scheme submitted by the Council for a Preliminary Examination for intending Medical Students, and placed it on their list of recognized examinations. The papers will be the same as those set for the College Second Class (or Junior) Examination, with an additional "unseen" Latin paper and a paper in Euclid I.-III., and a higher minimum percentage for passing in individual subjects, or groups of subjects, will be required.

3. For the Christmas Examination of Teachers for the College Diplomas 450 candidates have entered. At the Midsummer Examination the number examined was over 300, making the total number of Diploma candidates for the year more than 750. The examination will be held in London and at the following local centres:—Birmingham, Bristol, Leeds, Manchester, Scarborough, Cologne, Hong Kong, Graaf Reinet (S. Africa), and Buenos Ayres.

4. The Twenty-ninth Annual Series of Lectures to Teachers on "The Science and Art of Education," which began in February last with a course of twelve lectures on "Moral Education" by Prof. James Sully, M.A., LL.D., was completed by a course of twelve lectures on "The Practice of Education" by Mr. P. A. Barnett, M.A. The Winter Meeting for Teachers, which was held in the first fortnight of January, was equally successful with those which were held in 1898 and 1899. It was deemed advisable not to hold a similar meeting last year, and the Council have decided for the present to hold these gatherings every other year. The next Winter Meeting will take place in the early part of January, 1903.

5. Members' Meetings have been held during the past half-year, at which the following papers have been read:—On October 16, by the Rev. J. O. Bevan, M.A., "On Hygiene of the School and of the Scholar"; and, on November 16, by Prof. H. L. Withers, M.A., "On the Teaching of Geography in connexion with History." On December 13 there was a joint meeting of the members of the College and of the Teachers' Guild (Metropolitan Section), at which the subject of "The Present Position and Future Prospects of Training Institutions for Teachers in Secondary Schools" was discussed. The substance of the papers and discussions has been reported, as usual, in the *Educational Times*.

6. Although there can be no doubt that it is the intention of the Government to introduce an Education Bill in the coming Session of Parliament, very little information with regard to the character and scope of the measure is to be derived from the public pronouncements of Cabinet Ministers who have referred to the subject. The Duke of Devonshire, in a recent address, took occasion to enlarge on the special difficulties attending attempts at legislation for the better organization of secondary education. At the same time he deplored the lack of



interest in the question exhibited by the public at large, which gave but small encouragement to the Government in bringing forward any wide and comprehensive scheme of educational reform. With regard to registration, it is currently reported that the Consultative Committee submitted their recommendations to the Board of Education some considerable time back, but the Council regret that no official announcement on the subject has yet appeared.

7. Out of the funds that have accrued from the regular operations of the College the Council have provided for the outlay on scholarships for intending teachers, but they have not been able to make any addition to the Benevolent Fund or to the Teachers' Training Fund.

8. During the past half-year the Diploma of Fellow has been conferred on two candidates, that of Licentiate on six, and that of Associate on seventy-five, who had passed the required examinations. Twenty-seven new members have been elected, and notice has been received of the withdrawal of six. The Council regret to have to report the death of the following members of the College:—Mr. A. R. Andrews, A.C.P., Sir Walter Besant, Mr. W. S. Binns, Miss E. Creed, A.C.P., Mr. J. Lockey, F.C.P., Mr. E. Long, L.C.P., Mr. W. Machell, A.C.P., Mr. W. Mandell, Mr. F. W. Morris, Mr. J. H. Smith, Mr. J. N. Smith, L.C.P., Mr. A. Stoppard, L.C.P.

In reference to paragraph 6, Mr. PINCHES said that with regard to the first part of that paragraph the Council had no further knowledge than when it was signed by the President on December 21; but with regard to the latter part important action had been taken since that date, for an Order in Council had been laid on the table of the House of Commons, and many members, no doubt, had some idea as to what it contained. But the order for publication had not yet been made, and there was, therefore, some difficulty in saying anything definite about it. As a member of the Consultative Committee was present, perhaps she would kindly give some information if her position did not prevent her from doing so.

Mrs. BRYANT said that, as the Order was on the table of the House of Commons and in the hands of members of Parliament, there could be no harm in giving a brief account of the main lines of the regulations for the formation of the register. The most interesting point was the way in which the names of the registered teachers would be arranged. The Board of Education Act required that there should be a Register in alphabetical order, and that would be made. In addition to this general Register of all qualified teachers, there would be a Register of those teachers in two parallel columns, A and B. Column A would contain the names of all those who possessed a certificate of the Board of Education. In column B would be placed the names of all those who possessed one or other of the qualifications prescribed by the Consultative Committee. Of course it would be possible for a name to appear in both columns, or to be transferred from one column to the other. The first qualification for a place in column B was a University degree, or something equivalent to it. In addition to this academic qualification there would be required a year's training in some institution recognized for the purpose, and a certificate of having passed an examination in the theory and practice of teaching granted by a University or other institution, such as the College of Preceptors, similarly recognized; and, thirdly, a period of probation in a school recognized for the purpose. She had not seen the report in the *Times*, but she understood it was there said that "a school recognized for the purpose" meant a school inspected by the Board of Education. It was obvious there were a large number of public endowed schools which would be recognized without question by the Board of Education as being places in which the charities of their foundation were properly administered. That was, in brief summary, the first part of the regulations for admission to the Register, and referred, of course, to future teachers. During a period of three years it would be possible to get on the Register on easier terms than those mentioned. It was obvious that the qualification of training would not be available for a large number of the existing generation of teachers. In their case the conditions for registration were somewhat altered. In the first place, the academic qualification was somewhat below that of a University degree; secondly, the training requirement did not appear at all, and teachers who could show that they had served for a certain period in a school which was recognized as an efficient school would be able to come on the Register. That was the general nature of the regulations. Much of what had been outlined would be familiar to those who had followed previous proposals for legislation. What was novel in the work was the three columns, and she hoped this arrangement would meet the wishes of all concerned. One important class of teachers would for the present be left out, namely, those who were

not qualified to be placed in Column B and who were not included in Column A—teachers who would for a long time to come be required for the lower forms of secondary schools. It was a question which would have to be considered in the future, as to how that class of teachers should be dealt with. A supplementary register might be devised when it was necessary to do so, though it might not be necessary during the next three years. Another important point was the Registration Authority, to whom the keeping of the Register was to be entrusted. The Order in Council revived the idea of the Registration Council; it provided such a Council for three years, and left the rest open. There was no conclusive legislation by Order in Council on this point; but for a period of three years there was to be a Registration Authority consisting of twelve members: six to be appointed by the bodies mentioned in the Order—namely, one by the College of Preceptors, one by the Teachers' Guild, one by the Head Masters' Conference, one by the Head Masters' Association, one by the Head Mistresses' Association, and one by the National Union of Teachers. The other six members would be appointed by the Lord-President of the Council. The Registration Authority would report annually to the Board of Education. This was the constitution for the next three years. Its future constitution was a matter which might well be discussed by teachers during the next three years, so that, when there was another Order in Council to reconstitute the Registration Committee, there might be some clear consensus of opinion from teachers as to what they thought best. The registration was to be permissive, and those who did not want to be registered need not be; but there would probably be some pressure brought to bear on schools by the Local Authorities in the future so as to induce the teachers in these schools to register.

Rev. J. O. BEVAN said it was not quite clear, from the statement which they had listened to, whether the Government would undertake the registration of certificated teachers under column A. He understood there was a difference with regard to the fee to be paid; for those registered in column B it would be one guinea, while for registration in column A there would be no charge. Did the Government undertake the registration of those who held their teachers' certificates, or was it optional for Government teachers to come on the Register?

Mrs. BRYANT said the Government would not undertake the registration; that would be done by the Registration Council. There were a great number of teachers to whom the fee was a consideration. It should also be considered that there was more work to be done as to registration in one column than there was in the other.

Dr. SCOTT asked what inducement there would be, with a Register in that form, for assistant masters in secondary schools to register. If the Register of Teachers was divided into two sections only—those who had degrees and those who had not—they were really only providing for the efficiency of one particular branch. There was nothing in this to give a stimulus towards increased efficiency as to teaching in secondary schools. He did not agree with those who desired that the Register should be entirely in the hands of teachers. Such an arrangement would produce many administrative difficulties. All the acts of the Consultative Committee were, in his opinion, rightly subject to the approval of the Board of Education. The value of an elementary teacher's certificate varied from year to year; it depended on how many candidates came in, and how many vacancies had to be filled up. He was quite sure the Consultative Committee would not commit itself to such a standard, and, unless there was only one body concerned, they would have at once two bodies at loggerheads with one another. With regard to the Registration Council, the proposal made by the Consultative Committee merely followed the lines of the Registration Bill, which adopted for six years the arrangement of nominating bodies, and afterwards election by the votes of the registered teachers. He hoped that, if in the future members of the Council were elected by the registered teachers, some better mode of election would be invented than virtually graduate and non-graduate voting, as seemed to be suggested by the proposed arrangement of the Register. The minor and major classifications of secondary schools were ignored by this arrangement, and he had no belief in the utility of the Register, because its framers, in not setting before themselves the aim of promoting the efficiency of secondary teachers, had not faced the facts of the present situation.

Mr. RADFORD, in reference to the abstract of accounts, called

attention to discrepancies between the figures on the two sides with regard to certain items—in particular he would like to know why the expenditure on the *Educational Times* and the Calendar invariably exceeded the receipts.

Mr. PINCHES said the difference was accounted for by the fact that the *Educational Times* was sent free to every member of the College, and, therefore, it was not surprising that the expenditure exceeded the receipts. As to the Calendar, when they considered the price at which it was supplied to members it was easy to understand why it did not pay its way. If the price were doubled, it would pay, but while the College was in a satisfactory financial position he thought it was right to allow the members to benefit in this way.

Mr. EVE pointed out that every Society which had its own organ sent a copy to each member, and, as a rule, the cost was entirely defrayed from the funds of the Society.

The Report of the Council and the accompanying abstract of accounts were then adopted.

The Dean then presented his Report, which had been printed and distributed to those present. It was as follows:—

#### THE DEAN'S REPORT.

In addition to the general statement of the examination work of the College during the past half-year, which has been embodied in the Report of the Council, I have now to submit to you, in detail, the statistics and results of the various examinations.

The Christmas Examination of candidates for Certificates took place on the 10th to the 13th of December at 230 Local Centres and Schools. In the United Kingdom the Examination was held at the following places:—Aldershot, Anerley, Ashbourne, Attleborough, Aylesbury, Balham, Banford, Banbury, Barnstaple, Bath, Beckenham, Bedford, Berwick-on-Tweed, Bexhill, Biggleswade, Birkdale, Birmingham, Blackheath, Blackpool, Blandford, Bodmin, Bognor, Bolton, Bournemouth, Boxmoor, Brentwood, Bridport, Brighton, Bristol, Budleigh Salterton, Burnham (Som.), Cardiff, Carlisle, Carnarvon, Castle-town, Cheltenham, Chepstow, Chertsey, Chiswick, Clacton-on-Sea, Clevedon, Cowes, Cowley, Crewe, Croydon, Derby, Devizes, Devonport, Doncaster, Dover, Drax, Durham, Ealing, Earl's Colne, Eastbourne, Evesham, Exeter, Faversham, Frome, Glasgow, Gosberton, Grantham, Gravesend, Great Ayton, Greenwich, Haleowen, Halifax, Harleston, Harrogate, Hartlepool, Hastings, Hatfield, Hereford, Herne Bay, Hornsea, Hull, Hulme, Ilfracombe, Ilkley, Jersey, Kingsland R.S.O., King's Lynn, Leamington, Leeds, Lewes, Lincoln, Liskeard, Littlehampton, Liverpool, Llandudno, London, Long Sutton, Longton (Staffs.), Loughton, Luton, Lydney, Lytham, Maidenhead, Maidstone, Malmesbury, Manchester, Margate, Marlborough, Matlock, Midhurst, Mileham, Minehead, Morecambe, Newcastle-on-Tyne, Newmarket, Newport (Mon.), Northampton, Norwich, Nottingham, Ongar, Penketh, Penzance, Pinner, Plymouth, Portsea, Portsmouth, Poulton-le-Fylde, Putney, Ramsey (Hunts.), Ramsgate, Reading, Richmond-on-Thames, Rochdale, Romford, Ryde, Saffron Walden, Saham, St. Anne's, St. Austell, St. Ives (Cornwall), St. Leonards-on-Sea, St. Neots, Sale, Sandwich, Scarborough, Selby, Shirley, Shoreham, Sittingbourne, Southampton, Southend, Southport, Spalding, Stanford-le-Hope, Sudbury (Suffolk), Sunderland, Swindon, Tamworth, Taunton, Teignmouth, Thorne, Torquay, Totland Bay, Totnes, Trowbridge, Tunbridge Wells, Ventnor, Waltham Cross, Walton (Liverpool), Wanstead, Warminster, Waterford, Wellington (Salop), Wells (Som.), Weston-super-Mare, Wigton, Winchester, Wisbech, Woking, Wolverhampton, Worcester, Workop, Worthing, Yarmouth, and York. The Examination was also held at Colombo (Ceylon), Nassau (Bahamas), Georgetown (British Guiana), St. George's (Grenada), Kingston (Jamaica), St. Lucia (B.W.I.), Buenos Ayres, Port of Spain (Trinidad), Lagos, Freetown (Sierra Leone), Cape Coast, and Chefoo (N. China).

The total number of candidates examined (not including 165 examined at Colonial Centres) was 5,403, of whom 3,122 were boys and 2,281 girls.

Taking the Christmas and Midsummer Examinations together, the total number of candidates examined for Certificates during the year (not including those who attended the supplementary examinations in March and September) was 9,332.

The following table shows the proportion of the candidates at the recent Examination who passed in the class for which they were entered:—

	Entered.	Passed.	Percentage.
First Class (or Senior) ...	512	274	54
Second Class (or Junior) ...	1,693	947	56
Third Class .....	3,198	2,434	76

The above table does not take account of those candidates who obtained Certificates of a lower class than that for which they were entered, nor of those (139 in number) who entered only for certain subjects required for professional preliminary purposes.

The number of candidates entered for the Lower Forms Examination (not including 60 examined at Colonial Centres) was 1,864—1,049 boys and 815 girls. Of these, 1,513 passed, or 81 per cent.

At the supplementary Examination for First and Second Class Certificates, which was held on the 3rd to 5th of September, in London and at the following Provincial Centres, viz., Birmingham, Bristol, Glasgow, Leeds, and Liverpool, 154 candidates presented themselves. The number of candidates examined at these supplementary examinations during the year was 327.

The Christmas Examination of Teachers for the College Diplomas took place on the 7th of January and four following days, in London and at the following Local Centres:—Abergavenny, Birmingham, Bristol, Devonport, Exeter, Falmouth, Hexham, Kingscliffe, Leeds, Manchester, Nottingham, Scarborough, Worcester, Buenos Ayres, Cologne, Grahams-town (Cape Colony), and Hong Kong. It was attended by 437 candidates, of whom 297 were men and 140 women. On the results of this Examination, 1 candidate obtained the Diploma of Fellow, 4 that of Licentiate, and 107 that of Associate.

The number of schools examined during the year under the Visiting Examination Schemes (A), (B), and (C) was 14.

The College has also conducted certain Scholarship Examinations for other bodies.

The DEAN, in moving the adoption of the Report, remarked that the comparatively small proportion of those who obtained diplomas showed that the examination was a pretty severe test. The percentages of passes in the different classes of the Certificate Examination differed very little from those of the preceding examination.

The Dean's Report was then adopted.

The Meeting then proceeded to the election of twelve members of the Council, to supply the places of the twelve retiring by rotation, and three Auditors.

The Chairman having appointed Mr. KING and Mr. CHANDLER to act as Scrutators,

Mr. GUTTERIDGE requested to have the number of attendances of the members proposed for election read before the vote was taken, and, the list having been read by the Secretary, he moved that it should be printed in the *Educational Times*.

The CHAIRMAN explained that only resolutions of which due notice had been given could be discussed by the Meeting; but that the suggestion to have the information as to the attendances published would be considered by the Council at their next Meeting.

On the Scrutators presenting their report, the Chairman announced that the following had been duly elected:—

#### MEMBERS OF THE COUNCIL.

- Rev. J. O. Bevan, M.A., F.C.P., 55 Gunterstone Road, W.  
 H. C. Bowen, M.A., 3 York Street, W.  
 K. Brel, M.A., Litt.D., Ph.D., 10 Cranmer Road, Cambridge.  
 G. Brown, Cavendish School, Redhill.  
 Rev. Canon Daniel, M.A., F.C.P., The Vicarage, Horsham.  
 Miss E. A. S. Dawes, D.Lit., Weybridge Ladies' School.  
 A. Millar Inglis, Maidenhead College.  
 H. R. Ladell, M.A., Ivy Cottage, North Walsham.  
 J. Montgomery, B.A., L.C.P., The Grammar School, Uckfield.  
 Rev. J. H. Robson, M.A., LL.D., F.C.P., Fernery House, Guildford.  
 Rev. D. L. Scott, M.A., LL.D., Mercers' School, Holborn, E.C.  
 G. Armitage Smith, M.A., 3 Albert Terrace, N.W.

#### AUDITORS.

- J. Bell, M.A., LL.D., Ingleside, Farnborough.  
 W. C. Brown, M.A., F.C.P., Tollington Schools, Muswell Hill, N.  
 A. E. C. Dickinson, B.A., LL.B., L.C.P., Grove House, Highgate.

A vote of thanks to the Chairman concluded the proceedings.

After the meeting a number of members and friends dined together at the Trocadero Restaurant, under the presidency of the Rev. R. Lee, Head Master of Christ's Hospital. Among those present were Mr. Armitage Smith, Mr. Atkinson, Mr. Bain, Mr. Baker, Mr. Baumann, Mr. Beckton, Rev. J. T. Bell, Mr. Bruce, Mr. and Mrs. Charles, Rev. A. J. Church, Mr. and Mrs. Dickinson, Mr. Eve, Dr. Fout, Mr. Howe, Mr. and Mrs. Hodgson, Mr. Kennard, Mr. Langler, Mr. Longsdon, Mr. Marvin, Mr. Musson, Dr. Moody, Mr. Pinches, Rev. Dr. Poole, Mr. W. M. Poole, Dr. R. P. Scott, Dr. Turpin, Mr. Jas. Wilson, Miss Yeend. During the evening some excellent music was played by Dr. Turpin, alternating with the toasts which were given and responded to.

### CO-OPERATIVE SECONDARY SCHOOLS.

PERHAPS no capital in Europe can present to Englishmen secondary schools which are more advanced in the work of organization than Copenhagen; and a new and striking development upon which the higher portion of them entered at the beginning of the autumn term makes them still more valuable for study and comparison.

These secondary schools may be divided into three kinds, the first two of which are under the control of the State, and the third licensed by the municipality.

Of the first kind there are thirteen schools, twelve for boys and one for girls—schools which have acquired the right to conduct within their walls the final leaving examination of the State, the only passport in these Northern countries, as well as in Germany, to the University. Twelve of these schools have also modern sides, and are qualified to hold an intermediate leaving examination, suitable for business and those entering what may be called the minor professions. In these thirteen schools there were last year in the various classes 4,378 boys and girls.

Next come twenty *real* or modern schools—seven for boys, thirteen for girls. These have the right to hold the intermediate leaving examination. They do not, as a rule, receive pupils beyond sixteen years of age, and lack the two higher classes of the first kind of school. In these twenty schools there were in 1900 3,736 boys and girls.

Schools of the third kind are somewhat miscellaneous in their nature. Many of them are more or less preparatory; if these are called secondary schools, it is only because they lie outside the provision made by the municipality for primary instruction. But some of the higher girls' schools that fall into this third class are as good as any in the city; if they wished, they could at once have the examination right, and so obtain State recognition. And none of the schools are so worthless as some private schools in England may easily be, inasmuch as no school in Copenhagen may be opened without the consent of the municipality; and that consent is not given unless teacher and school reach a certain minimum standard. There are fifty-three of these miscellaneous schools, with 4,463 children in them.

Manchester is a much larger city than Copenhagen, and possesses many good secondary schools, both public and private; but in the provision made for such instruction and the use made of it, it falls far behind Copenhagen. Birmingham, with its two central high schools and its seven grammar schools for boys and girls in the suburbs, all worked in connexion one with another under the same governing body, is often regarded in England as a model city in the provision made for secondary education. But, whether we regard the number and fitness of the schools, the number of children in attendance, the capability of the teachers engaged, or the accessibility of the schools to pupils of moderate means, Copenhagen, though less than four-fifths the size of Birmingham, is no whit behind it in the matter of secondary schools, and in some respects is far ahead. The figures for Birmingham, as given in the somewhat incomplete Education Department Return of 1897, are 3,850 boys and girls in schools other than public elementary,\* as against 12,500 in Copenhagen. And yet these schools in Copenhagen owe very little to private benefactions or bequests, or to money help from State or commune. One of them—the building fronting the quadrangle of which the Frue Kirke, the University, and the Bishop's Palace form the other three sides—is a State school, a classical school of two hundred boys. All the other newer, larger secondary schools in the city—those that have adapted themselves most readily to the wants of the times—are private schools, one of them in the hands of trustees, but the rest the property of individuals. They are the product of private initiative and the State's fostering care. In what manner the State has helped them without giving them direct money grants will appear more clearly from the novel development upon which the higher secondary schools of Copenhagen entered a few weeks ago.

\* The amount of secondary school attendance in Birmingham is by no means easy to ascertain. It has been discussed by Prof. John Massie at pages 52, 53 of Vol. vii. of the "Report of the Royal Commission on Secondary Education (1895)." He came to the conclusion that secondary schools in Birmingham "are attended by about 5,000 children out of a population (in round numbers) of 530,000, i.e. by less than 10 per 1000." He does not include in the 5,000 those sent away to boarding schools.

These schools, twelve in number—if for the moment we exclude the one State school—all prepare for the higher leaving-examination; and, through this common aim of all their work, have been brought together in sympathy and co-operation much more than has ever been the case amongst private schools in this country. That was the first service which the State rendered them: to set up a standard of attainment by reaching which worthy schools could show they were doing work that could compare with that of the best State schools. The head masters of most of these Latin schools—so they are called—through a voluntary union which they had formed, presented a united front to the public and made it impossible to play off one school against another. At all these associated schools the fees were on the same scale, the holidays of the same length, and the rules for promotion were the same. We shall see in a moment how much further this method of association has lately been carried.

The buildings of these twelve schools are all more or less new, having been erected during the last twenty years; and the burden has of course been a very serious one to the head masters. Although the State has never seen its way to give to these City schools the modest money grants which it makes to corresponding schools in the thinly populated country districts, it has, nevertheless, shown its good will to schools that have such a good record. Besides giving slight occasional grants for science apparatus and the like, it has guaranteed the interest for loans which were necessary in order to complete handsome and expensive school buildings. The weakest point in the organization of these schools remains to be mentioned, and it is to the dissatisfaction thereby caused that their latest development is directly due. Whilst the head masters are receiving but a modest return for their skill as teachers and for the employment of their capital (between £300 and £400 a year), the assistants receive a sum lamentably inadequate for men who have received a University training and are devoting their lives to the profession of teaching. The feeling at last became so strong that, in 1899, a powerful association of assistant masters was formed, which with the help of the head masters ascertained the precise facts of the case. It was found that the 264 men teachers, more than half of whom were University graduates, received not more than 1s. 3d. an hour for their school work, i.e., somewhat less than £100 a year, if they were in full employment; whilst the 142 women teachers, one-tenth of whom were University graduates, received, on an average, two-thirds of this amount. The feeling aroused is so strong that an appropriate remedy is only a question of time. It is felt that an increase all round of 50 per cent. is imperatively necessary. But when it is asked from what quarter this increase shall come the question is not easy to answer. The emoluments of the head masters are so moderate that it is calculated an increase of salary to assistants to the extent of 10 per cent. would bring the schools to "the verge of insolvency, and an increase of 20 per cent. would ruin them."

Nor could any help be obtained from the State, although for many years it has helped corresponding schools in the country. It was feared on the part of the State that, as long as there was unlimited competition, and the possibility of new schools arising in excess of the demand, any increase in the receipts of the schools might only be shared among a larger number of schools and leave the assistant master as poorly paid as before. After more than one application for State help had been refused, a representative commission was appointed in December, 1899, to take the whole facts into earnest consideration. Departementschef Asmussen was the Chairman; and the other members were four of the head masters, two of the assistant masters, and two merchants chosen for their skill in finance. Their report was issued in February, 1900; and, after being for many months considered a confidential document, was published last spring in pages 194-204 of Departementschef A. F. Asmussen's *Meddelelser angaaende de laerde-Skoler* for the school-year 1899-1900. The proposal set forth in this report is that eight of the boys' schools (the number has since been increased to nine) should form themselves into a "self-owning institution" under the control of the State, i.e., that the school-sites, buildings, and furniture should be purchased from their owners and devoted in perpetuity to public objects; that the schools should hereafter be conducted as one school in nine buildings with the present head masters continued in their office at a salary, with a governing body possessed of full powers and consisting of the nine head masters with three of the assistants chosen by their colleagues for a period of three years at a time. Directly this governing body is fully constituted, it shall have for its first duty to elect a business director, and then to choose out of its own body three principals, who shall in con-

junction with the business director and one non-scholastic outsider (chosen every three years to represent the general public) form an executive. The executive must every year choose a Finance Committee from the governing body, two of whom must be principals and the other two assistants. Though this Committee cannot form any final decision, it has the right reserved to it of laying its decisions in writing before the Ministry.

There are various reasons why the four remaining schools of the same rank have not been merged in the new institution. One is a State school; another is the property of a trust and not of a single individual; the third is a girls' school only; a fourth is conducted along with a girls' school, and for that and other reasons prefers its independent position. But the schools that remain outside preserve a friendly attitude—will not, for the most part, seek to undersell the rest.

Before the amalgamation could become an accomplished fact it was necessary to buy off the previous proprietors of the schools; the question arose how the purchase money was to be obtained. The sites, buildings, and their contents were valued at 1,414,446 kroner (18 kr. = £1). They were already mortgaged to the extent of 714,814 kroner, and a proposal was made in the Budget of last Session that the State should guarantee the interest for a loan that would cover the difference. The question was debated last January in the Folketing, and again in March. One member expressed his fear that the freedom and elasticity of the schools would be impaired by the proposed arrangement, and voted against the guarantee. But no member expected that the State would ever be called upon to fulfil its guarantee, and so the motion was passed by fifty-six votes to nine, the total number of members of the Folketing being a hundred and fourteen.

With the beginning of the present Session each of the nine schools heads its prospectus "The United Latin- and Realskoler"; and the first four pages are taken up with an interesting account of the steps which have led to the change in the constitution of the schools. In this is included an announcement of the necessity of some slight rise in fees—amounting to an increase of about 2s. a month for each pupil—in order that the salaries of the teachers may become more commensurate with their work. It remains to be seen whether these measures will have the desired result. It may be that parents may use the schools somewhat less than before—may, for instance, during the preparatory years, make greater use of the higher-class Board schools, which are as good in Copenhagen as in our own larger cities; or may, during the later years, attempt to do in two years, by means of a crammer, what the school can only do in three. The increase of fees is so small, and the evil to be remedied so great and so widely acknowledged, that it is to be hoped this will not take place, and that the assistants will soon receive a more worthy reward for their toil. As the head masters say, in their address to the parents, "the securer financial outlook will enable principals and assistants to set about the tasks of the school with less distraction, and thereby induce them to make more earnest and mature contributions to the solution of the numerous problems our times require the higher school to take up. Besides, the closer union between school and school, which we may expect, will assuredly contribute in a marked way to the accomplishment of our tasks as teachers. And, lastly, we add the most important point of all. The teachers, as above mentioned, have obtained a share in the conduct of the Institution and a substantial influence in the ordering of its financial affairs."

It would seem, then, that the State—in which we may surely include the parents—the head masters, and the assistants have each good reason to be pleased with the new arrangement. The State cannot but be pleased, for, without the expenditure of a single penny, it has secured in perpetuity nine good schools, arranged to its own liking, in whose government it has reserved to itself the power of saying the last decisive word. But, for all the ordinary, and most of the extraordinary, concerns of school management, the Institution is free to adapt itself to the changing needs of the time, as no purely State school can be. The head masters are pleased, for henceforth they are free from ordinary risk. They have disposed of their schools as going concerns; they are continued in their previous offices at a salary equal to their average profits; and when they retire they may expect a pension. The assistants are pleased, for the situation is of their own making. An improvement in their financial position is sure to come—if not in one way, then in another, though it can hardly be said to be yet in sight. Their position is much more secure than heretofore; no teacher on the staff can be dismissed until the matter has been brought before the governing body, on which, it will be remembered, sit three

of the assistants themselves, representing their colleagues. The share which the assistants thus take in the government of the Institution is more likely to be increased than diminished, and makes the Institution an experiment in co-operative school-keeping. Moreover, whenever any one of the present head masters retires, it will no longer be necessary for his successor to have capital; the career will be open to talent to a degree that has not been possible before in Copenhagen. All these arrangements—more than we can here detail—must give an added zest to the teacher's work, and tend to a more economical working of the Institution.

The whole task of increasing the assistants' salaries depends partly on the slight rise in fees, partly on the economies that may be effected through working the nine schools together, partly also on the possibility of limiting the number of schools—of keeping the supply from greatly exceeding the demand. In Denmark no new Latin school may be erected without Government permission; nor can any new boys' school greatly prosper, unless on attaining its full complement of classes it can acquire the right to hold the leaving examination which carries State recognition with it. The Government has thus at two distinct stages the power to limit the number of schools. This power the promoters of the new Institution, in their desire to secure themselves from ruinous competition, at first asked the Government to transfer to themselves, at any rate for a term of years. This was a serious request; and, as it might, if persevered in, have wrecked the whole undertaking, it was after a while explicitly dropped. And so strong, so unanimous, has the feeling of the entire body of teachers since become in favour of the Institution that such a power is no longer needed. For private representations have during the last year or two been as effective as a Government veto. Last year and the year before, two distinct efforts were made to add to the number of Latin schools in Copenhagen, one by an assistant teacher and the other by the active and earnest Low Church Party. But, in view of the fact that two new higher schools had recently by Government permission attained half their complement of classes and would soon be in full activity, the promoters of these two further schools were dissuaded from their purpose and have fixed their schools in places remote from the capital.

Danes themselves are by no means agreed in their criticism of this new and interesting departure in Copenhagen; and it would not, therefore, become foreigners to prophesy as to the chances of success or failure; but enough has been said to give English workers in education the information necessary to watch the experiment for themselves. We need only add that Mr. Niels Hjort, the business director of the Institution, may be seen daily at his office in Copenhagen (Frederiksberggade No. 2); and that for those who do not understand Danish, German is the best means of communication.

J. S. THORNTON.

[For the accuracy of this brief description I am greatly indebted to Departementschef Asmussen, to Fuldmagtig Hage, and to many other friends, who have patiently discussed with me some of the more difficult points.]

### OUR NEED FOR COMMERCIAL LINGUISTS.

THE subject of our commercial position is occupying much public attention, and our deficiency in practical knowledge of foreign languages is often dilated on. May I venture to offer a few suggestions towards a possible solution of the difficulty?

In the first place to banish, as far as possible, the literary study of languages from the educational curriculum of our industrial classes. Many years and much experience are required to gain elegance of style: and *cui bono* for commercial purposes? The ordinary English child's mind is already somewhat overloaded—the Italian word *caricatura* expresses it well—with scraps of solids; and the additional weight of two foreign languages from such different branches of the Aryan group as the Italic and Teutonic may naturally, in some cases, result in failure.

In the second, to give more scope to *viva voce* teaching, especially with French from the first. Speaking and repetition from dictation are wanted rather than much writing and copying. The French are a lively people given to pleasant and frequent rejoinders, like the twitter of birds and chirp of insects, which add such a charm to country life. Due attention to this view of the subject might have far-reaching effects by causing some o

the exuberance in our midst—if led by higher influences—to seek channels of intercourse with other lands and aim at rising harmoniously in the chorus of the “Voices of the Nations.” The voice is of great assistance in teaching. This should be borne in mind throughout, and the help it gives in marking the difference between direct and indirect speech. I believe women would answer better for *viva voce* teaching than men, and English people better than foreigners on account of their ability to teach from the English point of view—a fact sometimes lost sight of. The characteristics wanted are brightness, patience, and, if possible, versatility. Age should be no bar, and the experience it brings would in many ways be an advantage. Of course, in judging of the suitability of teachers, clear utterance, good knowledge of the language required, and fair ability in pronouncing it are taken for granted.

There can be no better foundation for the study of English and all languages than Latin, even though only moderately acquired, and French may soon follow it; but, as a general rule, one language should be kept to until well grasped, and a different teacher provided for every language taught, and no language begun at too early an age. The Continental pronunciation of Latin is in many respects a help for modern languages. Fluency leads on surprisingly to improvement in pronunciation; however small the vocabulary, let it be kept to without change until safely committed to memory. For beginners in French, one tense of the auxiliary verbs taken simply and interrogatively and a dozen or so easy words will amply suffice for learning by degrees, with change of posture now and then, such as a little marching. Attempts at pronouncing the letter *u* can then be pleasantly made at intervals, with the head slightly thrown back and the lips just apart. For practice, let two or three (not more) short, gentle sounds, something like the mew of a very young kitten, be made singly. As a next step, take the word *du* followed by an easy one like *sel*, avoiding *dé* (“thimble”) and words likely to confuse and difficult to pronounce. The sound of *qu'est ce que c'est?* should be understood, and that it means “what,” and replies elicited by its help from the class, while the teacher pronounces, any fresh word being taught and shown on the blackboard.

The numerals up to twenty also form appropriate drill, and, later on, very short sentences, in answer to short questions, so that the sound of their own voices, properly controlled, becomes natural to the children, as the rule of that particular course of instruction. Thus, without worry, by the end of a month real progress will have been made, which should be tested and noted from dictation before proceeding further by easy stages, each in turn to be treated in the same way. Verbs fix better on the memory learned in their entirety; and learning by rote is easy for the young. Nothing beyond simple verbs should be attempted for a considerable time; negative and interrogative verbs are apt to be confusing, and acquaintance with them is better made gradually, as with other new words, when they occur in phrases and stories.

From the first the teacher should frequently let short words of command and encouragement be heard in French—*e.g.*, *n'est ce pas*, &c.—and avoid speaking English, at least for a certain time, continuously. As advance is made, another person would be of service occasionally for giving necessary explanations and taking part in dialogue in English with the teacher, so that the latter might only open her lips for French. Changing from one language to the other while teaching is very disturbing, and a greater hindrance to success than imperfections in accent.

Pronunciation never can be perfect, and too much time and trouble may be spent in efforts to attain perfection only to end in provoking a smile, as with the town of Marseille, to which we English have actually given a final *s* which never belonged to it! Difficulties of pronunciation should be treated lightly, and ability to speak tolerably insisted on. No doubt a few graduated prizes offered for fair speaking would soon have effect in the desired direction—supply follows demand.

French has special difficulties for English people in its pronunciation, modes of expression, and exactness, so unlike the careless English now in vogue. Attempts at speaking must be encouraged from the first, and mistakes, which will naturally occur, never ridiculed nor repeated, but the correct phrase given out, repeated by the class, and finally noted. With advanced classes two teachers—one a foreigner—would the better give the spirit of dialogue and recitation generally, and the students more or less collectively should repeat the performance, facing each other, not their note-books. Some choice of passages for recitation or composition might occasionally be given them, with the advantage of

bringing out their bent of character individually. Coils of examples and idioms are undesirable, and derivatives, cognates, and whatnot are best left for the enjoyment of philologists—with whom I sympathize—but not added to the commercial traveller's burdens. He is often in a hurry (*eilfertig*), and should always be ready to set out (*reisefertig*), both mentally and physically—in fact, a man of action with arms at hand.

In the third place, to let Nature be left more to do her own work than under the present system of hurry and forcing, so that the observing and receptive faculties in young minds may be gaining strength for expanding later on. The advanced study of a language brings a variety of interesting subjects under notice. In sunnier climates than ours, for instance, appreciation of effects of Nature in form and colour is called for, and expressions have to be adapted accordingly—all a demand on the intellectual powers. Again, consideration must be given to physical facts of the country in question, as well as to the aspects in which some things are viewed by our Continental neighbours, which, by-the-by, often help to explain an otherwise unmeaning word; history and literature have at times to be referred to, and, in all countries, habits and customs bring with them a train of more or less important consequences and facts each with special designation, and it may be with other facts bearing on some of them, a knowledge of which might be useful for the opening up of fresh sources of trade.

German should not be attempted at too early an age, nor until the elementary paths of general knowledge have been left behind, especially encumbered, as the latter are, by our difficult and antiquated system of arithmetic. I cannot now enter on detailed suggestions for its teaching beyond observing that, taken gradually and, to a considerable extent, orally, and pursued steadily for some three years before going into business, it cannot fail of success for practical purposes. Recitations, &c., are, of course, desirable from the first, such as Schiller's few lines so grandly describing the lion's entrance into the arena, which occur to me as likely to stir the pulses and stimulate the imagination of the young.

As to comparing an English child with a German child of the same age, it is not fair, unless account be taken of the difficult nature of the English language, with derivations from almost every quarter of the globe, and the need of initiation into the meaning of scientific terms before any science can be entered on. German, on the contrary, is mainly a self-derived language, and it abounds, moreover, in recognized colloquialisms, so that the people, from their earliest years, are familiar with terms for forms of plant growth, parts of flowers, and so forth; whereas we have no option but to use scientific nomenclature. German compounds seem difficult to foreigners, but really often help to elucidate scientific subjects—*e.g.*, *Erdkunde*; and, among current colloquialisms, “the ambassador” becomes “the messenger.”

I must now conclude my suggestions offered in the interests of our industrial classes, who have to begin the battle of life early; for others who can carry on their studies further seriously there are ample opportunities and excellent books.

### THE COMING EDUCATION BILL.

THE REV. JAMES GOW, Litt.D., Head Master of Westminster School, President of the Incorporated Association of Head Masters, took the chair on January 9 at the Annual General Meeting of the Association, held at the Guildhall, and commenced the proceedings by delivering an inaugural address. He said he had not been surprised that the Duke of Devonshire, at Liverpool, confessed himself bewildered by the utterances of so-called educational experts, and could not make out what they were driving at. He himself (the Chairman) would, under those circumstances, have consulted the politicians, the schoolmasters, the educational theorists, and the men of business, each on their special topic, and then he would have made up his mind what Bill to introduce. It was plain, from the Duke's letter to Sir John Hibbert, that the Bill would have only a reflex action on the existing endowed schools, but it would be idle to discuss the reflex action when they had no information at all about what the direct action was going to be. He did not believe that any Education Bill could have the desired effect—which was to produce a well educated, industrious, and intelligent people. The people of this country were notoriously not docile, but that was of little importance. The Scotch were even more indocile, but they loved learning and taught themselves. The English, on the other hand, or a great part of them, and especially those who set

the fashion, did not love learning at all, and would neither learn nor teach themselves. It was as impossible to make such a people intelligent and industrious by Act of Parliament as it was to make them sober by the same means. What was lacking was a general pleasure in the exercise of mental energy, a desire to learn, and an interest in processes of learning. This had been produced in Germany by means which we were determined not to try—namely, by the extreme simplicity of the apparatus of teaching. It was obvious that where there were only a few types of school, everybody could understand them and take an interest in them, and choose deliberately what sort of school he preferred. This simplicity was an aid to intellectual intercourse, for Germans had nearly the same fund of learning as a basis of conversation. But in England schools had nothing in common but their games, and the conversation of two Englishmen naturally gravitated to cricket and football, and the weather. He thought the demand for an Education Bill was mainly a demand for commodities, and not really a demand for education. The people whose children were the subjects of education were profoundly indifferent to the whole movement, and, if they deliberately chose a school at all, they did so for social reasons, and did not inquire into the education given there. Dr. Gow went on to complain of the amateur being frightened away and got rid of in music, art, literary and debating societies, and all intellectual hobbies, and even in charitable work. Much of the best work in every branch of education had been done by amateurs. It would seem that, as in athletics the tendency was for a few men to be professional and all the rest lookers-on, so also in education everybody would drop his books so soon as he found that he could not be a professor and make his living by them. That would be a great and irretrievable national disaster. It could not be too strongly urged that the main purpose of education was to give a man some pure and salutary occupation for his leisure, because it was in his leisure that he fell into the mischief which sapped his working energies. There was grave danger that the education which we were going to give our youth might be such as to turn them out superficially finished and competent for a time, but rotten at the core, unwilling to learn anything that did not pay, and unable to learn that because they had not kept their intelligence lively and in working order. Therefore, because the character of the nation appeared to be such that most of us would not learn, and the few that would were easily abashed in the presence of a professor, he hoped that the new Education Bill would not be a very drastic affair. The adjustment of administrative difficulties, the support of institutions that were languishing for lack of funds, and the starting of a few experiments were, in his judgment, sufficient for the moment. The disease was not to be cured in a hurry. A little Bill every year, and a vigilant Education Department, would do more good than a big Bill that would go through the country like an earthquake. A series of small Bills would alarm nobody, would maintain the public interest in education, and would keep the Department on the *qui vive*.

On the motion of the Rev. A. F. Ruttly (Leatherhead) it was resolved: "That the next Education Bill provide (1) for the efficient control of all secondary schools; (2) that every school under the supervision of a Local Authority should have a right of appeal from the Local Authority to the Board of Education in matters of curriculum and administration as well as of finance." In proposing this resolution, Mr. Ruttly said that all inefficient schools should be ruthlessly swept away. He trusted they would never yield to an agitation to model their schools on the German plan. They did not want English boys to be like German boys; what they wanted was to retain the English type of schoolboy and school, but at the same time to beat the foreigners where they were apparently gaining the superiority. He thought that that was perfectly simple—our students must work as hard as the German students. So long as we regarded our work as subsidiary to our games, so long must we expect the German to prevail in those fields in which the trained intellect must secure an ascendancy.

## CORRESPONDENCE.

### "THE MIND OF A CHILD."

To the Editor of the Educational Times.

SIR,—In a kind notice of my book, "The Mind of a Child," your reviewer says that my description of Wordsworth's "Anecdote for Fathers" is not quite correct, and that therefore I have missed the subtlety of the little poem. I am ashamed to say that I have not had a Wordsworth in my hand for years. I have one now, and I see that

your reviewer says truly when he points out that my description of the story is not quite correct; but I do not allow that by my mistake—one of narration—I have misread the moral, or, as your reviewer would say, "missed the subtlety of the little poem." If he has a different reading to mine of the lesson to be drawn from the little story, I should be much interested to hear it—I am, faithfully yours,

St. Edmund's Lodge, Hindhead, Surrey,  
December 7, 1902.

ENNIS RICHMOND.

[REVIEWER'S NOTE.—No fault was found in the review with the moral drawn by Mrs. Richmond, which is beyond question, Wordsworth's sub-title to his poem being: "How the Practice of Lying may be Taught." The subtlety, however, was missed. Wordsworth's child, when pestered for a reason, said he preferred his old home of a year ago because it had *no weathercock*. The persistence of the father has driven the child to this extraordinary ingenuity; whereas, in Mrs. Richmond's form of the story, the child gives a natural reason, which might be the true one.]

## ADJOURNED MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.

An Adjourned Meeting of the Council was held at the College on January 25. Present: Mr. Eve (in the Chair), Mr. Barlet, Mr. Baumann, Rev. J. O. Bevan, Mrs. Bryant, Mr. Charles, Miss Day, Mr. Harris, Mr. Leatham, Mr. Pinches, Dr. R. P. Scott, Rev. T. W. Sharpe, Mr. Storr, and Dr. Wormell.

Diplomas were awarded to the successful candidates at the Christmas Examination of Teachers, as follows:—

### Fellowship:

Morris, W. R.

### Licentiate-ship:

Simmons, F.

Yates, H. R.

### Associateship:

Bailey, P. D.  
Michell, S. H.

Fincher, Miss G. V.  
Fox, S. T.  
Frost, T. J.  
Gandy, Miss E. S.  
Garside, W.  
Gliddon, Miss M. A.  
Glover, H.  
Goldsmith, W. R.  
Goodyear, A. S.  
Gover, Miss L.  
Graham, A. E.  
Harnden, Miss E.  
Hartridge, A. R.  
Harvey, Miss E. H.  
Henshall, A. E.  
Hibell, Miss M. J.  
Horn, Miss E. E.  
Hughes, C. B.  
Hugo, Miss C.  
Jackson, G.  
Jefferson, S. C.  
Jones, Miss M.  
Judges, A. P.  
Jupe, C. W. C.  
Kenney, J. P.  
Keeler, Miss E. C. J.  
Kerby, W. G.  
Kilvert, S. E. W.  
King, Miss E. S.  
Lagan, E.  
Lucas, Miss M. A.  
McFarlane, A.  
Malden, Miss E. L.  
Marley, J.  
Marsh, R.  
Mitchell, Miss S. H.

Abbott, H. A.  
Abern, Miss M. C.  
Andrews, W. J.  
Ashton, W.  
Bagnall, H.  
Bailey, Miss E. A.  
Bates, Miss E.  
Beck, C. H.  
Bennett, W.  
Bennett, Miss E.  
Blunt, J. H.  
Bowker, A.  
Browne, W. A.  
Brows, Miss M.  
Bruce, W.  
Burgess, Mrs. C. P.  
Carr, J.  
Clark, R. S.  
Clementson, G.  
Collinson, Miss K. S.  
Cort, A. J.  
Craig, D.  
Cross, J. E.  
Crowther, Miss E. A. P.  
Davies, T. B.  
Davis, S. J.  
Dawes, F. W.  
Dickinson, H. A.  
Dixon, A.  
Dilks, A. C.  
Doy, T.  
Ellis, R.  
Ellis, Miss C. F.  
Elvy, A.  
Everett, J. C.  
Finch, Miss F. B.

Morgan, O. J.  
Nathan, C.  
Neaves, E. E.  
Oliver, W.  
Osborn, W. J. B.  
Partlo, Miss B.  
Pells, H. H.  
Penn, Miss E.  
Perry, E. J.  
Raynes, Miss A.  
Read, C.  
Roberts, Miss A. J.  
Roberts, G. R.  
Rowland, E. C.  
Salter, Miss E. A.  
Saunders, Miss E. P.  
Scott, W.  
Smith, Miss F. R.  
Snelson, J. W.  
Southwell, W. T.  
Springall, H.  
Stendall, Miss E.  
Stevenson, Miss E.  
Tindall, Miss F. E.  
Tolson, Miss J. E.  
Trowell, A. A.  
Underhill, W. W.  
Vardey, Miss N. B.  
Varney, A.  
Vickers, Miss E.  
Walker, W.  
Westcott, W.  
Whistler, W. W.  
Williams, A. P.  
Windler, A. J.

The prize of £10 for Theory and Practice of Education was awarded to Mr. B. C. Wallis, and the prize of £5 for Natural Sciences to Mr. F. J. Wyeth.

THE CHILD STUDY ASSOCIATION.—On Friday, Jan. 10, Mr. Holman lectured to the members of this association, at the Sesame Club, on "Abstract Reasoning in Children." The lecturer observed that in children there could be traced well marked periods of mental development which broadly characterized certain ages. About the age of seven concrete thinking began; about the age of ten abstract thinking might be said to commence. But it was necessary to substantiate these ideas by investigation. He had compiled his results from answers written by over five hundred children to three test questions. There was a strange irrelevancy in some of these answers, and amusing examples of some of these blundering answers were given. The greatest percentage of good-thought answers were given by children of ten years. Strangely enough, the poor-thought answers increased after that age. Ten was the critical age when the child began to develop abstract thinking. In a year or two that might be drilled out of it. Ordinary school work afforded better opportunities for child study than special taste.

TEACHERS' DIPLOMA EXAMINATION—PASS LIST, JANUARY, 1902.

*Theory and Practice of Education.*

- FELLOWSHIP.**  
 Bunston, Miss A.  
 Wallis, B. C.
- LICENTIATESHIP.**  
 Alexander, W. B.  
 Ash, E. W.  
 Bailey, P. D.  
 Calaminus, O. P. A.  
 Camp, J.  
 Evans, J.  
 Heath, C.  
 Lock, Miss A. J.  
 Mathieson, L. W.  
 Michell, S. H.  
 Motts, S. F.  
 Rathbone, J. S.  
 Roberts, R. R.  
 Shuard, W. D.  
 Simmons, F.  
 Wicks, Miss A.  
 Wyeth, F. J.  
 Yates, H. R.

**ASSOCIATESHIP.**

- Abbott, H. A.  
 Adams, J. S.  
 Ahern, Miss M. C.  
 Andrews, W. J.  
 Ashton, W.  
 Bagnall, H.  
 Bailey, Miss E. A.  
 Bates, Miss E.  
 Baugh, Miss M. M.  
 Buller, Miss A. M.  
 Beck, C. H.  
 Bennett, Miss E.  
 Bennett, W.  
 Blunt, J. H.  
 Belzer, J. P.  
 Botheras, W. G.  
 Bowden, A.  
 Bowker, A.  
 Browne, W. A.  
 Browns, Miss M.  
 Bruce, W.  
 Burgess, Mrs. C. P.  
 Capewell, J. J.  
 Carss, J.  
 Chapman, Miss F.  
 Clark, R. S.  
 Clementson, G.  
 Collinson, Miss K. S.  
 Coomb, A. B.  
 Crane, F. W.  
 Cross, J. E.  
 Davies, T. B.  
 Davis, S. J.  
 Dawes, F. W.  
 Dickinson, H. A.  
 Dilks, A. C.  
 Dixon, A.  
 Dominey, G. W.  
 Doy, T.  
 Dyer, Miss A.  
 Dyson, F. L.  
 Ellis, Miss C. F.  
 Ellis, R.  
 Elvy, A.  
 Everett, J. C.  
 Finch, Miss P. B.  
 Fincher, Miss G. V.  
 Forde, J. P. D.  
 Fox, S. T.  
 Frost, T. J.  
 Gandy, Miss E. S.  
 Garside, W.  
 Glover, H.  
 Goldsmith, W. R.  
 Goodyear, A. S.  
 Gover, Miss L.  
 Graham, A. E.  
 Grayshon, L. N.  
 Harnden, Miss E.  
 Harris, A. H.  
 Hartridge, A. R.  
 Harvey, Miss E. H.  
 Hatchard, E. S.  
 Henshall, A. E.  
 Hibell, Miss M. J.  
 Holden, E.  
 Horn, Miss E. E.  
 Hughes, C. B.  
 Hugo, Miss C.  
 Jackson, G.  
 Jefferson, S. C.  
 Johnson, L. F. B.  
 Jones, Miss M.  
 Jupe, C. W. C.  
 Kearney, J. P.  
 Keeler, Miss E. C. J.  
 Kerby, W. G.  
 Kilvert, S. E. W.  
 King, Miss E. S.  
 Laidler, C.  
 Logan, E.  
 Malden, Miss E. L.

*Theory & Pract.—contd.*

- Marley, J.  
 Marsh, R.  
 Marshall, Miss E. P.  
 McFarlane, A.  
 Mitchell, Miss S. H.  
 Morgan, O. J.  
 Nathan, C.  
 Neves, E. E.  
 Orchard Sharp, Miss A. L.  
 Osborn, W. J. B.  
 Partlo, Miss B.  
 Pells, H. H.  
 Penn, Miss E.  
 Raynes, Miss A.  
 Read, C.  
 Roberts, Miss A. J.  
 Roberts, D. R.  
 Roberts, G. R.  
 Rowland, E. C.  
 Rowson, R. H.  
 Salter, Miss S. M. E.  
 Saunders, Miss E. B.  
 Scott, W.  
 Smith, Miss P. R.  
 Snelson, J. W.  
 Southwell, W. T.  
 Springall, H.  
 Stendall, Miss E.  
 Stevenson, Miss E.  
 Tolson, Miss J. E.  
 Trowell, A. A.  
 Underhill, W. W.  
 Vardey, Miss N. B.  
 Varney, A.  
 Vizards, Miss E.  
 Walker, W.  
 Westcott, W.  
 Whistler, W. W.  
 Williams, A. P.  
 Windler, A. J.

*English.*

- Andrews, W. J.  
 Arnold, W. J.  
 Barnes, Miss H. M.  
 Barnfather, D. J.  
 Bowden, A.  
 Calaminus, O. P. A. (hon.)  
 Carr, J. W.  
 Chapman, S. B.  
 Chinn, W. H.  
 Clark, Miss S. M. E.  
 Cobbold, P. J.  
 Copping, H. H.  
 Cossins, H. J. D.  
 Cowling, W. J.  
 Cranch, Miss M. L.  
 Drake, H. J.  
 Edwards, J. J.  
 Essex, R. G.  
 Exell, F. G.  
 Field, Miss M.  
 Firman, W. C.  
 Galpin, W. H.  
 Gandy, Miss E. S.  
 Gilbert, J. W. H.  
 Goodyear, A. S.  
 Grayshon, L. N.  
 Groves, F. L.  
 Hands, Miss E. M.  
 Hardy, F.  
 Hatchard, E. S.  
 Hipkin, Miss M. P.  
 Hughes, A.  
 Hes, Miss E. E.  
 Johnson, G. F.  
 Jones, D. E.  
 Judges, A. P.  
 Kaufmann, J. E. M.  
 Kendon, A. J.  
 Laidler, C. (hon.)  
 Lancaster, J.  
 Letts, E. S.  
 Lilley, W.  
 Lobley, J. A.  
 Marris, Miss F. M.  
 Marshall, Miss E. P.  
 Mellor, H.  
 Papworth, J.  
 Pursons, Miss A. de L.  
 Partington, Miss A. F.  
 Phillips, G.  
 Piffe-Phelps, W.  
 Price, W. J.  
 Ravenhill, G.  
 Roberts, D. R.  
 Robinson, Miss M. A.  
 Roe, Miss M. B.  
 Rogers, Miss S. E.  
 Rowson, R. H.  
 Scott, W. (hon.)  
 Seckler, H. C. A.  
 Sedgwick, W.  
 Selwyn, Miss G. E.  
 Seward, J. B.  
 Sheppard, W. A.  
 Skyrn, L.  
 Sporne, A. C.

*English—continued.*

- Stedman, P. H.  
 Stubbins, T.  
 Sweetman, J. P.  
 Taylor, Miss L. M. R.  
 Tindall, Miss F. E.  
 Warth, Miss H.  
 Watkins, W. L.  
 Watts, P. M.  
 Williams, E. W.  
 Young, J.

*English History.*

- Adams, J. S.  
 Andrews, W. J. (hon.)  
 Arnold, W. J.  
 Barnfather, D. J.  
 Bowden, A.  
 Calaminus, O. P. A. (hon.)  
 Chapman, S. B.  
 Chinn, W. H.  
 Clarke, Miss S. M. E.  
 Collard, Miss F. M.  
 Collier, H.  
 Cossins, H. J. D.  
 Cowling, W. J.  
 Craig, D.  
 Crawford, Miss B.  
 Drake, H. J.  
 Dyson, F. L.  
 Edwards, J. J.  
 Essex, R. G.  
 Exell, F. G.  
 Field, Miss M.  
 Fursdon, Miss E.  
 Firman, W. C.  
 Galpin, W. H.  
 Gandy, Miss E. S.  
 Garland, J. G.  
 Gilbert, J. W. H.  
 Goodyear, A. S.  
 Groves, F. L.  
 Hardy, F.  
 Harris, A. H.  
 Hatchard, E. S.  
 Hipkin, Miss M. P.  
 Hes, Miss E. E.  
 Judges, A. P.  
 Kaufmann, J. E. M.  
 Kendon, A. J.  
 Kilvert, S. E. W.  
 Lancaster, J.  
 Leach, Miss M. P.  
 Leicester Hulk, F. W.  
 Letts, E. S.  
 MacDonald, F. J.  
 Malden, Miss E. L.  
 Marshall, Miss E. P.  
 Martin, Miss F. M.  
 Mellor, H.  
 Mills, E. G.  
 Oliver, W.  
 Phillips, G.  
 Piffe-Phelps, W.  
 Ravenshill, G.  
 Roberts, D. R.  
 Roe, Miss M. B. (hon.)  
 Rathbone, J. S.  
 Rowson, R. H.  
 Scott, W.  
 Sedgwick, W.  
 Selwyn, Miss G. E.  
 Seymour, Miss E. E. L.  
 Spence, W. S. (hon.)  
 Stedman, D. C.  
 Stedman, P. H.  
 Taylor, Miss L. M. R.  
 Thomas, W. A.  
 Travers, Miss A. E.  
 Wilvandre, G.  
 Walter, Miss M. I.  
 Warth, Miss H.  
 Watkins, W. L.  
 Watts, P. M. (hon.)  
 Williams, E. W.

*Geography.*

- Andrews, W. J.  
 Arnold, W. J.  
 Barnfather, D. J.  
 Blunt, J. H.  
 Bowden, A.  
 Calaminus, O. P. A.  
 Chinn, W. H.  
 Clark, Miss G. M.  
 Clarke, Miss S. M. E.  
 Collard, Miss F. M.  
 Copping, H. H.  
 Cowling, W. J.  
 Edwards, J. J.  
 Essex, R. G.  
 Exell, F. G.  
 Firman, W. C.  
 Fursdon, Miss E.  
 Galpin, W. H.  
 Galpin, Miss E. S.  
 Gilbert, J. W. H.  
 Goodyear, A. S.

*Geography—continued.*

- Hatchard, E. S.  
 Hipkin, Miss M. P.  
 Hughes, A.  
 Hes, Miss E. E.  
 Jones, A. P.  
 Kendon, A. J.  
 Lancaster, J. (hon.)  
 Letts, E. S.  
 Lobley, J. A.  
 Marshall, Miss E. P.  
 Mills, E. G.  
 Papworth, J.  
 Parker, Miss H.  
 Partington, Miss A. F.  
 Phillips, G.  
 Piffe-Phelps, W.  
 Price, W. J.  
 Ravenhill, G.  
 Roberts, D. R.  
 Rogers, Miss S. E.  
 Rowson, R. H.  
 Scott, W. (hon.)  
 Seckler, H. C. A.  
 Sedgwick, W.  
 Sheppard, W. A.  
 Skyrn, L.  
 Spence, W. S.  
 Sporne, A. C.  
 Taylor, Miss L. M. R.  
 Vilvandre, G.  
 Walter, Miss M. I.  
 Watts, P. M.  
 Williams, E. W.  
 Young, J.

*Arithmetic.*

- Andrews, W. J. (hon.)  
 Arnold, W. J.  
 Barnfather, D. J.  
 Carr, J. W.  
 Collinson, Miss S. I.  
 Cowling, W. J.  
 Crowther, Miss E. A. P.  
 Craig, D.  
 De'Ath, J. E.  
 Done, A. B.  
 Drake, H. J.  
 Edwards, J. J.  
 Essex, R. G.  
 Exell, F. G.  
 Firman, W. C.  
 Gandy, Miss E. S.  
 Gilbert, J. W. H.  
 Gliddon, Miss M. A.  
 Goodyear, A. S.  
 Grayshon, L. N.  
 Hatchard, E. S.  
 Hughes, A.  
 Hes, Miss E. E.  
 Johnson, L. F. E.  
 Judges, A. P.  
 Kaufmann, J. E. M.  
 Kendon, A. J.  
 Lancaster, J.  
 Leach, Miss M. P.  
 Letts, E. S.  
 Lobley, J. A.  
 Logan, E.  
 Martin, Miss F. M.  
 Mellor, H.  
 Papworth, J.  
 Price, W. J.  
 Rogers, Miss S. E.  
 Rowson, R. H.  
 Scott, W.  
 Seckler, H. C. A.  
 Sedgwick, W.  
 Seward, J. B. (hon.)  
 Skyrn, L.  
 Spence, W. S.  
 Sporne, A. C.  
 Steele, Miss E. M.  
 Stubbins, T.  
 Tindall, Miss F. E.  
 Tudor, E.  
 Vilvandre, G.  
 Watkins, W. L.  
 Watts, P. M.  
 Whitechurch, E. C.  
 Young, J.

*Algebra.*

- LICENTIATESHIP.**  
 Alexander, W. B.  
 Jones, W.  
 Marsh, J.  
 Simmons, F.
- ASSOCIATESHIP.**  
 Andrews, W. J.  
 Exell, F. G.  
 Goodyear, A. S.  
 Lancaster, J.  
 Mayo, H. W.  
 Seward, J. B.

*Euclid.*

- FELLOWSHIP.**  
 Bobb, F. J.
- LICENTIATESHIP.**  
 Alexander, W. B.  
 Barker, H. O.  
 Lancaster, J. (hon.)  
 Letts, E. S.  
 Jones, W.  
 Summons, F.  
 Stubbins, T.  
 Tutman, E. T. S.
- ASSOCIATESHIP.**  
 Andrews, W. J. (hon.)  
 Arnold, W. J.  
 Cobbold, P. J.  
 Copping, H. H.  
 Cossins, H. J. D.  
 Cort, A. J.  
 De'Ath, J. E.  
 Done, A. B.  
 Edwards, J. J.  
 Exell, F. G.  
 Firman, W. C.  
 Galpin, W. H.  
 Gilbert, J. W. H.  
 Goodyear, A. S.  
 Hardy, F.  
 Hatchard, E. S.  
 Lancaster, J.  
 Mayo, H. W. (hon.)  
 Mellor, H.  
 Price, W. J.  
 Saunders, A. F.  
 Seward, J. B.  
 Sheppard, W. A.  
 Sporne, A. C.  
 Watts, P. M.

*Trigonometry.*

- LICENTIATESHIP.**  
 Alexander, W. B.  
 Hughes, A.  
 Shuard, W. D.  
 Simmons, F.  
 Tutman, E. T. S.

*Conics.*

- FELLOWSHIP.**  
 Ayres, T.  
 Morris, W. R.
- LICENTIATESHIP.**  
 Hughes, A.  
 Jones, S.  
 Marsh, J.  
 Mathieson, L. W.  
 Shuard, W. D.  
 Simmons, F.  
 Tutman, E. T. S.

*Calculus.*

- FELLOWSHIP.**  
 Babb, F. J.

*French.*

- FELLOWSHIP.**  
 Wallis, B. C.
- LICENTIATESHIP.**  
 Calaminus, O. P. A.  
 Michell, S. H.  
 Rathbone, J. S.  
 Witsker, J. E.
- ASSOCIATESHIP.**  
 Bowden, A. (hon.)  
 Collard, Miss F. M.  
 Crawford, Miss B. (hon.)  
 Crump, Miss J. M.  
 Divane, Miss H.  
 Fursdon, Miss E. (hon.)  
 Gandy, Miss E. S.  
 Leach, Miss M. P.  
 Marris, Miss F. M.  
 Marshall, Miss E. P.  
 Peirce, Miss M. E.  
 Van Roye, Miss L. (hon.)  
 Vilvandre, G. (hon.)

*German.*

- FELLOWSHIP.**  
 White, Miss F. A.
- LICENTIATESHIP.**  
 Lock, Miss A. J.
- ASSOCIATESHIP.**  
 Hipkin, Miss M. P.  
 Seckler, H. C. A. (hon.)

<p><i>Spanish.</i></p> <p>LICENTIATESHIP. Bray, A. C.</p> <p>ASSOCIATESHIP. Logan, E.</p> <p><i>Latin.</i></p> <p>FELLOWSHIP. Henderson, B. L. K. Wallis, B. C.</p> <p>LICENTIATESHIP. Calaminus, O. P. A. Longstaff, J. L. Michell, S. H. Tadman, E. T. S. Witsker, J. E.</p> <p>ASSOCIATESHIP. Blunt, J. H. Letts, E. S.</p> <p><i>Greek.</i></p> <p>LICENTIATESHIP. Tadman, E. T. S.</p>	<p><i>Experimental Physics.</i></p> <p>LICENTIATESHIP. Hughes, A. Marsh, J. Simmons, F.</p> <p>ASSOCIATESHIP. Bruce, W. Rider, J. B.</p> <p><i>Mechanics.</i></p> <p>ASSOCIATESHIP. Cort, A. J. (<i>hon.</i>) Forde, J. P. D. Mayo, H. W. (<i>hon.</i>) Pritchard, G. H.</p> <p><i>Astronomy.</i></p> <p>LICENTIATESHIP. Jones, W. Michell, S. H. (<i>hon.</i>) Stubbins, T. (<i>hon.</i>)</p> <p><i>Chemistry.</i></p> <p>LICENTIATESHIP. Barker, H. O. Hughes, A. Wyeth, F. J.</p>	<p><i>Chemistry—continued.</i></p> <p>ASSOCIATESHIP. Bennett, W. Cowling, W. J. Grayson, L. N. Johnson, G. F. Judges, A. P. Lucas, Miss M. A. Ludler, C. Perry, E. J. Scott, W.</p> <p><i>Animal Physiology.</i></p> <p>FELLOWSHIP. Bedwell, J. C. Bunston, Miss A. Kemp, A. White, Miss F. A.</p> <p>LICENTIATESHIP. Alexander, W. B. Barker, H. O. Collins, W. H. Cooke, R. Evans, J. Horsey, E. P. Jones, W. Knight, R. A. Michell, S. H.</p>	<p><i>Animal Phys.—cont.</i></p> <p>Motts, S. F. Rathbone, J. S. Simmons, F. Wicks, Miss A. Wilford, Miss E. Wyeth, F. J. (<i>hon.</i>)</p> <p>ASSOCIATESHIP. Adams, J. S. Bailey, C. J. Barnfather, D. J. Botheras, W. G. Bruce, W. Buttery, W. Capewell, J. J. Essex, R. G. Field, Miss M. Fryborough, C. Holden, E. Judges, A. P. Ludler, C. Lobley, J. A. MacDonald, F. J. Pritchard, G. H. Rogers, Miss S. E. Rowson, R. H. Schultz, Miss M. Scott, W.</p>	<p><i>Animal Phys.—cont.</i></p> <p>Sedwick, W. Seymour, Miss E. E. L. Stephenson, R. R. Sweetman, J. P. Taylor, Miss L. M. R. Thomas, Miss E. Tindall, Miss F. E. Walter, Miss M. I. Warth, Miss H. Young, J.</p> <p><i>Botany.</i></p> <p>LICENTIATESHIP. Alexander, W. B. Wilford, Miss E.</p> <p>ASSOCIATESHIP. Roberts, D. R. Rogers, Miss S. E. Taylor, Miss L. M. R. Thomas, Miss E.</p> <p><i>Geology.</i></p> <p>ASSOCIATESHIP. James, Miss E. Tindall, Miss F. E.</p>
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## REVIEWS.

### HISTORY TEACHING AGAIN.

*Essays on the Teaching of History.* By Messrs. Maitland, Gwatkin, Poole, Heitland, Cunningham, Tanner, Woodward, Marten, and Ashley. (Cambridge University Press.)

These essays must needs be welcome to teachers of history and intending teachers of history. It is well when those who are preparing for the work of teaching can answer at the same time the two questions: What shall we teach? and How shall we teach it? Herein lies the difference between the methods of study in a training college for teachers and those of an ordinary University college. In the former, no sooner is a portion of knowledge examined and acquired than the question of how to teach it is dealt with. Because the two acquisitions are closely interwoven in nearly all these essays the book is eminently one for teachers. They were to have been edited jointly by Lord Acton and Mr. W. A. J. Archbold, but the former has been unable to take the part intended for him.

The introduction by the remaining editor is a history of the teaching of history in the English Universities. He shows that the attempt to teach history, if thereby be meant a serious endeavour to make historical study one of the main studies of the Universities, is very new. It has attained the manly estate of one-and-twenty years and a little more. But not much more.

It is true that the William Camden Professorship at Oxford was established in 1622; but the academical interest in the subject has fluctuated much in the three centuries. During the seventeenth century the professors were men who left their mark behind them; then, however, there was a fall. Strange to say the rekindling of interest came from an unexpected quarter. George I. had "observed that no encouragement or provision had been made in either of the Universities for the study of modern history or modern languages." Also he had "seriously weighed the prejudice that had accrued to the said Universities from this defect, persons of foreign nations being often employed in the education and tuition of youth both at home and in their travels." It may well have struck His Majesty that, if it was a defect on his part to speak no English, it was a defect on the part of his Ministers to speak no German. The masters and scholars of Cambridge accepted the royal view, and joined in the complaint that "foreign tutors had so large a share in the education of our youth both at home and in their travels." They even dared to foresee a glad day when "there should be a sufficient number of academical persons well versed in the knowledge of foreign courts, and well instructed in their respective languages, when a familiarity with the living tongues should be superadded to that with the dead ones." A little—very little—resulted from the movement, and the conclusion of the editor is that even now "more co-operation, more organization, more and better criticism, more advice for beginners are needed. The need, if not met, will increase. History is lengthening, widening, and deepening. There is much to be done by schools of history; there will be more to be done each year."

The first of the essays is on "The Teaching of Ecclesiastical History," and it opens with the following statement:—

He that will be a teacher of ecclesiastical history must lay it to heart

that there is neither art nor mystery in the matter beyond the art and mystery of teaching history in general.

Thus under the special heading the discussion immediately becomes general:

Our chief aims in the practical teaching of history are three—to rouse interest, to give the guiding facts, and to teach the principles of research and criticism which enable men not only to become their own teachers, but to return and see for themselves how far we rightly gave them the guiding facts.

The degree of relative importance of these aims from childhood upwards is discussed. The characteristics of the ideal lecture and the ideal lesson are discussed, and many, if not most, of the recommendations apply equally well to the teaching of other subjects. For instance: "The teacher can commit no more crying sin than in thinking that inferior work is good enough for backward students." The same remark applies to an examination of the mutual helpfulness of lectures and teaching by papers. The conclusion of the essay reminds one of a question on the geography of Germany once submitted to candidates for matriculation at London. A candidate wrote out the geography of Europe, and added that, respecting the geography of Germany, he had nothing further to say. The essayist says: "As regards the teaching of ecclesiastical as distinct from that of general history, I really have nothing to say."

The next essay, on "Teaching of Palaeography and Diplomatic," by R. L. Poole, M.A., the Reader in Diplomatic in the University of Oxford, is a little more special. Diplomatic, it seems, is a substantive, and means "the science of documents." The science which deals with the rules of writing is Palaeography. These sciences are described and limited by the essayist.

The third essay is on "The Teaching of Ancient History," by W. E. Heitland, M.A. It opens out again, and the student is told that "history starts by looking backward, but it must go forward that it may look backward." It concludes, however, with a modest statement, reminding one of a remark of the late Serjeant Ballantine when he had before him in the witness-box a high personage. He said: "I decline the honour of cross-examining a Prince of the Blood." Our author says: "I shall decline the impertinence of offering general advice to teachers. Let me conclude with the harmless commonplace that, as the teacher cannot do without books, so books cannot do without the man."

After "Economic History," by Rev. W. Cunningham, D.D., Lecturer at Trinity College, Cambridge, comes "Constitutional History," by J. R. Tanner, M.A. of St. John's, Cambridge. It begins, as usually, by removing its enclosures. "To those who hold that history is one and indivisible to speak of constitutional history is an offence." This position is well argued, and, on the ground that, "though the historian can sometimes afford to be a philosopher, the teacher of history must be a man of business," the treatment of constitutional history as a subject by itself is justified. The methods recommended for the teacher and also those recommended to the student are unobjectionable.

The essays on "The Teaching of History in Schools," by W. H. Woodward, of Christ Church, Oxford, and C. H. K. Marten, M.A. of Balliol, clearly demonstrate the right of history to rank as a school subject. "It not only increases knowledge and exercises mental faculty, but it stimulates interest in larger views of life



and action, and provides the continuance of that interest when the initiative of the teacher is withdrawn." The first of these two essays deals with "aims," the second with "practice." Conscious of the danger of pitching the aims so high as to make the teacher dissatisfied with himself and his methods, he concludes that "some satisfaction may be obtained if one succeeds in preparing a boy to read history for himself and to appreciate its lessons in life." This conclusion might also be applied to other subjects."

*The Coephori of Æschylus.* With Critical Notes, Commentary, Translation and a Recension of the *Scholia*. By T. G. Tucker, Litt.D. (Cambridge University Press.)

Groping our way once more through the "Libation-bearers," we are deeply impressed with the ingenuity, resourcefulness, and insight displayed by the latest interpreter of this excessively difficult play. Nor are these his only merits. Prof. Tucker combines besides ripe scholarship with fine taste. His translation is less impressive, less *Æschylean*, if we may say so, than Dr. Verrall's, but it is none the less helpful for the understanding of the text, and it contains many meritorious passages. But the chief interest of the work centres in the introduction and the commentary; and it may at once be said that both are richly stocked with new and valuable contributions to the understanding of the wonderful drama of Orestes the Avenger.

Naturally a large part of the introduction is occupied with a comparison of the "Coephori" with the two "Electras" of Sophocles and Euripides. And in that comparison no point has taxed the commentators more than the famous "Recognition" scene. For practical purposes we may leave Sophocles aside in this matter; for, though the dedication of the lock of his hair by Orestes is a feature of the scene in all three plays, and may well have been, as Prof. Tucker suggests, one of the fixed elements in the story, yet in Sophocles the recognition of Orestes by Electra is a mere incident, and is, says Dr. Verrall, "of no importance at all to the mere mechanism of the plot." But the contrivance of Euripides is such that the union of Orestes and Electra is a first necessity of the action; for Orestes, until he has met his sister, will not even venture near Argos. In a notorious passage of the play, the "Recognition" scene, as treated by Æschylus, is sharply criticized. So fully has that criticism been refuted that the credit of Euripides can only be saved in the event of the passage in question being spurious. And this is what Prof. Tucker believes to be the case. Of course, even if Euripides did not write this carping and inaccurate attack on a brother dramatist, it by no means follows that the recognition by means of the lock of hair and the footprints, which Æschylus intended to make convincing to his audience, is, in point of fact, likely to have carried conviction. Is the evidence accepted by Electra inconclusive, and her reasoning absurd? To older critics the question appeared a matter of indifference, and even Conington and Paley affected to feel no interest in it. But both Dr. Verrall and Prof. Tucker have discussed it at length, and they agree in accepting the scene as satisfactory. There is, however, this important difference between them, that, whereas Dr. Verrall laid all the stress on the objective value of hair and feet as evidence, and attempted to show that in this case at least the two points of resemblance were certainly sufficient to support the conclusion that the marks were the marks of Orestes' feet, and the hair was the hair of none other than Orestes, Prof. Tucker, while pointing out the importance attached even in Homer to resemblance of feet and hair, lays much stress on the various circumstances that greatly enhance the persuasiveness of Electra's reasoning and may well have served to carry the audience with her. These circumstances are—(1) scenic aids; (2) the probability that the lock of hair figured prominently in the traditional form of the story. Above all—and this is certain—the frame of mind in which Electra was at the time counts for much.

But we must not dwell upon the details of the introduction—the instructive comparison of the three plays in the light of Aristotle's "Poetics," the history of the Orestes legend, and the valuable study of the Medicean manuscript. Dismissing these matters, which occupy a hundred pages, and coming to the text, we must pause a moment to notice the numerous conjectures of his own that the editor has introduced into the text. That he is particularly skilful in this kind of patchwork is already well known from his edition of the "Supplikes." Whether we agree with him or not, we can never withhold our admiration. His emendations are remarkably neat, and he never alters, except where alteration is clearly necessary. He does not, as

some German scholars do, exercise his ingenuity for the amusement of the thing or on mere subjective grounds. Considering the state of the manuscript evidence, he must be pronounced moderate and conservative. In the commentary the two most conspicuous merits are the clear insight Prof. Tucker always shows and his minute acquaintance with the usage of classical authors. However obscure the text may be in its present state, he always seizes and brings out the essential points, and within these, as it were, he draws out his figure of the whole meaning. Of course, the result cannot always be certain. The picture he gives of it, always vivid, is by no means always convincing. But where his interpretation is not justified by the text it is probable that the meaning in the details is beyond recovery. The illustrations, freely drawn from prose and verse, are unusually valuable. Not only are they always apposite, but they never fail. Every word, construction, particle is justified and exemplified, and no detail, however minute, escapes the editor's notice.

In the critical notes and the recension of the *scholia* we have important *subsidia*, and much information is brought together that is not elsewhere collected in a convenient compass. In these parts of his work, Prof. Tucker has, of course, worked on the critical apparatus of Wecklein and Vitelli.

It is greatly to be hoped that Prof. Tucker will ultimately complete an edition of the whole trilogy. If he does, it may be confidently predicted that he will "throw three sixes," and, besides, will have reason to be much better satisfied with his third libation than Electra was with her second.

#### OUR WIDENING REALM.

*The Growth of the Empire.* By A. W. Jose. (Murray).

This is not entirely a new book. The first six chapters and part of the seventh have already gone through two editions in Australia. The remainder of the work, bringing it down to the end of the last century, is new. The introductory chapter contrasts the British Empire with other empires, ancient and modern, and enumerates the qualities essential to successful colonization—physical strength, adventurousness, the trading spirit, the settling spirit, the fighting spirit, adaptability to the native element, and the power of mastering it in such a way as to secure cheerful obedience. Next we have a brief sketch of the early stages of colonization and conquest, illustrated by a useful map of the early partition of America up to the middle of the seventeenth century.

The difficulty in writing a book of this kind is to observe a due sense of proportion, and in this the author seems to have been successful. A good example is to be found in his treatment of North America. The long struggle between England and France in the eighteenth century, the conflict of the doctrine of "hinterland" and river-mouths, England working inwards from the coast, and France resting her claims on the possession of the mouths of the St. Lawrence and the Mississippi, is briefly and clearly described. There is a good inset map of the triangle of which the apex is at Oswego on Lake Ontario, and of which the St. Lawrence and the sea form two sides, showing how the line of the Richelieu and the Upper Hudson formed the natural scene of combat. From the War of Independence the interest centres in Canada, the history of which is carried on through the period of partial self-government, the war of 1812 to 1814, which the writer considers to have done much to create the sense of Canadian nationality, and the revolt of 1837, to the Act of 1841 and the subsequent legislation based on Lord Durham's famous report, the result, it should be remembered, of only five months' tenure of office as Governor-General. A subsequent chapter carries on the story to our time, including the formation of the Dominion and the two rebellions under Louis Riel. It concludes with the still unsettled boundary dispute with the United States, which is illustrated by an excellent map.

In the chapter on India the land settlement of Cornwallis, which, carrying English ideas into the East, converted the *zamindars* into landlords, is discussed in all its bearings. Great stress is laid on the work of the Marquis Wellesley, placing the allied native States in the same position towards England as that which the members of the Confederacy of Delos occupied towards Athens, and surrounding them with a ring fence of British territory. Of the subsequent administration of Lord Dalhousie the writer says:

Hastings had made us secure in India, Wellesley had made us paramount; for Dalhousie it was reserved to round off our territory, to make us protectors of the people as well as their rulers, and to settle

not only the administrative, but the industrial, development of India, along lines which it follows steadily at the present moment. If British India now reaches from Chitral to the Mekong, it is because Dalhousie of set policy extended it from Peshawur to Pegu. If the peoples of India seem within measurable distance of becoming the Indian people, it is because, with roads and canals and railways and telegraphs, he bound firmly together the cumbrous, ill-cohering mass, and by sharp lessons in Oudh and Berar and Nagpur taught princes and subjects alike that under British protection only wise and benevolent systems of government can dare to hope for existence.

Perhaps a little more space might have been given to the history of India since the Mutiny, and, in particular, to the pros and cons of the policy of "masterly inactivity."

The story of Australasia is, perhaps, the least interesting portion of the book; the contrast between the achievements of the present and the small, and in some respects sordid, beginnings of the great Australian colony is hardly brought out with sufficient clearness. The reader hardly rises from its perusal with an adequate conception of what Australia is. We should have liked, too, some notice of recent legislation in New Zealand, grappling, as it does, with problems that have, from time immemorial, exercised the minds of thoughtful statesmen. Africa is dealt with at considerable length; and the chapter on that subject has been re-written after the study of original authorities on the southern part of the Continent, and is not uninfluenced by the emotions of the present time. The book is brightly written, and is well illustrated by suggestive maps.

#### COMPARISONS FROM ABROAD.

##### *Schools at Home and Abroad.* By R. E. Hughes, M.A.

This book is a collection of essays and addresses on subjects connected with primary and secondary education, and is chiefly valuable for the wide knowledge shown of the present condition of education in Germany and the United States. The author is an Inspector of Elementary Schools under the Board of Education, which accounts probably for the sympathetic and sanguine view taken of the present state of elementary education in this country. A somewhat unpleasing view of the American primary teacher is presented. He is wedded to the prescribed text-book, and is seldom properly trained for the practice of his profession, and only a very small percentage of elementary teachers are male. In fact, Mr. Hughes says, the American male teacher will soon be as extinct as the bison—a forecast entirely justified by some of the statistics presented in his essay, "The Half-Way House." The small confidence placed in the American teacher by his educational superiors is shown by the fact that he is closely supervised; while in Germany the teacher is first carefully trained and then left largely alone. "The Government inspector sees him once in about four or five years." Of course he is not entirely without criticism, because the local pastor—or priest in a Catholic district—acts as both school correspondent and inspector, but he has an assured position and a professional status which leaves him no substantial grievance. Mr. Hughes is at his best when he confines himself to noting facts and distinctions between foreign methods and our own. He has a power of clear observation; but when he dives into problems of educational theory, as in his paper on "The Fundamentals of Training," the result is hardly more than attenuated generalities upon a substratum of Rousseau's views. To maintain, as he does, that character is neither moulded by nor proportioned to proficiency in formal studies is not in accordance with the experience of many teachers. A thorough knowledge of any formal study gives a mental standard of exactness which has a deep influence upon character. We wish it were true that the development of character were the primary aim of English public-school teachers, as he maintains it to be. Most critics of public-school education deplore the absence of any such aim in a definite form. The mode in which a play of Shakespeare is studied is sufficient proof of this.

We heartily approve of Mr. Hughes's views as to the utter futility of introducing commercial subjects in either the primary or secondary school curriculum. And the establishment of "modern sides" does not solve the difficulty. In Germany the commercial school is a secondary school with the study of modern languages and science as the basis of its curriculum. Such an arrangement as our "modern sides," existing for the sole purpose of feeding the Civil Service Commissioners' net, is an unknown complication of the educational organism. As sensible curricula we commend to the notice of our readers those given in the chapter on "Commercial Education" from existing schools in Germany and Austria. In order to provide a relaxa-

tion from the severer problems of his subject the author includes an address on "Characteristics of Childhood," which is only a collection of *facetiæ* from school life, some of which are fresh.

##### *Commercial Correspondence.* By E. H. Coumbe, B.A. (Edinburgh Wilson.)

This book consists of definitions of commercial terms and explanations of commercial documents, together with specimen letters, "couched," says the preface, "in the terse, almost abrupt, style of a modern business man." The explanatory portions will be useful to candidates for business, but we cannot commend the model correspondence, and are of opinion that a good training in general composition would be preferable.

Commercial correspondence should be clear and unmistakable in its meaning. The following are not good models in this respect:—

We are informed that the following parcel which we handed over to you on the — has not yet arrived. We request you to make inquiries, and to let us have your answer as soon as possible. (Page 136.)

Arrived where? No doubt the parcel has arrived somewhere. What is the query that has to be answered? Again:—

With reference to our memo respecting the parcel —, we beg to say that we are still without your final reply, and therefore bring this matter again before you. Expecting your answer —.

Why "final reply"? What was the query? It should be repeated. It is too frequently assumed that commercial correspondence may, and, indeed, ought to, violate ordinary rules or customs, particularly in an ungrammatical use of participles:—

Confirming our phone message to-day, the shirtings will be ready for despatch on Monday. (Page 137.)

Why not say: "We write to confirm, &c."? The answer is probably that the use of the participle marks the sentence as commercial. Again:—

The two pieces of cloth — are bad in quality. Would you kindly let me know if you will take them back, or allow me to sell them at a discount of 50 per cent.?

Of course, in the alternative, the *if* should be *whether*. The model letters for commercial travellers are full of solecisms and discords. A seller is supposed to write to his firm as follows:—

Trade in general is very quiet and nobody wants to buy more than they require. Next week I shall go to Scotland.

Buyer and seller it seems are examples of "diamond cut diamond."

I am sorry to have to report another grievance [the traveller is taught to write]. Mr. Stowe sent you a remittance and took off 2 per cent. As you only granted him 1½ per cent, he wants the difference of £8. 8s. allowed. If not, he refuses to see my samples. As I got 1s. 3d. per lb. for ten bags R. 2. from him instead of the usual price of 1s. 2½d., I presume you will fall in with his wish.

A good general education, with special attention to English composition, is certainly a better preparation for business than the copying of acres of these models. Brevity may be a feature of business letters, but this is no excuse for want of clear and explicit statement. The briefest correspondence may, however, be unambiguous. A merchant wishing his agent to report progress sent him a sheet of paper with only a note of interrogation on it. The agent replied by a zero. The fact is, in commercial matters as well as in matters of general correspondence, there are times when brevity is not the soul of business.

##### *The Stars: a Study of the Universe.* By Simon Newcomb. (John Murray.)

Astronomy, the first and most ancient of the sciences of observation, has progressed by leaps and bounds made at long intervals. Thales wrote on astronomy, and his prediction that a solar eclipse would occur on May 28, 585 B.C., gave prestige to his teaching and secured for him the title of one of the Seven Sages of Greece. Yet he was not understood of the multitude. When, while gazing at the stars, he fell into a ditch, an old woman sneeringly said to him: "How can you tell what is going on in the sky when you can't see what is lying at your feet?" And from that day almost to the present the multitude has looked on the "star gazers" as dreamers of dreams, to be sought after only when a forecast of the future is desired. But education is now all but universal, and popular expositions of the most advanced knowledge are in demand. The microscope *plus* photography has come to the aid of the telescope, and the increase of knowledge of the universe has become doubly accelerated. Hence

The subject is one specially suitable for treatment in Mr. Murray's "Science Series." We have Sir Robert S. Ball's fascinating works on "The Story of the Heavens" and "Star Land," but there is a place for such a work as this, which goes just a shade deeper into the subject and assumes the knowledge on the part of the reader of a little elementary geometry. For example, the exposition of Lane's law of gaseous attraction, that "when a spherical mass of incandescent gas contracts through loss of heat by radiation into space its temperature rises," is accompanied by a simple and convincing demonstration involving elementary mathematical notions. The first chapter plunges at once into an account of recent research, and exposes the marvellous revelations of the spectroscope. After this the various points in the constitution of the heavens are separately discussed, and the discussions are followed by such reasoning on the observations as can be made by "the man in the street," who is usually credited with an elementary education and common sense. So interesting is the work in every part that we venture to think few who take it up for serious reading will wish to cast it aside.

## GENERAL NOTICES.

### CLASSICS.

*The Metamorphoses of Ovid, Book I.* Edited by E. Ensor. (Blackie.)

Any attempt to popularize the "Metamorphoses" deserves commendation; they are hardly enough read in schools. The editor tells us in his preface that he has not consulted any previous edition. This is rather a mistake; the old edition of Burmann and a German school edition by Siebelis and Polle, among others, are well worth studying. He has, however, used the old metrical versions of Golding (1567) and Sandys (1632), but does not appear to have seen the excellent verse translation by Mr. Henry King. The notes are likely to be tolerably useful to schoolboys, but they do not reach a high level of scholarship, nor do they suggest many felicitous renderings. There are some suggestive references to English poetry. One or two obvious blunders may be quoted. For the passage describing the indignation of the gods at Lycaon's crime,

"Confremuere omnes, studiisque ardentibus ausum  
Talia deprecant,"

we have the rendering, "demand who has dared such deeds." This is wrong every way. *deprecant* means "demand for vengeance"; *ausum* could not possibly be the equivalent of a dependent question; and in the previous line Jupiter is told them the name of the culprit. Again, to

"Crudele, suos addicere amoris,  
Non dare, suspectum est,"

we find the note: "*Crudele* and *suspectum* are neuter, agreeing with the object-clause." The words *suos addicere amoris* are the subject of the sentence, and ought hardly to be called a clause; they are simply the equivalent of a noun. The introduction is commendably brief, and is written with spirit. The full-page illustrations are good; those printed in the text are often wanting in sharpness of outline.

*Virgil, Georgics I.* Edited by John Sargeant. (Blackwood.)

Mr. Sargeant's intimate acquaintance with Italy and his wide knowledge of botany render him peculiarly fitted to edit the "Georgics." And not only is he able to give plenty of local colour to his notes, but in all matters of interpretation he shows sound sense and independence of judgment. With its pictures, well written notes, and clear text, this is a most attractive edition, affording evidence everywhere of fine scholarship and close observation.

*Virgil, Æneid II.* Edited by M. T. Tatham. (Arnold.)

Mr. Tatham has had long experience in a sort of teaching that is always difficult and at times depressing. For pupils whose aspirations do not extend beyond the pass examinations he is a helpful guide. Perhaps some of the work he puts into his editions is rather too good for the purpose for which they are mainly intended. It is evident that he is himself far more interested in Virgil than his readers are likely to be; and the best of his notes are likely to be the least regarded. The introduction is substantially the same as has already appeared in his edition of the First Book; and it is very full of information. The vocabulary—which is surely justified here, if anywhere—would be better if the quantities were marked on some system; at present they are thinly scattered about, apparently at random.

*Virgil, Æneid V.* Edited by J. T. Phillipson. (Bell & Sons.)

Mr. Phillipson gives all that is required in an elementary edition—a short introduction, simple comments, without parallel passages or discussion. The book is well planned for those who have not advanced beyond Cæsar. In the vocabulary we have noticed a few minor misprints, and in the text (line 823) *te* is an unfortunate error for *et*. The scheme of conditional sentences, of which much use is made in the notes, is vitiated by the strange assumption that, *si vales, letus sum*

implies: "I am certain you are well." It is surprising that so good a teacher as Mr. Phillipson should lend countenance to this old-fashioned error. This is altogether the most elementary edition of Virgil that we have seen.

*Cicero, De Amicitia.* Edited by H. J. L. J. Massé. (Bell & Sons.)

Mr. Massé gives very short notes, but plenty of them. His introduction is confined to what is absolutely necessary. Several illustrative quotations are given in the text; some of those in Greek and Latin are so printed that it is possible to mistake them for part of the text. There are exercises for retranslation, an index of proper names, and a vocabulary. Junior students will find here all the help that they require in preparing for the class lesson. Mr. Massé would do well to add some long marks omitted in the vocabulary, and to number the sentences of the exercises.

*Latin Composition based upon Selections from Cæsar.*

By B. L. D'Ooge, Ph.D. (Ginn & Co.)

This is an exercise-book on Latin syntax, systematically arranged and based on selections from Cæsar. Each lesson consists of an easy oral exercise and a harder written one, the materials for which are to be found in a specified chapter of Cæsar. It differs from the exercises appended to Macmillan's "Blue Series" in being arranged so as to bring out definite points of syntax, and does for elementary teaching what one of the best composition books ever written—Simpson's "Cæsarian Prose"—does for higher composition. The principle is an excellent one.

### SCIENCE.

*An Elementary Physics.* By Charles Burton Thwing, Ph.D. Bonn. (American School and College Text-Book Agency.)

This volume is intended to form the basis of a thorough course of elementary physics suitable for secondary schools. The book is divided into two parts, of which the former treats of the first principles of matter, motion, and force, of heat, electricity, magnetism, sound, and light. The illustrations of the principles are drawn as far as possible from sources of observation within the reach of all. There is a most interesting section on work and energy, and the natural sequel to this is a discussion of the importance of *machines* and a description of several of them. Part I. includes also many sets of exercises suitable for the class-room. Part II. is devoted entirely to laboratory practice. Various instruments and their uses are described, and the author gives the details of a large number of practical exercises intended to be worked out by students themselves. In the selection of experiments for purposes of illustration the writer has borne in mind the limited apparatus at the disposal of many schools. An important feature of the book is the large number of diagrams, all of which are excellent.

### MODERN LANGUAGES.

*F. Goebel's Hermann der Cherusker.* Edited by J. Esser. (Macmillan.)

This is a volume of Dr. Siepmann's series, with the usual apparatus of practical exercises which has proved so useful. The story deals with the battle of the Teutoburger Wald and the destruction of the legions under Varus, which is historical, and with the early life of Arminius (Hermann), which is built up out of such materials of *Kulturgeschichte* as furnish the basis of Freytag's "Ingo und Ingraban." Arminius has become one of the national heroes of Germany, and has his monument on the Teutoburger Wald; probably he owes it to "Die Hermannschlacht" of Heinrich von Kleist, associated with the national uprising against Napoleon. The notes are very fair, though one sometimes misses the careful explanations required by phrases like "an sich halten," "er liess es dabei bewenden." On the other hand, notes on Rome, the Forum, the toga, and so on, might have been spared.

*Glück auf! a First Grammar Reader.* By Margarete Müller and Carl Wenckelbach. (Ginn & Co.)

This is a well arranged German reader by the two lady professors of Columbia College whose edition of "Maria Stuart" was noticed about a year ago in these columns. The introduction gives a good number of specimens of German and English cognates, including examples of Grimm's Law. After a few preliminary reading-lessons there is a section entitled "Aus dem deutschen Dichterland," in which the stories of a few familiar poems, such as "Lorelei" and "Das Schloss am Meer," are simply told, and the poems themselves are added. The rest of the book is made up of German legends, such as those of Balder and Siegfried, a few episodes of German history, and some anecdotes. The apparatus includes notes, a vocabulary, and questions for conversational practice. It seems to be one of the best German readers for beginners that we have met with.

From Messrs. Hachette we have a further supply of their well bound, well written, and well illustrated gift-books. *Le Secret des Tilleuls*, by Mme. Chéron de la Bruyère, and *Tante Picot*, by G. du Planty, are both in the "Bibliothèque Rose Series." The "secret" is not a very big one, being but the concealment of the accidental breakage of a valuable chronometer by a nervous boy, and the consequent trouble to innocent people while he has gone on a visit to England. His host is an English banker with the proverbial British family and British appetite, and he rejoices in the character-

istic name of Beaster; but he has seven nice little daughters, who, when the French boy gets ill in their father's house, send to his sisters at Tilleuls a Christmas pudding as an expression of their sympathy. Tante Picot is an old lady who pays a visit to Paris, accompanied by a little grand niece and nephew, an old country servant, a cat, a dog, and a parrot. She met with various adventures, as might be expected, of which we are told in an amusing way.

*Le Rubis de la Pérouse*, by G. de Beauregard, is a larger book than the two last mentioned, and is well and profusely illustrated. In it we have the adventures of two patriotic Frenchmen who are fired with a desire to find the tomb of the illustrious navigator La Pérouse, and bring his bones to rest in French soil. But the English Government hears of the project, and "Lord Salisbury sends orders to an old and noble sailor," Sir Richard Cardigan, "to start off at once and see what it means." He has just settled down to a well earned rest with his daughter in London, and "Miss Edwige" determines that where her father goes she goes too. Told in outline the incidents would seem improbable and even absurd; so, in justice to M. Beauregard's very interesting and well told story, we will not give a skeleton of the plot. Our author gives all credit to English bravery and patriotism, but does not allow his countrymen to suffer by comparison. The story ends in the betrothal of the fair Edwige to the patriotic Count. Roger de Fleurines, and the ruby ring of La Pérouse is placed on her finger.

#### MATHEMATICS.

*The Elements of Euclid, Book XI.* By R. Lachlan, Sc.D.  
(Edward Arnold.)

Dr. Lachlan has now added Book XI. to his edition of Euclid's 'Elements.' The author has not departed widely from the recognized demonstrations of the propositions, but he has succeeded in rendering these far more concise; and, where it has been possible, he has given to students the advantages of a direct, instead of an indirect, method of proof. The collection of definitions at the opening of the book is excellent. The propositions of the Eleventh Book, as usually studied, are followed by a very useful appendix, including some of the well known theorems which arise naturally out of the subject, and which illustrate the methods of modern geometry. The author has, moreover, added a large number of exercises.

*Summation of Series.* By G. H. Bateson Wright, D.D. (Relfe Brothers.)

In the preface to the present publication the author draws attention to the fact that students are apt to over-estimate the difficulty of the subject of series. He also suggests that there is a decided advantage to be derived from studying in a connected form the methods of dealing with the various typical series, which are generally discussed in treatises on higher algebra, but are usually more or less scattered as regards position. The present volume is, therefore, devoted to the treatment of the several classes of series that are of frequent occurrence and are included in the study of algebra. Attempts have been made in some cases to introduce methods of greater simplicity than those generally adopted, and the author believes some of these to be original. In an appendix to the volume the solution of indeterminate equations also receives attention. Both worked illustrative examples and a large collection of unworked exercises find place in the book. The form in which the volume has been brought out cannot be called a happily chosen one. In order to gain additional length of line and a large type without increasing the size of the pages, the text is not printed in the ordinary way; the lines run, instead, in a direction perpendicular to that usually adopted. And the result is far from convenient for readers, many of whom will certainly find that effort is necessary in order to become accustomed to the change.

*British Association Meeting at Glasgow, 1901. Discussion on the Teaching of Mathematics.* Edited by Prof. John Perry. (Macmillan.)

This little volume is within the reach of all, and should prove most interesting and valuable reading for the many who are engaged in mathematical and educational work, and who had, perhaps, neither the privilege of attending the discussion nor the opportunity of closely following, at the time, the proceedings of the British Association. Prof. Perry's opening address and proposed syllabus, together with the various speeches, are reproduced in full. The book, moreover, includes further comments by several of the speakers, the written views of some authorities who did not take part in the actual discussion, and, finally, Prof. Perry's "Reply." The primary motive for publishing the volume seems to have been the hope of its proving serviceable to the Committee appointed by the British Association to inquire into the question under consideration, viz., that of possible improvements in the teaching of mathematics and of the best means of securing them. It is, however, to be anticipated that very many beyond the limits of the Committee will avail themselves of the opportunity now afforded them of becoming acquainted with the views held on so important a subject by some of the leading authorities of the day. Naturally many will feel unable to accept, without reservation, the tenets of those even with whom they find themselves most in accord; but there will be encouragement for all who have systematically endeavoured to bring out in their methods of teaching the life inherent in each subject, and who have sought to inspire their pupils with a desire for further knowledge,

and not merely to produce a certain number of more or less capable machines.

*Plane Geometrical Drawing.* By R. C. Fawdry, M.A. (E. & F. N. Spon.)

This treatise is especially intended to meet the requirements of Army students preparing for examination, but there is no reason why others should not also use it. It assumes that the reader has already studied Euclid; and, as regards the text, the book is on the whole excellent, for it briefly indicates the basis of proof for every construction when this is possible, and does not simply give a rule to be learnt in a purely mechanical way. Some of the problems are not worded with sufficient care, but the defect is chiefly noticeable in the constructions given in a few of the earlier pages, and a very little revision would remove this. The summary of contents which heads each chapter will undoubtedly be of great service. In its diagrams, when considered in connexion with the text, the book is imperfect. Where dimensions are given at all in a problem, it is essential that the student should construct the figure on some selected and stated scale, to which he should throughout strictly adhere. The text-book which rigidly follows a similar course considerably enhances its educational value. It has often been clearly shown in the answers of candidates to examination questions that the majority have not in the least appreciated the special properties, say, of a triangle, which they have been asked to construct from given dimensions. Mr. Fawdry's work includes a large number of exercises and also a selection of recent Militia, Woolwich, and Sandhurst papers.

#### MISCELLANEOUS.

*The Earth's Beginning.* By Sir Robert Stawell Ball, LL.D., F.R.S.  
(Cassell.)

This book is a development of the Christmas lectures to juvenile audiences given at the Royal Institution twelve months ago. It is, therefore, "a popular exposition of that splendid branch of astronomy which treats of the evolution of the earth, the planets, and the sun from the fire-mist." The first chapter enunciates what is called in one place "the sublime theory," and in another "the immortal principle of the nebular theory." With the perfect art of a popular lecturer, Sir R. S. Ball leads his hearers and readers both to understand and accept the theory by gradually unfolding the contributions to it of Kunt, La Place, and William Herschel. "It is not a little remarkable," he says in opening the subject, "that the great philosopher from his profound meditation, the great mathematician from a life devoted to calculations about the laws of Nature, the great observer from sounding the depths of the firmament, should each, in the pursuit of his own line of work, have been led to believe that the grand course of Nature is essentially expressed by the nebular theory." The method illustrated in this case is adopted throughout the lectures—that is to say, each principle is so introduced that we are convinced of its high degree of probability, and our minds naturally seek for the physical cause that accounts for it. The method is carried out to perfection in chapters xiv., xv., and xvi., on the Three Concords—(1) that of the planes of the planets' orbits; (2) that of the direction of revolution of the planets and of the sun's rotation; (3) that of the rotations of the planets on their axes. In each case the notion of chance is first carefully eliminated, and then the physical explanation is sought for and discussed. In fact this interesting work, which may be described and read with pleasure, but which cannot be criticized, is, at the same time, a clear exposition of known facts, a model of method for lecturers and teachers, and a discipline in reasoning on natural phenomena.

*A Short History of England for School Use.* By Katharine Coman, Ph.B., and Elizabeth Kendall, M.A. (Macmillan.)

This is a simple and direct story of England from prehistoric times to the present. The proportion given to the matters recorded differs, in some respects, from that of the ordinary English text-book, but the work gains in interest by this feature. The life of the people in its homely detail in each period is described and illustrated by interesting pictures. Of these there are about two hundred in the book, and there are also thirty clear and coloured maps.

*The Student's Synopsis of English History.* Based chiefly upon Prof. Oman's "History of England." Compiled by C. H. Eastwood. (Edward Arnold.)

This is a useful note-book of condensed and tabulated facts and dates.

*Roman Political Institutions.* By F. F. Abbott. (Ginn.)

We have become accustomed to expect clearness combined with abundance of knowledge in the works of American scholars; and we do not look in vain for these qualities in Prof. Abbott's account of Roman institutions. His book is modest in compass, but it is a storehouse of references to the original authorities and to modern writers. The narrative is divided throughout into two sections—the one historical, the other descriptive—so that the book fulfils the functions of both a brief history and a manual of Roman political antiquities. In two appendices a few of the most important passages are given in full, but for the most part Prof. Abbott is content with marginal references and bibliographies. It is a misfortune that there is no room for the discussion of difficulties. Such important and controversial matters as the origin

of the *clientela*, the *lex Villia annalis*, and the bases of the Emperor's power are passed over with only a cursory reference to the many uncertainties by which the problems are complicated. The author thinks that the references given compensate for the lack of detail; but we could wish that at least a summary of the doubtful points were always given. However, the bibliography of modern works is very full, and will abundantly provide all that is needed by those who wish to carry their investigations further. On the growth of plebeian privilege, as shown by the Valerio-Horatian Laws, the Publilian Law of Philo, and the Hortensian Law, we miss a reference to Mr. Strachan-Davidson's article in the *Historical Review*; and for the Early Principate in general Prof. Bury's book certainly deserved to be mentioned. But, within its limits, this is an admirable book; and, despite the existence of Mr. Taylor's work on the same subject, it merits the attention of English historical students.

*The English Language: its History and Structure.* By W. H. Low, M.A. (W. B. Clive.)

The sixth edition of this now well known text-book has received several improvements on its predecessors. It has been revised and reset throughout, and important laws—as, for instance, Verner's law that spirants which were originally hard became soft in the first part of the Teutonic period—have acquired fuller treatment.

"Eyes and No Eyes Series," IV.—*Birds of the Air.* By Arabella B. Buckley. (Cassell.)

A charming little book on the habits and characteristics of birds, so written that children will read it with great pleasure and become enthusiastic scholars in this direction. The illustrations are a considerable help, and add another attraction.

(1) *Photographic Cameras*; (2) *Optical Lanterns.* Edited by Paul N. Haaluck. (Cassell.)

These are convenient and well illustrated handbooks, compiled by the editor of *Work* from the columns of that weekly journal. The information given would seem ample for those desirous of constructing their own apparatus or of being able to thoroughly understand and manipulate those in general use.

*The World of Animal Life.* Edited by Fred Smith. (Blackie.)

This is a systematic treatment of the animal world from apes to sponges. We have the main classification into vertebrates and invertebrates; then the subdivisions of mammals, birds, &c.; and, again, the division into carnivores, ungulates, rodents, and so on. The general characteristics of each class are stated first; then follows a description of some leading individual animals under the class, their structure and modes of life, written in a simple and chaty style. Some animals are treated at considerable length, others, again, somewhat too meagrely. From the point of view of completeness, it would have been better to have described a few at greater length and appended a list of the more important members of each class. But, for a prize or gift-book, intended to be read and enjoyed by children unassisted, it would be difficult to improve on this book as it is. It is certain to fascinate a child of any age. The illustrations, over two hundred in number, are good and lively, and form a special feature of the volume. We could only wish a pleasanter one had been chosen for the cover.

*Brush-Drawing.* By J. W. Nicol. (Blackie.)

This handbook is admirably suited to teachers who know nothing of brush-work and wish to enable themselves to teach it, and also to those teachers who are merely in need of copious exercises. The former will find that "brush-work" is no peculiar nostrum to be undertaken in fear and trembling, but only the simplest method for children to represent an object before them. Full directions are given, and broad principles very clearly laid down. The second part of the book is devoted to the main principles governing the construction of designs, and is excellently written and illustrated. Perhaps the most pleasing feature of the book is a negative one. The writer insists that it is in no sense intended to take the place of drawing from Nature, or, indeed, to encroach on the domain of the art teacher, but, rather, to help elementary teachers to the attainment of accuracy in their pupils, and to give suggestions for original work. At the same time, we cannot help thinking that some advanced teachers will find the book very useful as a change from ordinary work. The reaction from the old-fashioned freehand South Kensington copies has been an incalculable good; but Mr. Nicol wisely remarks that continual drawing from Nature—say, flowers—with all the irregularities of growth—is apt to produce inexactness and, perhaps, slovenliness. As a corrective to this, the occasional exercise in symmetrical drawing, especially in young pupils, must not be under-rated. We heartily welcome a book which treats in an eminently sane manner a subject which was threatening to become a fad.

(1) *Beasts of the Field.* (2) *Fowls of the Air.* By William J. Long. Illustrated by Charles Copeland. (Ginn.)

To the teachers of America these two volumes of natural history are addressed. They certainly should be heartily welcomed, for Mr. Long has done what it is impossible for every teacher to do for himself—closely observed the lives and habits of the wild creatures he so tellingly describes. It is just this first-hand personal acquaintance with

the individual beast or bird that a child delights to hear about. The illustrations are very clever, causing the pages to seem almost alive. The plan of using a tiny illustration repeatedly as a heading to the page is original, but not very pleasing, the repetition being somewhat tedious. The books are handsomely got up in every way.

*Fathers in the Faith.* By Mary Christabel Danson and F. Gwendolyn Crawford. (Methuen.)

To many people the early Fathers—Ignatius, Tertullian, Origen, and so on—are little more than names, with a vague legend attached here and there. It is a pity that so much zeal and heroism should be neglected as a means of education; and we welcome this little book as an aid to teachers who, either in Sunday schools or in an occasional history course in day schools, may be able to give their pupils some idea of how the work of the early Church was actually carried on after the Bible story ceases. The life and work of each of the twelve Churchmen selected are given in a simple and interesting way. The only improvement to suggest, from a teacher's point of view, is that indication might be given as to where further information can be found as to the life of each Father, the views of the Gnostics, the Arian heresy, and other matters, only touched incidentally.

*Sedburgh School Sermons.* By H. G. Hart, M.A. (Rivingtons.)

Twenty-five short sermons preached from 1833 to 1930 are here collected, with the topical allusions just as they were spoken. The subjects and the treatment of them are well calculated to interest boys, each one being intimately connected with their actual life and thought. They will be found most useful and suggestive to school chaplains and head masters, who can enrich them with expansion and illustration to meet their special requirements. Doctrinal points are not pressed, and a sound discretion is exercised in the advocacy of religious observances. One of the features of the sermons is the manner in which current events are utilized to point out their moral significance.

*Legends of King Arthur and His Court.* By Frances Nimmo Greene.

A few of the Arthurian legends are here told simply, for children to understand. The language employed is dignified and poetical, without being stilted or antique. The author has closely followed Tennyson in his version of the tales. The illustrations by Edmund H. Garrett are a little weak, but may prove helpful to young readers.

*Quain's Dictionary of Medicine.* Edited by H. Montague Murray, M.D., F.R.C.P.; assisted by John Harold, M.B., and W. Cecil Bosanquet, M.A., M.D. (Longmans.)

This is a largely rewritten and revised edition of Quain's well known Dictionary. In the list of contributors will be found nearly every name of professional eminence in medicine and surgery. It is a work which every practitioner should have on his shelves, because he may count upon finding the most modern and reliable treatment given with reference to most diseases likely to be met with in his experience. Written principally with reference to diagnosis and treatment, nevertheless, both pathology and aetiology receive substantial recognition. The ordinary doctor who seldom has access to the works of specialists may feel confident of finding what he wants within its two thousand pages.

*The Pope Anthology.* Edited by Prof. Edward Arber, F.S.A. (Frowde.)

It is not to be expected that this volume should be as interesting, from the point of view of poetry, as some of its companions in the series. The age of Pope is marked by a sentimentality and artificiality generally distasteful to the modern reader; but to the student of literature the collection is full of interest. It is just with such a selection as this that a reader can get a good view of the poetic feeling of the time, and can readily compare the period as a whole with preceding and succeeding ones. Readers of every type will be glad to read the original form of "God Save the King" and "Rule, Britannia"; but, in the case of some of the authors—more especially Pope—a happier selection might have been made. The book would have been more useful with an introduction, however short, on the characteristics of the period. We note two slips in the glossary: "Bannocks" are oatcakes, not bread; and "springs" are not shares.

*Old Indian Legends.* Retold by Zitkala-Sa. (Ginn.)

A collection of tales from the folk-lore of the North-American Indian. We doubt whether children really care for tales of this description so much as they are generally supposed to; and it is probable that the present volume will appeal more to grown-up people who are acquainted with the Indians and their country. The illustrations by Angel de Cora are sympathetic, but not always clearly defined.

*Lectures and Essays by the late William Kingdon Clifford, F.R.S.* Edited by Leslie Stephen and Sir Frederick Pollock. 2 vols. (Macmillan.)

The growing custom of reprinting good books of twenty or thirty years ago—a custom which would not grow, at any rate so steadily, if the new and original books, novels excepted, sold a little better than they do—is embarrassing to the reviewer. He cannot notice them as if they were new, and he does not want to be always drawing invidious comparisons between the present and the past. Messrs. Macmillan are scrupulous to tell us the antecedents of their reprints. The lectures and short biography of Prof. Clifford were originally published in 1870,

and a second edition was called for in 1886. We welcome the inclusion of a third in the well selected "Eversley Series" of notable works and lives.

*The Middle Temple Reader*, edited by E. E. Speight, B.A. (Horace Marshall), has no smack of law about it, as the title seems to suggest, but is merely a "Middle Reader" between the "Junior" and "Temple Readers." It aims at giving children a fund of fresh matter of purely literary origin. Of course it is good to have freshness and variety, but we hardly think "children" will be able to read intelligently such poems as Browning's "Patriot" and Walt Whitman's "Pioneers," not to mention several Scottish ballads and an ode from the Irish. It seems, indeed, a little too much to attempt, especially when English literature abounds in easier pieces not yet hackneyed. The illustrations do not add much to the value of the book.

*North America*. By F. D. and A. J. Herbertson. (A. & C. Black.)

This series of descriptive geographies from original sources will be a great help to all teachers who are endeavouring to make their geography lessons a real educative force. The ordinary form teacher, who, as a rule, has not specialized in this subject, finds little time to search books for travel for vivid descriptions of the countries to be studied. In this little handbook he will find just what he needs, both in preparing his lessons and for reading to the class. It consists of a series of short extracts from various writers (of unequal merit, it must be admitted), with references to the original works, and is purely supplemental to the ordinary geography. The so-called "introduction" of dry topographical facts is, therefore, not necessary, and would be better omitted. The illustrations are well chosen.

*More Animal Stories*. Selected and edited by Robert Cochrane. (Chambers.)

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Mr. John Murray sends us a reprint of Darwin's *Origin of Species*, a popular impression of the corrected copyright edition—which we prefer to another copy of the same work reaching us from another firm at double the price. Mr. Murray's publication is, however, in paper covers, while the other is in cloth and boasts a few photographic illustrations. In the "Athenæum Press Series" (Messrs. Ginn & Co., Boston, U.S.A.), we have Carlyle's *Heroes and Hero Worship*, and the *Heroic in History*, edited by Archibald Macmeham. The book is well printed and neatly bound. From the same firm comes *Secrets of the Woods*, which is Book III. of the "Wood-Folk Series," and is specially noteworthy for its really charming little illustrations. The personal note in the book is strong, and it seems to be written for children, though there is no hint to that effect in the preface. As a child's book we honestly recommend it, and, as with many of its kind, there may be plenty of grown-up readers who will find it to their taste.

We can recommend *King Edward's Cookery Book*, by Florence A. George, Mistress of Cookery in King Edward's High School for Girls, Birmingham (Edward Arnold), as one of the best and cheapest books of its kind we have yet seen. Miss George, in her preface, says that her aim has been "to write a clear, concise, and methodical manual which will contain everything that the ordinary Englishwoman of the middle class need know about cookery," and in this she has certainly succeeded. With such a book at hand no servant girl of average intelligence should fail to become a fair cook, and to the young mistress of a household it will be of inestimable use. It is not merely a collection of good recipes for an infinite variety of dishes, written so clearly and simply that a child could understand them, but all necessary information as to the different kinds of cooking, the different heats, methods, &c., is given in the same clear, sensible way.

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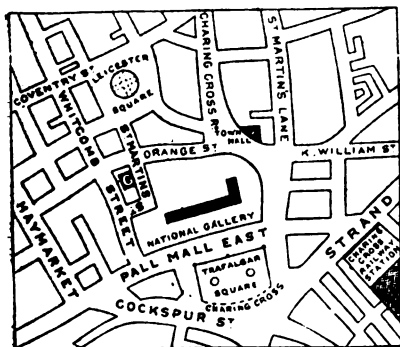
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$$\int_0^{\frac{1}{2}\pi} \frac{dx}{(\sec \frac{1}{2}x + \tan \frac{1}{2}x)^m \sqrt{(\sin x)}} \quad (m \text{ a positive integer}),$$

$$\int_0^x \frac{\log(\sec \frac{1}{2}x + \tan \frac{1}{2}x)}{\sqrt{(\sin x)}} dx, \text{ and } \int_0^x \frac{x}{\sqrt{(\sinh x)}} dx$$

as multiples of  $[\Gamma(\frac{1}{2})]^{\pm 2}$ ; and prove that

$$\int_0^{\frac{1}{2}\pi} \sin x (\log \sin x)^2 dx = (\log 2 - 1)^2 + 1 - \frac{1}{2}\pi^2.$$

[The last integral is given in Quest. 8423 (D. EDWARDS); another proof is asked for.]

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(a) Let  $f(n, p) = \int_0^{\frac{1}{2}\pi} \sin^n x (\log \sin x)^p dx \quad (-1 < n, -1 < p).$

Then it is easy to prove that (WOLSTENHOLME'S *Problems*, 1918, 51), if  $-1 < n < 1$ ,  $f(n, 0) f(-n, 0) = (2\pi/n) \tan \frac{1}{2}n\pi \dots \dots \dots (1)$ , and, if  $0 < n$ ,  $f(n, 0) f(n-1, 0) = 2\pi^n/n \dots \dots \dots (2)$ .

Differentiating these equations with respect to  $n$ ,  
 $f'(n, 1) f(-n, 0) - f(n, 0) f'(-n, 1) = -(2\pi/n^2) \tan \frac{1}{2}n\pi + (\pi^2/n) \sec^2 \frac{1}{2}n\pi$ ,  
 $f'(n, 1) f(n-1, 0) + f(n, 0) f'(n-1, 1) = -(2\pi/n^2)$ .  
 If  $n = \frac{1}{2}$ ,  $f'(\frac{1}{2}, 1) f(-\frac{1}{2}, 0) - f(\frac{1}{2}, 0) f'(-\frac{1}{2}, 1) = -8\pi + 4\pi^2$   
 $f'(\frac{1}{2}, 1) f(\frac{1}{2}, 0) + f(\frac{1}{2}, 0) f'(\frac{1}{2}, 1) = -8\pi$ .  
 Therefore  $f'(\frac{1}{2}, 1) = \frac{2\pi(\pi-4)}{f(\frac{1}{2}, 0)^2}$ ,  $f'(-\frac{1}{2}, 1) = -\frac{2\pi^2}{f(\frac{1}{2}, 0)}$ .

Now  $f(-\frac{1}{2}, 0) = \sqrt{\pi} \frac{\Gamma(\frac{1}{2})}{\Gamma(\frac{3}{2})} = \frac{[\Gamma(\frac{1}{2})]^2}{\sqrt{(2\pi)}}$ ,  
 $f(\frac{1}{2}, 0) = \sqrt{\pi} \frac{\Gamma(\frac{3}{2})}{\Gamma(\frac{1}{2})} = \frac{4\pi \sqrt{(2\pi)}}{[\Gamma(\frac{1}{2})]^2}$ .

Hence  $\int_0^{\frac{1}{2}\pi} \sqrt{(\sin x)} \log \sin x dx = \frac{(\pi-4)(2\pi)}{[\Gamma(\frac{1}{2})]^2}$ ,  
 $\int_0^{\frac{1}{2}\pi} \frac{\log \sin x}{\sqrt{(\sin x)}} dx = -2^{-\frac{1}{2}} \sqrt{\pi} [\Gamma(\frac{1}{2})]^2$ .

(b) Suppose  $\operatorname{cosec} x = \sec \frac{1}{2}\theta + \tan \frac{1}{2}\theta$ .  
 Then  $\frac{dx}{\sqrt{(\sin x)}} = -\frac{(\sin x)^{\frac{1}{2}} \frac{1}{2} + \sin \frac{1}{2}\theta}{\cos x \cdot 2 \cos^2 \frac{1}{2}\theta} d\theta = -\frac{1}{2} \frac{\sqrt{(\sin x)}}{\cos x \cos \frac{1}{2}\theta} d\theta$   
 $= -\frac{1}{2} \sec \frac{1}{2}\theta \sqrt{\left(\frac{\sec \frac{1}{2}\theta + \tan \frac{1}{2}\theta}{\sec \frac{1}{2}\theta + \tan \frac{1}{2}\theta}\right)^2 - 1} d\theta = -\frac{1}{2} \sqrt{(\sin \theta)}$

As  $x$  goes from 0 to  $\frac{1}{2}\pi$ ,  $\theta$  goes from  $\pi$  to 0. Hence  
 $\int_0^{\frac{1}{2}\pi} \phi(\sec \frac{1}{2}\theta + \tan \frac{1}{2}\theta) \frac{d\theta}{\sqrt{(\sin \theta)}} = 2 \int_0^{\pi} \phi(\operatorname{cosec} x) \frac{dx}{\sqrt{(\sin x)}}$ .

This formula gives  
 $\int_0^{\frac{1}{2}\pi} \frac{\log(\sec \frac{1}{2}x + \tan \frac{1}{2}x)}{\sqrt{(\sin x)}} dx = -2 \int_0^{\frac{1}{2}\pi} \frac{\log \sin x}{\sqrt{(\sin x)}} dx = 2^{\frac{1}{2}} \sqrt{\pi} [\Gamma(\frac{1}{2})]^2$ .

And  $\int_0^{\frac{1}{2}\pi} \frac{(\sec \frac{1}{2}x + \tan \frac{1}{2}x)^{-m}}{\sqrt{(\sin x)}} dx = -2 \int_0^{\frac{1}{2}\pi} (\sin x)^{m-\frac{1}{2}} dx$ ;  
 which is easily expressed in terms of  $[\Gamma(\frac{1}{2})]^2$  when  $m$  is an integer.  
 [The rest in Volume.]

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 63 is a multiple of 9, since  $6+3$  is a multiple of 9;  
 351 " " 39, "  $35+4$  " " 39;  
 1157 " " 89, "  $115+63$  " " 89.

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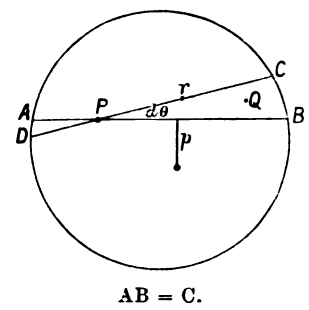
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 $a+nb = 10(a+nb) = b(10n\pm 1) = 0 \pmod{10n\pm 1}$ ;  
 therefore  $10a \mp b = 0 \pmod{10n\pm 1}$ .  
 Similarly, if  $a-nb = 0 \pmod{10n\pm 1}$ ,  $10a \pm b = 0 \pmod{10n\pm 1}$ ,  
 due regard being had to the signs.

This theorem, useful for factorization, may be extended thus:—  
 If  $10a-b = 0 \pmod{10n+m}$ ,  $n(10a-b) = 0 \pmod{10n+m}$ ;  
 also  $a(10n+m) = 0 \pmod{10n+m}$ ;  
 therefore  $ma \pm nb = 0 \pmod{10n+m} = \text{any integer whatever}$ .  
 (II.) Let  $a+nb = (10n-1)n$ .  
 Then  $10a+b = 10(a+nb) - (10n-1)b = (10n-1)(10m-b)$   
 $= \text{a multiple of } 10n-1$ .  
 (III.) Let  $(a+nb)/(10n-1) = q$ . We get  $a = 10qn - q - nb$ . Substituting this value of  $a$  in the fraction  $(10a+b)/(10n-1)$ , it becomes  $10q-b$ , which is evidently an integer, provided  $q$  and  $b$  are integers. This result holds good whatever the values (integral or fractional) of  $a$  and  $n$ .  
 (IV.) Soit  $\beta$  la base du système de numération. De la double identité  $\beta a + b = \beta(a \pm nb) \mp b$  ( $\beta n \mp 1$ ) (les signes supérieures et inférieures étant pris ensemble), on conclut, puisque les deux nombres  $\beta n \mp 1$  sont premiers avec  $\beta$ , que la condition nécessaire et suffisante pour que  $\beta a + b$  soit un multiple de  $\beta n \mp 1$ , c'est que  $a \pm nb$  le soit aussi, respectivement.

**7903.** (Rev. T. C. SIMMONS, M.A.)—Prove that the mean value of the  $n$ th power of the distance between two points taken at random within any convex area  $\Omega$  is equal to  $\frac{2}{(n+2)(n+3)} \Omega^2 \iint C^{n+3} dp d\omega$ , where  $C$  is the length of a chord whose coordinates are  $p, \omega$ , and  $n$  any quantity not less than  $-1$ , the integration extending throughout the area.

*Solutions* (I.) by R. CHARTRES; (II.) by J. W. CARSE, B.A.  
 (I.) The mean value of  $PQ^n$ , if  $Q$  moves in the element  $PBC$ , is evidently  $\frac{2r^n}{n+2}$ .



Therefore the required mean  
 $= \frac{2}{n+2} \iint \left\{ \int_0^C 2r^n (\frac{1}{2}r^2) dr \right\} dp d\theta + (\text{area})^2$   
 $= \frac{2}{(n+2)(n+3)} \Omega^2 \iint C^{n+3} dp d\theta$ .  
 This is a most valuable theorem.  
 If  $n = 0$ , we get the remarkable result  $\iint C^3 dp d\theta = 3\Omega^2$ ,  $AB = C$ .

given in WILLIAMSON'S *Integral Calculus*, p. 386.  
 For the circle, if  $n = 1, -1, \&c.$ , we get at once the well-known values  $128r/45\pi, 16/3\pi r$ , &c.

(II.) Let one of the points A be fixed; draw through it the chord  $PQ = C$  at an inclination  $\omega$  to some fixed line; put  $AP = r, AQ = r'$ ; then (cf. WILLIAMSON, *Integral Calculus*, § 255) the number of cases for which the direction of the line joining A and B lies between  $\omega$  and  $\omega + d\omega$   
 $= \int_0^r \rho^n \cdot \rho d\rho d\theta + \int_0^{r'} \rho^n \cdot \rho d\rho d\theta$ , where  $\rho = AB$ .

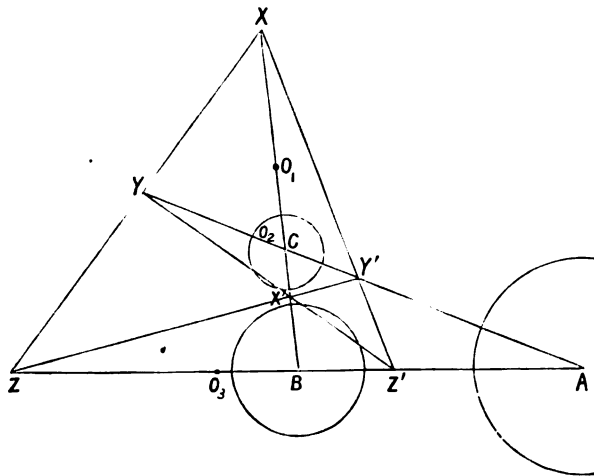
The sum of these integrals =  $[1/(n+2)](r^{n+2} + r'^{n+2})$ ,  $n \neq -1$ . Now let A range over the space between PQ and a parallel chord distant  $dp$  from it, and the direction of AB from  $\omega$  to  $\omega + d\omega$ ; then the number of cases is  
 $\left\{ \frac{1}{n+2} \int_0^C r^{n+2} dr + \frac{1}{n+2} \int_0^C r'^{n+2} dr' \right\} dp d\omega = \frac{2}{(n+2)(n+3)} C^{n+3} dp d\omega$ .

Integrating over the whole area, we have the total number of cases  
 $= \frac{2}{(n+2)(n+3)} \iint C^{n+3} dp d\omega$ ;  
 and the number of pairs of points is  $\Omega^2$ . Hence the above expression for the mean value.

**8139.** (A. GORDON, M.A.)—Show geometrically, by the properties of circles, that the three middle points of the diagonals of a complete quadrilateral lie in a straight line.

*Solution by S. CONSTABLE.*  
 Let  $XYX'Y'$  be our quadrilateral,  $ZZ'$  being third diagonal:  $YY', ZZ'$  meeting in A, &c. With centre A describe any circle with radius  $r'$  and, for convenience, less than  $AY'$ . With centre C describe circle of radius  $r''$ , where  $r'/r'' = AY'/CY = AY'/CY'$ ; and with centre B describe circle  $r'''$ , where  $r'/r''' = AZ'/BZ' = AZ'/BZ$ . Hence  
 $r''/r''' = AY'/CY \cdot BZ'/AZ = BX/CX$ ,  
 for  $BX/CX \cdot CY'/AY \cdot AZ/BZ = 1$ .  
 Hence X, X' are centres of similitude of circles (B), (C); and Y, Y'; Z, Z' are centres for (A), (C); (A), (B) respectively.  
 But the circles on  $XX_1, YY_1, ZZ_1$  as diameters are the three circles of similitude of (A), (B), (C); and we know from the properties of these

circles that they are coaxial, and that their centres  $O_1, O_2, O_3$  are consequently collinear.



Note.—Without using these circles, we can prove that  $O_1, O_2, O_3$  are collinear, thus giving another very short solution of this interesting problem.

Since  $ZZ', XX_1, YY_1$  are divided harmonically at  $B, A; C, B;$  and  $A, C$  respectively, we have

$$BO_1/CO_1 = BX^2/CX^2, \quad CO_2/AO_2 = CY^2/AY^2, \quad AO_3/BO_3 = AZ^2/BZ^2;$$

therefore

$$BO_1/CO_1 \cdot CO_2/AO_2 \cdot AO_3/BO_3 = BX^2/CX^2 \cdot CY^2/AY^2 \cdot AZ^2/BZ^2 = 1,$$

for  $X, Y, Z$  being collinear,

$$BX/CX \cdot CY/AY \cdot AZ/BZ = 1.$$

Note on Quest. 14945. By the EDITOR.

A very interesting solution to Mr. STANHAM'S Problem bearing this number has already been published. The PROPOSER also communicated for solution, in positive integers, the equation  $x^3 + y^3 = 17z^3$ . Both  $x^3 + y^3 = 17z^3$  and  $x^3 - y^3 = 17z^3$  have been solved in integers, as under, by Mr. BIDDLE, but the solution of the former in positive integers is still undiscovered.

Solution by D. BIDDLE.

Since  $x^3 - y^3 = (x - y)(x^2 + xy + y^2)$ , we can take  $x - y = 17$ , and find values of  $x$  and  $y$  such that  $x^2 + xy + y^2$  is a cube. This is satisfied by  $x = 18, y = 1$ , giving  $z = 7$ . Similarly, since  $x^3 + y^3 = (x + y)(x^2 - xy + y^2)$ ,  $x^3 + y^3 = 17z^3$  is satisfied by  $x = 18, y = -1, z = 7$ . But here  $y$  is negative.

7753. (LANIVIC).—Find whether there exist even integer numbers which cannot be decomposed into a sum of two primes.

Note by Lt.-Col. ALLAN CUNNINGHAM, R.E.

The proof of this problem (known as GOLDBACH'S theorem) is one of the desiderata of modern mathematics. Tables giving all the actual solutions of  $p + q = N$  (an even number  $\geq 3000$ ), and also the number of solutions of the same up to  $N = 5000$ , have been published under the title "Tafeln für das Goldbach'sche Gesetz" in *Abh. d. Kaiserl. Leop. Carol. Deutschen Akad. d. Naturforscher*, Bd. LXXII., Halle, 1897; so that the (numerical) proof is established up to  $N = 5000$ .

A simple mechanical method of solution of  $p + q = N$  is described at p. 9 of the introduction to above. A long strip of paper graduated into equal divisions  $> N$  in number is taken, the division marks are numbered where convenient—say every tenth—and the division marks corresponding to primes are marked conspicuously. If the strip be doubled so as to bring any even number  $N$  opposite to zero, the coincidence of any two prime division marks will give a solution of  $p + q = N$ .

When  $N$  exceeds a few thousand there are practical difficulties in the way of handling the long strip required, and keeping it at proper tension.

14660. (R. TUCKER, M.A.)—PQ is a focal chord of a parabola (focus S), and is also the major axis of an ellipse. Find the locus of the other focus and the equation to the ellipse. If this ellipse cuts the axis in  $K, K'$ , then  $1/SK + 1/SK' = 1/a$ , where  $4a$  is the latus rectum of the parabola (and also of the ellipse). Show also that the envelope of the ellipse is a confocal parabola of latus rectum  $8a$ , and that of the auxiliary circle is (beside the directrix) the circle  $x^2 + y^2 - ax = 2a^2$ . If  $\lambda = \cot \phi$  ( $\phi$  angle made by chord with axis), then the point of contact is  $x/a = -2(2\lambda^2 - 1)/(4\lambda^2 + 1), y/a = -6\lambda/(4\lambda^2 + 1)$ .

Solutions (I.) by the PROPOSER; (II.) by Professor SANJANA, M.A.

(I.)  $\angle PSX = \phi$ :

equation to the ellipse, is of form

$$1/r = [1 - \epsilon \cos(\theta - \phi)]/[a(1 - \epsilon^2)] \dots (i.);$$

$$PQ = 4a \operatorname{cosec}^2 \phi, \quad \therefore a = 2a \operatorname{cosec}^2 \phi,$$

$$2a\epsilon = SH = 4a \cos \phi \operatorname{cosec}^2 \phi,$$

$$a\epsilon = 2a \operatorname{cosec}^2 \phi \cos \phi;$$

therefore  $\epsilon = \cos \phi$ ;

$$\text{latus rectum} = 2a(1 - \epsilon^2) = 4a;$$

therefore equation is

$$2a/r = 1 - \epsilon \cos(\theta - \phi)$$

$$= 1 - \cos \phi \cos(\theta - \phi) \dots (ii.);$$

$$0 = \sin \phi \cos(\theta - \phi) - \cos \phi \sin(\theta - \phi)$$

$$= \sin(2\phi - \theta),$$

envelope of ellipse is therefore

$$2a/r = 1 - \cos^2 \frac{1}{2}\theta = \sin^2 \frac{1}{2}\theta;$$

that is

$$r = 4a(1 - \cos \theta), \text{ a parabola};$$

locus of H,  $r = 4a \cos \phi \operatorname{cosec}^2 \phi$ , i.e.,  $y^2 = 4ax$  (S the vertex),

$$\theta = 0, r_1 = 2a/\sin^2 \phi, \quad \theta = \pi, r_2 = 2a(1 + \cos^2 \phi);$$

therefore  $1/r_1 + 1/r_2 = 1/2a[\sin^2 \phi + (1 + \cos^2 \phi)] = 1/a,$

$$\beta^2/a^2 = 1 - \epsilon^2 = \sin^2 \phi; \quad \text{therefore } \beta = a \sin \phi = 2a \operatorname{cosec} \phi;$$

Equation to auxiliary circle is

$$x^2 + y^2 - 4ax \cos^2 \phi - 4ay \cot \phi = 4a^2 \operatorname{cosec}^2 \phi,$$

$$4a \cot^2 \phi (x + a) + 4a \cot \phi y + 4a^2 - (x^2 + y^2) = 0;$$

for envelope  $16a^2y^2 = 16a(x + a)[4a^2 - (x^2 + y^2)],$

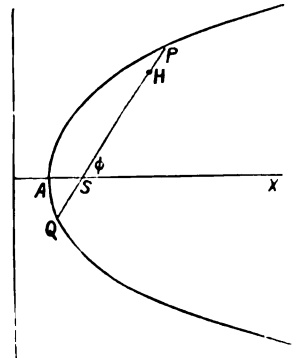
therefore  $y^2(x + 2a) = (x + a)(4a^2 - x^2), y^2 = (x + a)(2a - x);$

$$x^2 + y^2 - ax = 2a^2, \quad (x - \frac{1}{2}a)^2 + y^2 = \frac{3}{4}a^2, \quad \text{and } x + 2a = 0, \text{ the}$$

directrix. If  $\cot \phi = \lambda$ , the circular point of contact is

$$x/a = -2(2\lambda^2 - 1)/(4\lambda^2 + 1), \quad y/a = -6\lambda/(4\lambda^2 + 1).$$

[The rest in Volume.]



14925. (SALUTATION).—Through a particular vertex of an irregular but convex  $n$ -gon draw a straight line bisecting the figure.

Solution by JOHN P'NEESCOTT, B.A.

Let us take a five-sided figure for simplicity, but the method is perfectly general.

Let ABCDE be the figure, and let A be the angular point through which the bisector has to be drawn. From A draw the diagonals AC, AD.

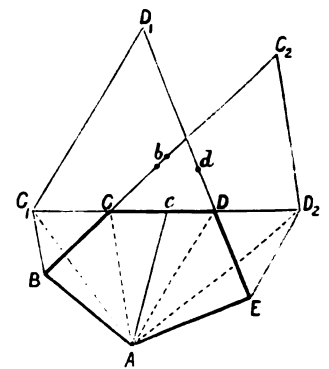
Draw  $BC_1$  parallel to AC to meet DC produced in  $C_1$ .

Draw  $C_1D_1$  parallel to AD to meet ED produced in  $D_1$ .

Go the opposite direction round the figure in the same manner and call the points we get  $D_2, C_2$ .

Bisect  $BC_2, C_1D_1, D_1E$  in  $b, c, d$  respectively. Join A to whichever of the points  $b, c, d$  falls on a side of the original polygon; i.e., suppose  $c$  falls between C and D; join Ac. Then Ac bisects the polygon.

For, if we join  $AC_1, AD_2, \Delta AC_1C = \Delta ABC; \therefore \Delta AC_1c = \text{figure } ABCc$ . Also, in the same way,  $\Delta AD_2c = \text{figure } AEDc$ . But  $\Delta AC_1c = \Delta AD_2c$ . Therefore figure  $ABCc = AEDc$ .



14710. (Professor N. BHATTACHARYYA).—From the centre of curvature at any point on the ellipse  $(x^2/a^2) + (y^2/b^2) = 1$  two other normals are drawn. Show that the envelope of the line joining their feet is the curve  $(x/a)^{\frac{2}{3}} + (y/b)^{\frac{2}{3}} = 1$ .

Solutions (I.) by Professor JAN DE VRIES; (II.) by F. H. PEACHELL, B.A.; (III.) by Rev. J. CULLEN.

(I.) The feet of four concurrent normals are the intersections of the ellipse and an orthogonal hyperbola which contains the centre of the ellipse, the asymptotes being parallel to the axes of the ellipse. If  $px + qy + r = 0$  represents the line joining the feet of the two normals from the centre of curvature at the point  $(x_1, y_1)$ , there is an identity of the form

$$(x^2/a^2 + y^2/b^2 - 1) + \lambda(xy + Ax + By) \equiv (x_1x/a^2 + y_1y/b^2 - 1)(px + qy + r).$$

Hence

$$px + qy + r \equiv x/x_1 + y/y_1 + 1.$$

Putting  $x = a \cos \theta, y = b \sin \theta$ , a point of the envelope of this line is determined by  $bx \sin \theta + ay \cos \theta + ab \sin \theta \cos \theta = 0,$

and  $bx \cos \theta - ay \sin \theta + ab(\cos^2 \theta - \sin^2 \theta) = 0$ ,  
whence  $x = -a \cos^3 \theta$ ,  $y = -b \sin^3 \theta$ .

Therefore the envelope is the curve  $(x/a)^3 + (y/b)^3 = 1$ .  
[The rest in Volume.]

**830.** (M. COLLINS, B.A.)—From a point in a line of the third order that has a double point, only two tangents can be drawn to the curve; prove that the lines drawn from the double point to the points of contact, together with the two tangents at the double point, form a harmonic pencil.

*Solution by Professor NANSON.*

Any cubic circumscribing the triangle of reference is

$$ux^2 + vy^2 + wz^2 = kxyz,$$

where  $u, v, w$  are the tangents at the vertices. Take now as vertices the node and the points of contact of the two tangents. Then  $w \equiv 0$  and the tangents at the node are of the form  $ax^2 + by^2 = kxy$ , whilst the condition that the two tangents meet on the curve is  $k = 0$ , which is also the condition that the tangents at the node form a harmonic pencil with the lines  $xy = 0$  joining the node to the points of contact of the two tangents.

**14906.** (Professor NEUBERG.)—A', B', C' étant les pieds des hauteurs du triangle ABC, soient A<sub>1</sub>, B<sub>1</sub>, C<sub>1</sub> les symétriques des sommets A, B, C respectivement par rapport aux points A', B', C'. Calculer le rapport des aires des triangles A<sub>1</sub>B<sub>1</sub>C<sub>1</sub>, ABC.

*Solution by Professor SANJANA, M.A.*

If the perpendiculars meet in O, the area of the triangle OB<sub>1</sub>C<sub>1</sub> =  $\frac{1}{2}OB_1 \cdot OC_1 \sin B_1OC_1 = \frac{1}{2}(OB' + BB')(OC' + CC') \sin A = \frac{1}{2}(BO + 2OB') \cdot (CO + 2OC') \sin A = 2R^2(\cos B + 2 \cos C \cos A)(\cos C + 2 \cos B \cos A) \sin A$ . The areas of OC<sub>1</sub>A<sub>1</sub>, OA<sub>1</sub>B<sub>1</sub> can be similarly expressed. Hence the area of A<sub>1</sub>B<sub>1</sub>C<sub>1</sub> =  $2R^2 \{ \sum \cos B \cos C \sin A + \sum (\cos^2 B + \cos^2 C) \sin 2A + 2 \cos A \cos B \cos C \sum \sin 2A \}$  =  $2R^2 \{ \sin A \sin B \sin C + 2 \sin A \sin B \sin C + 8 \cos A \cos B \cos C \sin A \sin B \sin C \}$  =  $\Delta \{ 3 + 8 \cos A \cos B \cos C \}$ .

Thus the required ratio is  $3 + 8 \cos A \cos B \cos C : 1$ .

[N.B.—In the third line of the question, as printed originally, the order of the points is C', A', B'; this does not lead to any elegant result.]

QUESTIONS FOR SOLUTION.

**15044.** (Professor HUDSON, M.A.)—A uniform beam is fixed at both ends and loaded so as to be in the form of a catenary; prove that when the tension at the lowest point is zero the rate of load varies as  $3 \cos^2 \phi - 2 \cos^3 \phi$ , where  $\phi$  is the inclination of the tangent at any point to the horizon.

**15045.** (E. V. HUNTINGTON, Ph.D.)—The centre of gravity of the equally weighted vertices and ortho-centre of any triangle is the centre of the nine-point circle of that triangle.

**15046.** (Professor S. STRONG.)—Show that the stream function for a cylinder whose right section is the Cassinian oval

$$(x^2 + y^2)^2 - 2c^2(x^2 - y^2) + c^4 = \lambda^4 r^4 \quad (\lambda > 1),$$

moving in an infinite liquid under no forces, is

$$\psi_x = -2U\lambda c \sinh \xi \sin \eta + Uy \text{ along } OX$$

and  $\psi_y = 2V\lambda c \sinh \xi \cos \eta - Vx \text{ along } OY$ ,

where  $x + iy = c(1 + \lambda^2 e^{2\xi + 2i\eta})^{\frac{1}{2}}$ .

**15047.** (Rev. Prebendary W. A. WHITWORTH, M.A.)—[The Proposer desires to withdraw Quest. 14998, as the statement made is true only in a restricted sense.—EDITOR.] Prove that the lowest value of N for which the equation  $x^2 + 3y^2 = N$  has 24 solutions in positive integers, zero excluded, is  $N = 214396$ .

**15048.** (ROBERT W. D. CHRISTIE.)—Show that there is an infinite catena of equations of the type  $x_n^2 - 2y_n^2 = 1$ , and give a few of the first links. E.g.,  $x_1 = 4y_1 + 1$ ,  $x_4 = 16x_2y_2 + 1$ ,  $y_1 = 2x_2$ ,  $y_4 = 8x_2y_2 - 4x_2$ .

**15049.** (Professor SANJANA, M.A.)—Three whole positive numbers,  $a, b, c$ , which are not all divisible by the same number, and every two of which are together greater than the third, satisfy the relation

$$5(a^2 + b^2 + c^2) = 6(bc + ca + ab);$$

prove that the excess of every two over the third is of the form  $2p^2$ .

**15050.** (L. ISSERLIS.)— $c, a_1, a_2, \dots, a_r, \dots, a_n$  are positive integers, such that there is no factor common to  $a_1, a_2, \dots, a_n$  which is not also a factor of  $c$ . Let  $\{c|a_1a_2\dots a_n\}$  denote the number of positive integral (not zero) solutions of the equation

$$a_1x_1 + a_2x_2 + \dots + a_nx_n = c.$$

Show that  $\{c|a_1a_2\dots a_n\} = \sum \{(c - pa_n) | a_1a_2\dots a_{n-1}\}$ , where the summation extends to all positive integral values of  $p$  such that  $c - pa_n > 0$ .

The number of positive integral (not zero) solutions of

$$(i.) \quad 3x + 5y + 7z = 73, \quad (ii.) \quad 3x + 5y + 7z + 30u = 103$$

is (i.) 20, and (ii.) 26.

**15051.** (R. KNOWLES.)—Prove that the sum to  $r$  terms of the series

$1 - 6 + 15 - 28 \dots \pm r(2r - 1)$ , when  $r$  is an even number,  $= -\frac{1}{3}r(2r + 1)$ , and, when  $r$  is an odd number,  $= \frac{1}{3}(r + 1)(2r - 1)$ .

**15052.** (R. TUCKER, M.A.)—P, Q, L ( $m_1, m_2, m_3$ ) are co-normal points on a parabola, as also are R, T, L' ( $\mu_1, \mu_2, \mu_3$ ), for which O, O' are the respective co-normal points. PQ, RT are also orthogonal focal chords. Prove that OO' and LL' pass through fixed points on the axis and intersect on a fixed perpendicular to the axis. The points O, O' lie on a parabola.

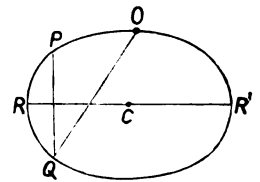
**15053.** (A. M. NESBITT, M.A.)—If the conic  $S \equiv (abcfgh)(xy - 1)^2 = 0$  passes through the vertices of a triangle whose sides touch  $y^2 = 4px$ , the point whose coordinates are  $x = p - [k(a - b)]/N^2p$ ,  $y = -2kh/N^2p$  lies on S, where  $k = ap^2 + 2gp + c$ ,  $N^2 = (a - b)^2 + 4h^2$ . Discuss the case when  $a = b$  and  $h = 0$ .

**15054.** (S. F. S. HILL.)—There are six confocals to  $x^2/a^2 + y^2/b^2 = 1$ , such that quadrilaterals circumscribed to this ellipse are inscribed in the confocal, and the six values of  $\lambda$  [ $x^2/(a^2 + \lambda) + y^2/(b^2 + \lambda) = 1$ ] are given by  $(\lambda^2 - a^2b^2)(\lambda^2 + 2b^2\lambda + a^2b^2)(\lambda^2 + 2a^2\lambda + a^2b^2) = 0$ .

**15055.** (Rev. T. ROACH, M.A.)—If two ellipses have equal major axes and a common vertex, show that they meet in only one other point.

**15056.** (Professor NEUBERG.)—Trouver le lieu du sommet d'un angle circonscrit à une parabole, les côtés de cet angle étant parallèles à deux diamètres conjugués quelconques d'une conique donnée.

**15057.** (H. BATEMAN.)—Prove the following construction for the asymptotes of a conic, given four points, the centre, and the centre locus:—Let O be the centre of the conic, P any point on the centre locus. Draw a line through O parallel to the polar of P with respect to any conic through the four points, and let it meet the centre locus in Q. Let CRR' be the diameter of the centre locus bisecting PQ. Then OR, OR' are the asymptotes of the conic.

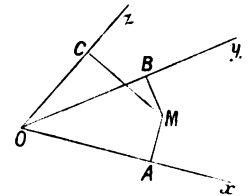


**15058.** (Professor NANSON.)—If OP, OQ are small equal arcs of a curve and its circle of curvature at O, show that the difference of the chords of these arcs is  $\frac{1}{2}\kappa\kappa'OP^4$ , where  $\kappa$  is the curvature and  $\kappa' = d\kappa/ds$ .

**15059.** (Professor COCHEZ.)—On donne trois droites Ox, Oy, Oz. Trouver dans leur plan un point M tel qu'abaissant les perpendiculaires MA, MB, MC sur ces droites, on ait la relation

$$pMA + qMB + mMC = k^2,$$

$m, p, q$  étant des longueurs données.



**15060.** (Professor MORLEY.)—Prove that the circum-circle and nine-point circle of a triangle are inverse as to the director circle of the maximum inscribed ellipse.

**15061.** (J. PRESCOTT.)—From the fact that the inverse of a plane is a sphere through the centre of inversion, deduce that the inverse of a circle, with respect to a point not in its plane, is a circle.

**15062.** (Professor SANJANA, M.A.)—On the circum-circle of a triangle ABC a fixed point P is taken, and QR is a chord of the circle parallel to the SIMSON-line of P: prove that PR is parallel to the SIMSON-line of Q, and PQ to that of R. The triangle formed by the three SIMSON-lines is homothetic to the triangle PQR: find the locus of the homothetic centre as QR moves parallel to itself.

**15063.** (Professor UMES CHANDRA GHOSH.)—(Suggested by Quest. 14012). Prove the following identities, if  $a + \beta + \gamma = s$ :—

$$(a) \quad 16 \{ \sin^5(\beta - \gamma) \sin(5s - 3\alpha) + \sin^5(\gamma - \alpha) \sin(5s - 3\beta) + \sin^5(\alpha - \beta) \sin(5s - 3\gamma) \} + \sin(\beta - \gamma) \sin(s + 9\alpha) + \sin(\gamma - \alpha) \sin(s + 9\beta) + \sin(\alpha - \beta) \sin(s + 9\gamma) = 40 \sin(\alpha - \beta) \sin(\beta - \gamma) \sin(\gamma - \alpha) \sin 4s.$$

$$(b) \quad 16 \{ \sin^5(\beta - \gamma) \cos(5s - 3\alpha) + \sin^5(\gamma - \alpha) \cos(5s - 3\beta) + \sin^5(\alpha - \beta) \cos(5s - 3\gamma) \} + \sin(\beta - \gamma) \cos(s + 9\alpha) + \sin(\gamma - \alpha) \cos(s + 9\beta) + \sin(\alpha - \beta) \cos(s + 9\gamma) = 40 \sin(\alpha - \beta) \sin(\beta - \gamma) \sin(\gamma - \alpha) \cos 4s.$$

OLD QUESTIONS AS YET UNSOLVED (IN OUR COLUMNS).

**8091.** (A. GORDON, M.A.)—If ABCD is a quadrilateral, M, N the mid-points of AC, BD: prove that (1) MN cuts AB (in P), DC (in R) in segments inversely proportional; (2) if MN cuts CB, AD in Q, S, then MP : MR = MQ : MS, and NP : NR = NS : NQ.

**8276.** (Professor CATALAN.)—Démontrer la formule

$$\frac{1}{2} \pi = 1 - \frac{1}{2} + \frac{1}{4} - \dots \mp \frac{1}{2m-1} - 2m \int_0^{1/2} \cos 2nx \log_e (2 \cos \frac{1}{2}x) dx.$$

**9037.** (Professor SCHEFFER, M.A.)—Show that the reciprocal polar of the evolute of the parabola  $y^2 = 4a(x + a)$ , the focus being the origin, with regard to a circle whose diameter is equal to the semi-latus-rectum,

is the curve  $r \cot \theta = a \sin \theta$ , which represents a circular cubic, of which  $x = a$  is an asymptote, and the point at infinity a point of inflexion.

**9188.** (R. HOLMES, B.A.)—Obtain the solution of the equation  $x^2 y' dx^2 - 2 (\cot 2x + \cos \theta) (dy/dx) + 2 \cos \theta \cot x \cdot y = 0$  in the form  $y = A e^{x \cos \theta} \{ \sin x \cos B + \cos x \cos (B + \theta) \}$ , where  $B = e + x \sin \theta$ ; and  $A, e$  are any two arbitrary constants.

**9779.** Prove the following identities

$$(1) \begin{matrix} 0, & 1, & 1, & 1, & \dots, & 1 \\ 1, & 0, & x_1 + x_2, & x_1 + x_3, & \dots, & x_1 + x_{n+1} \\ 1, & x_1 + x_2, & 0, & x_2 + x_3, & \dots, & x_2 + x_{n+1} \\ 1, & x_1 + x_3, & x_2 + x_3, & 0, & \dots, & x_3 + x_{n+1} \\ \dots & \dots & \dots & \dots & \dots & \dots \\ 1, & x_1 + x_{n-1}, & x_2 + x_{n-1}, & x_3 + x_{n-1}, & \dots, & 0 \end{matrix}$$

$$= -(-2)^n x_1 x_2 \dots x_{n+1} \left\{ \frac{1}{x_1} + \frac{1}{x_2} + \dots + \frac{1}{x_{n+1}} \right\}$$

$$(2) \begin{matrix} 0, & x_1 + x_2, & x_1 + x_3, & \dots, & x_1 + x_{n+1} \\ x_1 + x_2, & 0, & x_2 + x_3, & \dots, & x_2 + x_{n+1} \\ x_1 + x_3, & x_2 + x_3, & 0, & \dots, & x_3 + x_{n+1} \\ \dots & \dots & \dots & \dots & \dots \\ x_1 + x_{n-1}, & x_2 + x_{n-1}, & x_3 + x_{n-1}, & \dots, & 0 \end{matrix}$$

$$= \frac{1}{2} (-2)^n x_1 x_2 \dots x_{n-1} \left\{ (x_1 + x_2 + \dots + x_{n+1}) \left( \frac{1}{x_1} + \frac{1}{x_2} + \dots + \frac{1}{x_{n+1}} \right) - (n-1)^2 \right\}$$

$$(3) \begin{matrix} 0, & 1, & 1, & \dots, & \text{to } n \text{ columns} \\ 1, & 0, & 1, & \dots, & \text{''} \\ 1, & 1, & 0, & \dots, & \text{''} \\ \dots & \dots & \dots & \dots & \dots \end{matrix} = (-1)^{n-1} (n-1).$$

the last to be proved independently, and then shown to be consistent with the first two.

**9922.** (E. LEMOINE.)—Par un point M du plan du triangle ABC mener les deux transversales réciproques qui passent par ce point. Dans quelles régions du plan doit se trouver M, pour que la solution soit réelle ?

**10097.** (W. J. C. SHARP, M.A.)—Prove that the feet of the perpendiculars from any point, whose isogonal conjugate lies upon the plane at infinity, upon the faces of the tetrahedron of reference lie in a plane.

**10277.** (E. CESÀRO.)—Si  $\alpha$  est la  $n^{\text{ème}}$  partie d'un quadrant, démontrer que, pourvu que  $p < 2n$ ,

$$\sin^{2p} \alpha + \sin^{2p} 2\alpha + \sin^{2p} 3\alpha + \dots + \sin^{2p} n\alpha = \frac{1}{2} + n \frac{1 \cdot 3 \cdot 5 \dots (2p-1)}{2 \cdot 4 \cdot 6 \dots 2p}$$

**NOTICE TO CORRESPONDENTS.**

It is requested that all Mathematical communications should be sent to the Mathematical Editor,

Miss CONSTANCE I. MARKS, B.A., 10 Matheson Rd., West Kensington, W.

**NOTICE.**—Vol. LXXV. of the "Mathematical Reprint" is now ready, and may be had of the Publisher, FRANCIS HODGSON, 89 Farringdon Street, E.C. Price, to Subscribers, 5s.; to Non-Subscribers, 6s. 6d.

**THE LONDON MATHEMATICAL SOCIETY.**

Thursday, January 9th, 1902.—Dr. Hobson, F.R.S., President, in the Chair. Present, fourteen members and a visitor.

The Rev. J. Cullen was admitted into the Society. The President (Major MacMahon in the Chair) communicated a paper "On Non-uniform Convergence, and the Integration of Series." Remarks upon the paper were made by Messrs. Larmor, Love, S. Roberts, Whittaker, and the Chairman.

Mr. S. Roberts read a paper "On Networks" (connected with the Map-colouring Problem).

The following papers were taken as read:—"On the Integrals of the Differential Equation

$$\frac{du}{\sqrt{f(u)}} + \frac{dv}{\sqrt{f(v)}} = 0, \text{ where } f(x) \equiv ax^4 + 4bx^3 + 6cx^2 + 4dx + e,$$

considered geometrically," Prof. W. Snow Burnside; and "On the Fundamental Theorem of Differential Equations," Mr. W. H. Young.

In the notice about Amicable Numbers in the Educational Times of 1st January, 1902, p. 40, left column, and last paragraph, read: "announced the discovery of two new pairs," i.e., of Amicable Numbers.

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[Throughout the following List, bracketing of names implies equality.]

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- |  |  |
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| 1. Davies, G. McD.<br>(Isbister Prize.)<br>2. Tudball, T. B. D.<br>(Pinches Prize.)<br>3. Browell, R.<br>4. Anderson, Miss E. F. | Mr. Hawe, High School for Boys, Croydon.<br>Mr. Morgan, Castle Hill School, Ealing.<br>Rev. Dr. Scott, Mercers' School, E.C.<br>Miss Burton, 19 Grange Park, Ealing. |
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**SECOND CLASS [OF JUNIOR].**

- |   |  |
|---|--|
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**THIRD CLASS.**

- |  |  |
|--|--|
| 1. Whipp, L. H.<br>2. Jarvis, Miss W. M.<br>3. Howard, Miss G.<br>4. Chubb, Miss E.<br>Prentice, M. A. | Mr. King, Haringey Park School, Crouch End.<br>Mrs. Pizzev, St. John the Divine's High School, Kennington.<br>Mrs. Barnes and Miss Mayoss, Alexandra College, Shirley, Southampton.<br>Miss Wilkes, Goodrich Road School, East Dulwich.<br>Mr. Methven, Woolston College, Southampton. |
|--|--|

*English Subjects.*

- |  |  |
|--|--|
| 1. Wall, Miss A.<br>2. Wolstenholme, Miss M. | Mrs. Hiatt, Ladies' College, Wellington, Salop.<br>Miss Conder, Milton Mount College, Gravesend. |
|--|--|

*Mathematics.*

- |                                    |   |
|------------------------------------|---|
| 1. Davies, G. McD.<br>2. Welsh, W. | Mr. Hawe, High School for Boys, Croydon.<br>Rev. Dr. Scott, Mercers' School, E.C. |
|------------------------------------|---|

*Classics.*

- Private tuition.  
 Mr. Chambers, Henley School, Henley-on-Thames.

*Modern Foreign Languages.\**

- |  |   |
|--|---|
| 1. Onslow, Lady Dorothy.<br>2. Bourgeois, P. | Private tuition.<br>Rev. Brother Attale, St. Joseph's College, Denmark Hill, S.E. |
|--|---|

*Natural Sciences.*

- Mr. Hooson, Bourne College, Quinton, Birmingham.  
 Mr. Heys, Elmfield College, York.

*Taylor-Jones Prize for Scripture History.†*

- |   |   |
|---|---|
| 1. Copeland, Miss C. A.<br>Steart, Miss E. H. | Mrs. Vinall, Burgess Hill High School, Sussex.<br>Mrs. Barnes and Miss Mayoss, Alexandra College, Shirley, Southampton. |
|---|---|

*Pitman Medals for Shorthand.*

- |  |   |
|--|---|
| 1. Petzsche, R. A.<br>(Silver Medal.)<br>2. Little, S. H.<br>(Bronze Medal.) | Rev. Dr. Scott, Mercers' School, E.C.<br>Mr. Hawe, High School for Boys, Croydon. |
|--|---|

\* W. S. Samuel, Maida Vale School, W., was disqualified for the Second Prize for Modern Foreign Languages in consequence of having obtained it at a previous Examination.

† Miss A. Wall, Ladies' College, Wellington, Salop, was disqualified for the Taylor-Jones Prize for Scripture History in consequence of having obtained it at a previous Examination.

### List of the Candidates who were FIRST and SECOND in each Subject of Examination.

<p><i>Scripture History.</i></p> <table border="0"> <tr> <td style="vertical-align: top;">                             1. Harries, Miss G. M.                              Wall, Miss A.                         </td> <td style="vertical-align: top; padding-left: 20px;">                             Miss Conder, Milton Mount College, Gravesend.                              Mrs. Hiatt, Ladies' College, Wellington, Salop.                         </td> </tr> </table>	1. Harries, Miss G. M. Wall, Miss A.	Miss Conder, Milton Mount College, Gravesend. Mrs. Hiatt, Ladies' College, Wellington, Salop.	<p><i>Trigonometry.</i></p> <table border="0"> <tr> <td style="vertical-align: top;">                             1. Syvret, P.                              Davies, G. McD.                              Welsh, W.                         </td> <td style="vertical-align: top; padding-left: 20px;">                             Mr. Spargo, Jersey Modern School, St. Helier's.                              Mr. Hawe, High School for Boys, Croydon.                              Rev. Dr. Scott, Mercers' School, E.C.                         </td> </tr> </table>	1. Syvret, P. Davies, G. McD. Welsh, W.	Mr. Spargo, Jersey Modern School, St. Helier's. Mr. Hawe, High School for Boys, Croydon. Rev. Dr. Scott, Mercers' School, E.C.	<p><i>Hebrew.</i></p> <table border="0"> <tr> <td style="vertical-align: top;">                             1. Myers, I.                              Mallan, G. J. P.                         </td> <td style="vertical-align: top; padding-left: 20px;">                             Mr. Berkowitz, Tivoli House School, Gravesend.                              Mr. Berkowitz, Tivoli House School, Gravesend.                         </td> </tr> </table>	1. Myers, I. Mallan, G. J. P.	Mr. Berkowitz, Tivoli House School, Gravesend. Mr. Berkowitz, Tivoli House School, Gravesend.	<p><i>Sound, Light, and Heat.</i></p> <table border="0"> <tr> <td style="vertical-align: top;">                             1. Crocker, W. C.                              Davies, G. McD.                         </td> <td style="vertical-align: top; padding-left: 20px;">                             Mr. Parkinson, Queen's Park College, W.                              Mr. Hawe, High School for Boys, Croydon.                         </td> </tr> </table>	1. Crocker, W. C. Davies, G. McD.	Mr. Parkinson, Queen's Park College, W. Mr. Hawe, High School for Boys, Croydon.									
1. Harries, Miss G. M. Wall, Miss A.	Miss Conder, Milton Mount College, Gravesend. Mrs. Hiatt, Ladies' College, Wellington, Salop.																			
1. Syvret, P. Davies, G. McD. Welsh, W.	Mr. Spargo, Jersey Modern School, St. Helier's. Mr. Hawe, High School for Boys, Croydon. Rev. Dr. Scott, Mercers' School, E.C.																			
1. Myers, I. Mallan, G. J. P.	Mr. Berkowitz, Tivoli House School, Gravesend. Mr. Berkowitz, Tivoli House School, Gravesend.																			
1. Crocker, W. C. Davies, G. McD.	Mr. Parkinson, Queen's Park College, W. Mr. Hawe, High School for Boys, Croydon.																			
<p><i>English Language.</i></p> <table border="0"> <tr> <td style="vertical-align: top;">                             1. Tudball, T. B. D.                              Wall, Miss A.                              Woolf, Miss F. S.                         </td> <td style="vertical-align: top; padding-left: 20px;">                             Mr. Morgan, Castle Hill School, Ealing.                              Mrs. Hiatt, Ladies' College, Wellington, Salop.                              Miss Sprague, Mecklenburg House, Putney.                         </td> </tr> </table>	1. Tudball, T. B. D. Wall, Miss A. Woolf, Miss F. S.	Mr. Morgan, Castle Hill School, Ealing. Mrs. Hiatt, Ladies' College, Wellington, Salop. Miss Sprague, Mecklenburg House, Putney.	<p><i>Mechanics.</i></p> <table border="0"> <tr> <td style="vertical-align: top;">                             1. Phillipson, J. E.                              McCallum, A. R.                         </td> <td style="vertical-align: top; padding-left: 20px;">                             Mr. Slack, Commercial College, York.                              Rev. Dr. Scott, Mercers' School, E.C.                         </td> </tr> </table>	1. Phillipson, J. E. McCallum, A. R.	Mr. Slack, Commercial College, York. Rev. Dr. Scott, Mercers' School, E.C.	<p><i>Electricity and Magnetism.</i></p> <table border="0"> <tr> <td style="vertical-align: top;">                             1. Webster, G. E.                              Turner, W.                         </td> <td style="vertical-align: top; padding-left: 20px;">                             Rev. J. Spink, Read's School, Drax, Selby.                              Mr. Hooson, Bourne College, Quinton, Birmingham.                         </td> </tr> </table>	1. Webster, G. E. Turner, W.	Rev. J. Spink, Read's School, Drax, Selby. Mr. Hooson, Bourne College, Quinton, Birmingham.	<p><i>Chemistry.</i></p> <table border="0"> <tr> <td style="vertical-align: top;">                             1. Rutter, W. S.                              Hellyer, W. W.                              Jenkins, F. R.                         </td> <td style="vertical-align: top; padding-left: 20px;">                             Mr. Gilkes, Dulwich College, S.E.                              Private tuition.                              Mr. Heys, Elmfield College, York.                         </td> </tr> </table>	1. Rutter, W. S. Hellyer, W. W. Jenkins, F. R.	Mr. Gilkes, Dulwich College, S.E. Private tuition. Mr. Heys, Elmfield College, York.									
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1. Wall, Miss A. Pitts, A. T. Walker, H. C. Wolstenholme, Miss M.	Mrs. Hiatt, Ladies' College, Wellington, Salop. Private tuition. Mr. Jopling, Friends' School, Wigton. Miss Conder, Milton Mount College, Gravesend.																			
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1. Bourgeois, P. Samuel, W. S.	Rev. Brother Attale, St. Joseph's College, Denmark Hill, S.E. Mr. Ryan, Maida Vale School, W.																			
1. Browell, R. Tozer, Miss V. M.	Rev. Dr. Scott, Mercers' School, E.C. Mr. Walker, Friends' School, Saffron Walden.																			
<p><i>Arithmetic.</i></p> <table border="0"> <tr> <td style="vertical-align: top;">                             1. Tudball, T. B. D.                              Davies, G. McD.                              Neill, W. A. H.                              Syvret, P.                              Welsh, W.                         </td> <td style="vertical-align: top; padding-left: 20px;">                             Mr. Morgan, Castle Hill School, Ealing.                              Mr. Hawe, High School for Boys, Croydon.                              Messrs. Davey, Oxenford House, St. Lawrence, Jersey.                              Mr. Spargo, Jersey Modern School, St. Helier's.                              Rev. Dr. Scott, Mercers' School, E.C.                         </td> </tr> </table>	1. Tudball, T. B. D. Davies, G. McD. Neill, W. A. H. Syvret, P. Welsh, W.	Mr. Morgan, Castle Hill School, Ealing. Mr. Hawe, High School for Boys, Croydon. Messrs. Davey, Oxenford House, St. Lawrence, Jersey. Mr. Spargo, Jersey Modern School, St. Helier's. Rev. Dr. Scott, Mercers' School, E.C.	<p><i>German.</i></p> <table border="0"> <tr> <td style="vertical-align: top;">                             1. Bourgeois, P.                              Dukes, Miss I. C.                         </td> <td style="vertical-align: top; padding-left: 20px;">                             Rev. Brother Attale, St. Joseph's College, Denmark Hill, S.E.                              Miss Conder, Milton Mount College, Gravesend.                         </td> </tr> </table>	1. Bourgeois, P. Dukes, Miss I. C.	Rev. Brother Attale, St. Joseph's College, Denmark Hill, S.E. Miss Conder, Milton Mount College, Gravesend.	<p><i>Music.</i></p> <table border="0"> <tr> <td style="vertical-align: top;">                             1. Webb, Miss G. C.                              Gerrard, R. F.                         </td> <td style="vertical-align: top; padding-left: 20px;">                             Mrs. Hiatt, Ladies' College, Wellington, Salop.                              Private tuition.                         </td> </tr> </table>	1. Webb, Miss G. C. Gerrard, R. F.	Mrs. Hiatt, Ladies' College, Wellington, Salop. Private tuition.	<p><i>Political Economy.</i></p> <table border="0"> <tr> <td style="vertical-align: top;">                             1. Wall, Miss A.                              Withers, Miss H. M.                         </td> <td style="vertical-align: top; padding-left: 20px;">                             Mrs. Hiatt, Ladies' College, Wellington, Salop.                              Private tuition.                         </td> </tr> </table>	1. Wall, Miss A. Withers, Miss H. M.	Mrs. Hiatt, Ladies' College, Wellington, Salop. Private tuition.									
1. Tudball, T. B. D. Davies, G. McD. Neill, W. A. H. Syvret, P. Welsh, W.	Mr. Morgan, Castle Hill School, Ealing. Mr. Hawe, High School for Boys, Croydon. Messrs. Davey, Oxenford House, St. Lawrence, Jersey. Mr. Spargo, Jersey Modern School, St. Helier's. Rev. Dr. Scott, Mercers' School, E.C.																			
1. Bourgeois, P. Dukes, Miss I. C.	Rev. Brother Attale, St. Joseph's College, Denmark Hill, S.E. Miss Conder, Milton Mount College, Gravesend.																			
1. Webb, Miss G. C. Gerrard, R. F.	Mrs. Hiatt, Ladies' College, Wellington, Salop. Private tuition.																			
1. Wall, Miss A. Withers, Miss H. M.	Mrs. Hiatt, Ladies' College, Wellington, Salop. Private tuition.																			
<p><i>Algebra.</i></p> <table border="0"> <tr> <td style="vertical-align: top;">                             1. Little, S. H.                              Tudball, T. B. D.                         </td> <td style="vertical-align: top; padding-left: 20px;">                             Mr. Hawe, High School for Boys, Croydon.                              Mr. Morgan, Castle Hill School, Ealing.                         </td> </tr> </table>	1. Little, S. H. Tudball, T. B. D.	Mr. Hawe, High School for Boys, Croydon. Mr. Morgan, Castle Hill School, Ealing.	<p><i>Italian.</i></p> <table border="0"> <tr> <td style="vertical-align: top;">                             1. Wing, R. A.                              Onslow, Lady Dorothy                         </td> <td style="vertical-align: top; padding-left: 20px;">                             Private tuition.                              Private tuition.                         </td> </tr> </table>	1. Wing, R. A. Onslow, Lady Dorothy	Private tuition. Private tuition.	<p><i>Shorthand.</i></p> <table border="0"> <tr> <td style="vertical-align: top;">                             1. Gerrard, R. F.                              Petzsche, R. A.                         </td> <td style="vertical-align: top; padding-left: 20px;">                             Private tuition.                              Rev. Dr. Scott, Mercers' School, E.C.                         </td> </tr> </table>	1. Gerrard, R. F. Petzsche, R. A.	Private tuition. Rev. Dr. Scott, Mercers' School, E.C.	<p><i>Domestic Economy.</i></p> <table border="0"> <tr> <td style="vertical-align: top;">                             1. Mainprize, Miss A. L.                              Murfitt, Miss G.                              Nicholls, Miss M.                         </td> <td style="vertical-align: top; padding-left: 20px;">                             Miss Ives, Devonshire House, Bridlington.                              Miss Hutt, Brooklyn High School, Leytonstone.                              Miss Atkins, West Ham High School.                         </td> </tr> </table>	1. Mainprize, Miss A. L. Murfitt, Miss G. Nicholls, Miss M.	Miss Ives, Devonshire House, Bridlington. Miss Hutt, Brooklyn High School, Leytonstone. Miss Atkins, West Ham High School.									
1. Little, S. H. Tudball, T. B. D.	Mr. Hawe, High School for Boys, Croydon. Mr. Morgan, Castle Hill School, Ealing.																			
1. Wing, R. A. Onslow, Lady Dorothy	Private tuition. Private tuition.																			
1. Gerrard, R. F. Petzsche, R. A.	Private tuition. Rev. Dr. Scott, Mercers' School, E.C.																			
1. Mainprize, Miss A. L. Murfitt, Miss G. Nicholls, Miss M.	Miss Ives, Devonshire House, Bridlington. Miss Hutt, Brooklyn High School, Leytonstone. Miss Atkins, West Ham High School.																			
<p><i>Euclid.</i></p> <table border="0"> <tr> <td style="vertical-align: top;">                             1. Phillipps, J. R.                              Browell, R.                         </td> <td style="vertical-align: top; padding-left: 20px;">                             Mr. Vine, Mount Radford School, Exeter.                              Rev. Dr. Scott, Mercers' School, E.C.                         </td> </tr> </table>	1. Phillipps, J. R. Browell, R.	Mr. Vine, Mount Radford School, Exeter. Rev. Dr. Scott, Mercers' School, E.C.	<p><i>Spanish.</i></p> <table border="0"> <tr> <td style="vertical-align: top;">                             1. Dyke, Miss B. L.                              Lammun, Miss E. S.                              Ramirez, J. de F.                         </td> <td style="vertical-align: top; padding-left: 20px;">                             Private tuition.                              Miss Sprague, Mecklenburg House, Putney.                              Private tuition.                         </td> </tr> </table>	1. Dyke, Miss B. L. Lammun, Miss E. S. Ramirez, J. de F.	Private tuition. Miss Sprague, Mecklenburg House, Putney. Private tuition.	<p><i>Latin.</i></p> <table border="0"> <tr> <td style="vertical-align: top;">                             1. Charles, Miss D. S.                              Harper, P. T.                         </td> <td style="vertical-align: top; padding-left: 20px;">                             Private tuition.                              Private tuition.                         </td> </tr> </table>	1. Charles, Miss D. S. Harper, P. T.	Private tuition. Private tuition.	<p><i>Greek.</i></p> <table border="0"> <tr> <td style="vertical-align: top;">                             1. Harper, P. T.                              Charles, Miss D. S.                         </td> <td style="vertical-align: top; padding-left: 20px;">                             Private tuition.                              Private tuition.                         </td> </tr> </table>	1. Harper, P. T. Charles, Miss D. S.	Private tuition. Private tuition.									
1. Phillipps, J. R. Browell, R.	Mr. Vine, Mount Radford School, Exeter. Rev. Dr. Scott, Mercers' School, E.C.																			
1. Dyke, Miss B. L. Lammun, Miss E. S. Ramirez, J. de F.	Private tuition. Miss Sprague, Mecklenburg House, Putney. Private tuition.																			
1. Charles, Miss D. S. Harper, P. T.	Private tuition. Private tuition.																			
1. Harper, P. T. Charles, Miss D. S.	Private tuition. Private tuition.																			

CLASS LIST — BOYS.

N.B.—The small italic letters denote that the Candidate to whose name they are attached was distinguished in the following subjects respectively:—

- a. = Arithmetic. al. = Algebra. b. = Botany. bk. = Bookkeeping. ch. = Chemistry. d. = Drawing. do. = Domestic Economy. e. = English. el. = Electricity. eu. = Euclid. f. = French. g. = Geography. geo. = Geology. gr. = Greek. h. = History. he. = Hebrew. i. = Italian. l. = Latin. m. = Mechanics. ms. = Mensuration. mu. = Music. nh. = Natural History. p. = Political Economy. ph. = Physiology. phys. = Elementary Physics. s. = Scripture. sd. = Sound, Light, and Heat. sh. = Shorthand. sp. = Spanish. tr. = Trigonometry. z. = Zoology.

The small figures 1 and 2 prefixed to names in the Second and Third Class Lists denote that the Candidates were entered for the First and Second Classes respectively.

In the addresses, Acad. = Academy, C. or Coll. = College, Coll. S. = Collegiate School, Comm. = Commercial, End. = Endowed, Found. = Foundation, H. = House, Inst. = Institute, Int. = International, Inter. = Intermediate, Prep. = Preparatory, S. = School, Tech. = Technical, Univ. = University.

FIRST CLASS [or SENIOR]. Honours Division.

Davies, G. McD. a. eu. fl. High S. for Boys, Croydon
Tudball, T. B. D. s. e. ch. a. al. Castle Hill S., Ealing
Brogg, R. a. al. eu. d. Mercers' School, E.C.
May, S. W. f. Raleigh Coll., Brixton
Bourgeois, P. ms. f. ge. St. Joseph's Coll., Denmark Hill, S.E.
Gibson, J. A. Mercers' School, E.C.
Welsh, J. a. al. Mercers' School, E.C.
Neill, W. A. H. a. ms. Oxenford H., Jersey
Stevens, H. s. al. High S., Penzance
Holt, W. h. Oakes Inst., Walton, L'pool
Samuel, W. S. f. Maida Vale S., W.
Wheater, S. s. a. Scarborough Gram. S.
Clark, J. A. h. l. Private tuition
Coldwell, E. S. sh. Mercers' School, E.C.
Glaister, E. W. a. Albert H., Carlisle
Casserley, W. S. s. St. John's Coll., Green Lanes, N.
McDonald, C. d. Dauntsey Agricultural S., W. Lavington
Walker, H. C. h. Friends' S., Winton
Alier, P. s. h. sh. Jersey Modern S.
Ashdown, E. A. G. s. h. Blue Coat S., Reading
Short, A. F. Kendrick Boys' S., Reading
Turner, W. el. ge. Bourne Coll., Quinton, B'ham
Little, S. H. al. sh. High S. for Boys, Croydon
Hudson, F. J. g. sh. Thorne Gram. S.
Phillips, J. E. h. Comm. Coll., York
Phillips, J. R. a. al. eu. Mt. Radford S., Exeter
Syvret, P. s. a. tr. f. Jersey Modern S.
Gerrard, H. S. Elmfield Coll., York
Mead, E. W. a. Henley S., Henley-on-Thames
Sydenham, J. W. Kendrick Boys' S., Reading
Evans, F. N. sh. Mercers' School, E.C.
Jenkins, F. R. ch. Elmfield Coll., York
Carty, E. G. s. h. Newtown S., Waterford
Petzsche, R. A. h. sh. Mercers' School, E.C.
Hunter, H. a. al. Clapham Coll. S.
Pickering, M. h. ch. Penistone Gram. S.
McCallum, A. R. a. Mercers' School, E.C.
Sheppard, J. A. Richmond Hill School
Williams, H. A. h. sh. Mairdeed Coll., Newport, Mon.
Fleetwood, A. C. h. Bourne Coll., Quinton, B'ham.
Groves, W. W. Dulwich College

FIRST CLASS [or SENIOR]. Pass Division.

Norman, H. J. L. sh. High S. for Boys, Croydon
Blomfield, A. J. Friends' S., Saffron Walden
Nicolle, J. M. f. Mercers' School, E.C.
Randolph, S. L. Argyle H., Sunderland
Dawe, E. h. ge. Wallingbrook, Chulmleigh
Henderson, E. A. s. h. g. Friends' S., Penketh
Grove, J. P. Halesowen Gram. S.
Norcombe, T. P. h. l. Mt. Radford S., Exeter
Nixon, H. h. High S., Romford
Clarke, W. T. Private tuition
Harper, P. T. h. l. Private tuition
Clarke, S. Barton S., Wisbech
Gibbons, L. R. W. s. Jersey Modern S.
Oliver, R. J. Private tuition
Hobbs, J. H. sh. Clapham Coll. S.
Evans, J. J. W. Private tuition
Leader, F. C. d. Kendrick Boys' S., Reading
Lowther, R. W. H. ms. Highfields, Chorlsey
Appleby, F. L. High S., Romford
Gardner, J. J. h. Friends' S., Wigton
Carmody, E. P. Univ. Tutorial Coll., W. C.
Clapham, H. D. Tollington Park Coll.
Wilkinson, L. C. Royal Latin S., Buckingham
Le Quene, C. P. Jersey Modern S.
Edwards, H. f. Jersey Modern S.
Ross, W. D. Holt H., Cheshunt
Scott, D. L., St. John's Coll., Brixton
Gill, T. W. Marlborough Coll., Tue Brook, L'pool

Thornley, F. E. a. Cliftonville Coll., Margate
Kenner, T. W. The High S., Brentwood
McCall, W. G. Univ. S., Hastings
Mole, C. J. a. Skerry's Coll., Plymouth
Romeril, A. J. Jersey Modern S.
Pickett, A. H. Private tuition
Kirk, W. s. Private tuition
Muirhead, J. A. Jersey Modern S.
Peacock, J. W. R. Lancaster Coll., Morecambe
Smith, E. D. Newcastle Modern S.
Lawson, B. Thorne Gram. S.
French, A. G. V. Private tuition
Marsh, C. J. M. s. Edward VI. Gram. S., Southampton
Perry, E. J. ms. Croad's S., King's Lynn
Grimshaw, H. H. s. Kingswood S., Bath
Hodgson, S. M. The High S., Brentwood
Pitts, A. T. h. Private tuition
Smith, J. B. s. Cliftonville Coll., Margate
Williamson, P. Friends' S., Wigton
Knighton, W. T. G. Cambridge H., Margate
Feuton, J. 45 Miller Arcade, Preston
Gerrard, R. F. ms. sh. Private tuition
Oliver, W. G. Cantley, Tunbridge Wells
Corfield, W. P. S. Wales Tutorial Classes, Carliff
Cross, A. O. Private tuition
Edwards, L. l. Private tuition
Jones, A. C. G. f. Cliftonville Coll., Margate
Le Brun, C. C. R. St. James's Coll. S., Jersey
Trench, H. T. Private tuition
Godfree, L. A. Brighton College
Hoare, J. F. Berkhamsted School
Barlow, H. T. West Cliff S., Ramsgate
Chartres, P. E. High S. for Boys, Croydon
Myers, F. R. a. Private tuition
Thompson, R. W. Halesowen Gram. S.
Grey-Smith, M. Worthing Gram. S.
Smith, H. A. Clyde H., Hereford
Ashdown, R. H. s. a. Kirton Rectory, Ipswich
Reveys, G. L. Lancaster Coll., W. Norwood
Brinacombe, A. d. Private tuition
Kirkman, F. B. h. Manchester Gram. S.
Taylor, E. L. Private tuition
McPherson, D. C. Winchester H., Redland, Bristol
Hanchet, W. F. d. Stationers' S., Hornsey
Tutt, E. L. H. ge. Univ. S., Hastings
Manning, A. F. Kendrick Boys' S., Reading
Chettle, N. Kendrick Boys' S., Reading
Hellyer, W. W. ch. Private tuition
Thomas, F. W. G. The Douglas S., Cheltenham
Wethey, E. H. h. Winchester H., Redland, Bristol
Hill, C. Jersey Modern S.
Jones, F. E. Liverpool Coll. Middle S., Shaw St., L'pool
Sealey, G. G. h. St. Dunstan's Coll., Catford
Shewell, A. B. Friends' S., Bootham, York
Baker, A. F. Clyde H., Hereford
Conlon, H. Scarborough Gram. S.
Phillips, B. J. Tutorial S., Penarth
Jennings, J. H. Friends' S., Saffron Walden
Carey, W. G. Vermont Coll., Clapton
Gardner, W. A. The Coll., Weston-s-Mare
Gindler, R. Private tuition
Thatcher, R. S. Winchester H., Redland, Bristol
Dunne, A. Stanley H., Margate
Metcalfe, S. D. Argyle H., Sunderland
Smith, E. W. a. Arnold H., Blackpool
Bunde, R. A. The Coll., Churwell, Leeds
Jackman, H. C. sh. High S., Torquay
Dent, G. B. St. L. Private tuition
Barker, J. M. W. s. Kingswood S., Bath
Goldsmith, B. Private tuition
Levitt, R. H. St. Martin's Gram. S., Scarborough
Highton, R. Southport Modern S.
Gray, G. M. Winchester H., Redland, Bristol
Robson, W. E. St. Martin's Gram. S., Scarborough
Johnston, G. L. h. Private tuition
Messer, F. J. Private tuition
Poll, C. H. Gram. S., Shoreham
Mugliston, R. Alwyne Inst., Gower St., W.C.

Taylor, C. H. Private tuition
Benest, S. f. St. James's Coll. S., Jersey
Munnery, W. R. Private tuition
Mansfield, H. A. Winchester H., Redland, Bristol
Dawkin, B. Clark's Civil Serv. Coll., Chancery Lane
Reushaw, A. ch. Private tuition
Sapsford, E. J. Mercers' School, E.C.
Mekle, W. E. s. Albion Rd. East, N. Shields
Cleminson, H. M. s. Kingswood S., Bath
Pickup, A. M. l. Private tuition
Smith, P. P. High Pavement S., Nottingham
Marrion, H. J. Highfield S., Muswell Hill Rd., N.
Danter, G. A. Comm. Coll., York
Hicks, F. B. Malvern Coll., Gt. Malvern
Moxley, C. F. Hull Gram. S.
Williams, D. E. Mairdeed Coll., Newport, Mon.

SECOND CLASS [or JUNIOR]. Honours Division.

Branford, R. a. al. l. d. Private tuition
Webster, G. E. g. el. ch. Read's S., Drax, Selby
Stevenson, J. c. a. d. f. Hindley Gram. S.
Benny, L. B. al. ch. Central Found. S., E.C.
Lacey, W. S. g. f. l. Park H., Broadstairs
Smith, A. A. F. al. f. l. U. Hornsey Rise High S., N.
Milstein, H. a. al. ch. Central Found. S., E.C.
Cooper, J. V. a. al. ms. Hindley Gram. S.
Jordan, J. W. a. al. ms. Sherferblatt, H. a. al. Central Found. S., E.C.
Cooper, S. F. al. Univ. S., Herne Bay
Atwill, H. F. al. Middle S., Torrington
Blake, T. A. f. l. ch. Private tuition
Rouse, J. M. a. al. ch. Earls Colne Gram. S.
MacKrell, O. W. a. f. Private tuition
Thompson, H. G. a. f. bk. Gram. S., Shoreham
Parr, E. T. ch. Elmfield Coll., York
Doyle, E. A. Mercers' School, E.C.
Fryer, W. B. Mercers' School, E.C.
Hurst, J. D. f. Hindley Gram. S.
Kilder, E. W. C. al. f. Gram. S., Shoreham
Tatchell, F. s. bk. d. f. Derwent H., Bamford
Cooke, N. al. Farnworth Gram. S., nr. Bolton
Murray, R. W. al. d. Mercers' School, E.C.
Pallot, H. bk. sh. St. James' Coll. S., Jersey
Waters, W. al. Bracondale S., Norwich
Goulding, E. A. g. d. Chateau de la Croisiere, Ghistelles, Belgium
Sieviers, P. H. ge. Mercers' School, E.C.
Cliff, W. P. bk. f. High S., Torquay
Cooper, T. G. h. al. Univ. S., Herne Bay
Pironet, A. N. f. Oxenford H., Jersey
Deacon, S. High S. for Boys, Croydon
Hainsoln, M. l. al. ch. Central Found. S., E.C.
Pearman, J. G. V. C. e. d. Gram. S., Shoreham
Southgate, E. G. bk. d. Lucton S., Herefordshire
Blamey, E. R. al. ch. Uckfield Gram. S.
Prior, W. H. Q. Kingswood S., Bath
Winterton, W. A. E. ch. Earls Colne Gram. S.
Parker, F. J. al. f. Jersey Modern S.
Shergold, P. F. Elmfield Coll., York
Williams, W. J. g. St. Olave's & St. Saviour's Gram. S., S.E.
Clarkson, R. T. f. d. Winchester H., Redland, Bristol
Elliott, J. P. bk. d. Gram. S., Ramsey, Hunts.
Lamb, C. W. sh. Albert H., Carlisle
Whittle, J. R. Farnworth Gram. S., nr. Bolton
Mainprize, W. a. d. St. Martin's Gram. S., Scarborough
Simmons, H. S. f. Burgess Hill High S., Sussex
Cerutti, M. g. Clapham Coll. S.
Godfrey, C. G. d. Mercers' S., E.C.

Shuckleton, H. S. Whitworth S., Derby
Unwin, R. H. ch. Earls Colne Gram. S.
Watson, F. E. bk. Loughton School
Groves, C. P. Kendrick Boys' S., Reading
Light, F. H. bk. The Coll., Clevedon
Sutton, G. S. Undercliffe Coll., Ventnor
Barker, S. G. ch. Elmfield Coll., York
Curtis, F. W. al. The Coll. S., Poole
Piggott, W. T. al. Mercers' School, E.C.
Skelton, N. f. ch. Jersey Modern S.
Water, W. Q. f. Eliz. Gram. S., Ashburne
Thomson, E. H. Oakes Inst., Walton, L'pool
Child, A. J. f. Gunnersbury S.
Ormerod, S. P. Rocliffe High S.
Reeve, E. R. ch. Elmfield Coll., York
Strode, T. W. R. s. Castle Hill S., Ealing
Unwin, R. f. ch. Earls Colne Gram. S.
Diplock, T. G. High S. for Boys, Croydon
Durrant, G. H. al. High S., Romford
Triplady, W. L. ch. Read's S., Drax, Selby
Boyd, D. K. d. Mercers' School, E.C.
Branham, J. W. f. North Devon S., Barnstaple
Carter, J. F. H. l. Mercers' School, E.C.
Hart, R. L. P. l. Private tuition
Walsh, T. P. s. Boniface's Coll. S., Plymouth
Bairto, G. E. ch. Oakes Inst., Walton, L'pool
Lachlan, L. f. Stanley H., Margate
Sanders, A. ch. d. Tech. Day S., Walsall
Wright, H. A. ch. d. Tech. Day S., Walsall
Green, C. S. ch. The Modern S., Maidenhead
Hart, S. Earls Colne Gram. S.
Knoules, B. d. Oakes Inst., Walton, L'pool
Parker, H. ch. Q. Eliz. Gram. S., Ashburne
Denham, J. al. Rastrick Gram. S., Brighouse
Gorringe, H. M. al. Burgess Hill High S., Sussex
Oyston, G. D. ch. d. Friends' S., Saffron Walden
Watkinson, F. ch. Q. Eliz. Gram. S., Ashburne
Andrews, L. C. f. Jersey Modern S.
Francis, T. C. al. Battersea Polytechnic Science S.
Russell, T. B. Newtown S., Waterford
Scobie, L. G. Mercers' School, E.C.
Box, L. A. High S. for Boys, Croydon
Summerhays, W. E. al. Kingswood S., Bath
Crowther, G. A. ch. Private tuition
Cuthbert, J. W. ch. d. Earls Colne Gram. S.
Dunne, W. f. d. High S., Torquay
Hobson, F. H. ch. Read's S., Drax, Selby
Swift, F. B. a. Grosvenor Mount S., Scarborough
Watkins, H. Ll. Stationers' S., Hornsey
Elliott, A. S. Kingswood S., Bath
Haigh, H. E. al. f. Hindley Gram. S.
Hall, E. C. bk. Releahall Comm. S., Harleston
Richards, S. T. ch. Read's S., Drax, Selby
Dowling, W. H. h. Heath Brow, Boxmoor
Fysh, S. g. d. S. Holland Central Classes, Spalding
Millow, W. C. al. d. Jersey Modern S.
Srigley, T. W. al. bk. Cavendish S., Matlock
Dawe, J. W. Heath Brow, Boxmoor
Pettifer, T. P. Gram. S., Newton Abbot
Hunt, R. J. e. ch. Earls Colne Gram. S.
Daniels, R. W. h. l. Clark's Civil Serv. Coll., Chancery Lane
Felz, B. al. ch. Central Found. S., E.C.
Laker, J. T. A. a. Whitworth S., Derby
Pelly, E. f. Southport Modern S.
Scandian, C. E. The Coll. S., Poole
Smith, E. Barton S., Wisbech
Weaver, H. G. d. Lewisham H., Weston-s-Mare

SECOND CLASS [or JUNIOR]. Pass Division.

Bates, S. H. St. John's Coll., Green Lanes, N.
Cox, E. A. L. sh. Kelly Coll., Tavistock
Bennett-Evans, J. E. ch. Oakes Inst., Walton, L'pool

BOYS, 2ND CLASS, PASS—Continued.

1Carpenter, G. St. John's Coll., Green Lanes, N.
1Reeve, H.T. d. Private tuition
1Rutter, W.S. ch. Dulwich College
1Babbage, A. Devonport High S.

DuBoisson, R.V. Southport Modern S.
Gould, C.W. d. Reading Coll. S.
Kelly, D.P.J. Ascham Coll., Clacton
1Martin, H.E.L. Winchester H., Redland, Bristol

Graves, A.H. 1 Palamos Rd., Leyton
Joel, E.C. Gravesend Modern S.
Leith, M. Waltham Coll., Waltham Cross

Hosegood, P. High S. for Boys, Croydon
Normanton, T.P. Crossley & Porter S., Halifax
Seamor, R.G.R. Oakes Inst., Walton, L'pool

**BOYS, 2ND CLASS, Pass—Continued.**  
 Poteh, R.W. Scarborough Hr. Grade S.  
 Tanner, A.E. Portway High S., Bath  
 Braund, C.A. Gram. S., Romford  
 'Dougherty, V.W. Richmond Hill S.  
 Gaze, W.M. Edward VI. Midd. S., Norwich  
 Prescott, L. Central Found. S., E.C.  
 'Willows, B.L. Winchester H., Redland, Bristol  
 Carpenter, A. J. St. John's Coll., Green Lanes, N.  
 Clarkson, J. Loughton School  
 'Cotton, H.R. Private tuition  
 Grey, J.H. Comm. Coll., York  
 Harrington, G.W. Gravesend Modern S.  
 Harvey, M. Clapham Coll. S.  
 Lock, B.G. Grosvenor S., Bath  
 MacEwen, J.H. ch. Edward VI. Midd. S., Norwich  
 Savage, H.T. St. Aubyn's, Woodford Green  
 Walton, H.S. King Edward VI. S., Wymondham  
 Bomford, C.A. Private tuition  
 Brown, W.K. The Academy, Crewe  
 Castle, A.C. E. Finchley Gram. S.  
 Hills, P.C. a. St. John's, Worthing  
 Lush, S.R. Enwells S., Westminster  
 May, J.H. Boys' Coll. S., Aldershot  
 Peel, H.D. Bispham Lodge, Norbreck, Lanes.  
 Smeal, J.M. Friends' S., Wigton  
 Alford, C.P.W. Springfield Coll., Acton Hill  
 Aston, F.E. York Manor S., York  
 Bird, G.H. d. Gravesend Modern S.  
 Brown, W. High S. for Boys, Croydon  
 Elliott, T.L. Highfield S., Muswell Hill  
 King, R. bk. St. Winfred's S., Torquay  
 Knowles, F.H. The Coll., Weston-s.-Mare  
 Martin, O. Manor H., Clapham  
 Phillips, H.G. Private tuition  
 Roberts, E.S. Crossley & Porter S., Halifax  
 Smiles, H.T. Gravesend Modern S.  
 Stephenson, J.A. E. Finchley Gram. S.  
 Barleigh, C.H. Wadhams S., Liskeard  
 Fiske, H.B. Burgess Hill High S., Sussex  
 Harris, M.H.E. St. Catherine's, Littlehampton  
 Helliwell, S. Crossley & Porter S., Halifax  
 Merewether, R. Clyde H., Hereford  
 Rigby, L. Bispham Lodge, Norbreck, Lanes.  
 Scarles, W.T. Edward VI. Midd. S., Norwich  
 Horn, A.C.R. Loughton School  
 Jones, L.A.S. Mercers' School, E.C.  
 Barnard, S.G. Seven Kings Gram. S.  
 King, W.H. St. Leonard's Coll. S.  
 Mitchell, V.C. Private tuition  
 Newman, J. Hatfield H., St. Leonards  
 Roberts, W.E. Skerry's Civil Serv. Coll., Cardiff  
 Walker, H. Newcastle Modern S.  
 Williams, J.P. Ascham Coll., Clacton  
 Bailey, R. Kingswood S., Bath  
 Duncum, G. Stanley H., Margate  
 King, A. ch. Edward VI. Midd. S., Norwich  
 Tomlinson, C.W. Modern S., Woking  
 Toop, F.J. Belgrave H., Littlehampton  
 Wood, R. Castlebar Court, Ealing  
 Badoock, P. d. Vermont Coll., Clapton  
 Betts, F.G. f. Croad's S., King's Lynn  
 Johnson, E.H. Private tuition  
 Knowles, J.W. Lancaster Coll., Morecambe  
 McRobert, J. Private tuition  
 Nicholson, T.P. Easingwood Gram. S.  
 Swan, D.B. Sandwich School  
 Wilson, D. Newcastle Modern S.  
 Cutting, H.V. Woolston Coll., Southampton  
 Grant, J.C. Univ. S., Herne Bay  
 Leach, L.H. De Aston S., Market Rasen  
 Stone, P.A. The High S., Brentwood  
 Thorne, A.E.L. Manor H., Clapham  
 Frost, S.L. Licensed Victuallers' S., S.E.  
 Irvin, E. Elmfield Coll., York  
 Johnson, E.E. Edward VI. Midd. S., Norwich  
 Tolley, R. Winchester H., Redland, Bristol  
 Webb, R.L. Grosvenor Coll., Luton  
 Gribble, H.C. Gram. S., Bp. Stortford  
 Heward, F.J. High S. for Boys, Croydon  
 Leonard-Smith, R.T. Southdown Coll., Eastbourne  
 Vosper, E. Montrose H., Plymouth  
 Blythe, M.J. Cambridge H., Coventry  
 Bunt, F. Comm. S., Clare St., Penzance  
 Collier, H. Rusholme High S., M'chester.  
 Edmunds, R.E. Gillingham Gram. S.  
 Fisher, H.W. Gram. S., Blackpool  
 Selous, H.S.L. Private tuition  
 Adams, P.J. St. Aubyn's, Woodford Green  
 Burgum, W.H. Bourne Coll., Quinton, Bham  
 Cornish, J.W. Clarence Prep. S., St. Helier's  
 Edgar, N. Private tuition  
 Harsey, A.F. Worthing Gram. S.  
 Holloway, S.A. l. Mercers' School, E.C.  
 Jones, H. Wellington S., Heaton Moor  
 Oddy, R.H. Gram. S., Wortley de Leeds  
 Beeson, F.G. Broomy Hill Acad., Hereford  
 Burden, G. Ashley H., Workshop

'Campbell, G.W. Maidlee Coll., Newport, Mon.  
 Jermyn, B.V. King Edward VI. S., Wymondham  
 Purry, H.S. Cowes Gram. S.  
 Purrehas, F.J. Winchester H., Redland, Bristol  
 Sweet, W.A. Highfield S., Chertsey  
 Tyzack, O. Stanley H., Margate  
 Sandell, T.C. Selhurst Park Coll., S.E.  
 Wilde, S.J. Scarisbrick Coll., Birkdale  
 Cheal, A.E. Skerry's Coll., Chancery Lane  
 Gabe, I.S. Castlebar Court, Ealing  
 Grover, M.R. Winchester H., Redland, Bristol  
 Jones, W.H. Chaloner's S., Braunton  
 Marrian, K.C. Highfield S., Muswell Hill  
 Taylor, J.L. Argyle H., Sunderland  
 Wilson, H.L.L. Cleave's End S., Yalding  
 Grant, D. High S. for Boys, Croydon  
 Pitt, F. Halesowen Gram. S.  
 Smart, H. Wellington Rd. S., Taunton  
 Van der Linde, S.S. The Coll., Highbury New Park  
 Barfield, J.C.H. Private tuition  
 Bissett, J.S. New Coll., Worthing  
 Downes, F.S. Prospect H., Dover  
 Esdon, D.S. High S. for Boys, Croydon  
 Stones, W.V. Bispham Lodge, Norbreck, Lanes.  
 Brewis, F.G. Maidenhead College  
 Doubleday, F.N. Manor H., Clapham  
 Maltby, C.T. Lewisham Park S., S.E.  
 Muir, S.G. King's Coll., Wimbledon  
 Paul, G.G. Edward VI. Midd. S., Norwich  
 Shaffo, P.H. High S. for Boys, Croydon  
 Stiles, S.C. Harringay S., Hornsey  
 Brewster, F. Central Found. S., E.C.  
 Perryman, W.C. Stanley H., Margate  
 Postlethwaite, H. Private tuition  
 Rhodes, C.R. Scarborough Gram. S.  
 Doyle, G.S. Sunbury H., Willesden Green  
 Fifth, F.B. Elmfield Coll., York  
 Fletcher, R.C. High S. for Boys, Croydon  
 Goss, W.W.M. Wallingbrook, Chulmleigh  
 Mabbott, L.C. Comm. S., Clare St., Penzance  
 Riches, B.R. Edward VI. Midd. S., Norwich  
 Tilley, J.A. Devonshire H., Southampton  
 Boggis, A.H.G. People's Coll. Hr. S., Nottingham  
 Borrow, C. Arlington Park Coll., Chiswick  
 Wyatt, W.F. bk. Felix Coll. for Boys, Lavender Hill  
 Price, L.J. Private tuition  
 Spear, F.J. Southampton Boys' Coll. & High S.

**THIRD CLASS.**  
**Honours Division.**  
 Riggs, P.T. e.h.g.a.d. Loughton School  
 Robertson, R. d. Private tuition  
 Childs, S. e.a.o.f. Blue Coat S., Oldham  
 Whipp, L.H. e.a.o.f. l. Haringey Park S., Crouch End  
 Oyston, M. a.f. Friends' S., Saffron Walden  
 Prentice, M.A. e.a.o.f. Woolston Coll., Southampton  
 Funnell, H.M. g.a.o.f. e.o.d. Lewes Gram. S.  
 Archer, C. a. Christ Church S., Southampton  
 Lloyd, L. e.a.o.f. e.u. Kingswood S., Bath  
 Tate, G.H. a.o.f. Blue Coat S., Oldham  
 Walkden, A. g.a.o.f. Ashville Coll., Harrogate  
 Hirschberg, F.R. g.f.g. Bickerton H., Birkdale  
 Holland, T. e.a.o.f. Bourne Coll., Quinton, Bham  
 Snow, F. e.a.o.f. d. Pierremont Coll., Broadstairs  
 Wallis, J.T. a. Ashville Coll., Harrogate  
 Hollick, T.A. e.h.g. Wilsford H., Devizes  
 Kembal, C.H. e.a.o.f. e.u. Sudbury Gram. S.  
 Somers, F. e. Coll. S., St. Mary St., Bridgwater  
 Staley, R.C.W. e.g.a. Colebrook H., Bognor  
 Collister, A. Castletown Gram. S., Lof Man  
 Dowell, R.S. St. John's Coll., Green Lanes, N.  
 Harrison, H. g.a.o.f. Choir S., Holy Trinity, Hull  
 Kirby, W. Gram. S., Ramsey, Hunts  
 Llynas, A.O. h.a.o.f. Thorne Gram. S.  
 Alderton, G.H. g.a.d. Comm. S., Uxbridge  
 Few, A.W. g. Wilsford H., Devizes  
 Isaac, W.G. a.b.k.d. Gram. S., Barnstaple  
 Rollino, A.B. f. Southdown Coll., Eastbourne  
 Booth, S. e.a.d. Edgiboston Academy  
 Bradshaw, F.A. bk. High S., Romford  
 Brown, G.B. e.g.o.f. Cathcart Coll., Cathcart Hill, N.  
 King, S. a.u.d. e.u. Wirral Coll., Hoylelake  
 Northrop, F. e.u.d. St. Martin's Gram. S., Scarborough  
 Eager, O. a. d. Rolandseck S., Ealing  
 Finch, C.V. f. Heath Brow, Boxmoor

Makin, G. e.l. Kilgrimol S., St. Anne's-on-Sea  
 Purry, W.B. a.o.f. Southdown Coll., Eastbourne  
 Shipley, W.F. e.o.f. Benwell Delaval Board S.  
 Mathwin, G.L. g.a. Bickerton H., Birkdale  
 Nuttall, W. e.o.f. Kilgrimol S., St. Anne's-on-Sea  
 Smith, W.F. R. a.f. Up. Hornsey Rise High S., N.  
 Steen, J. e.a.v. Comm. Coll., Southport  
 Bird, W.J. e.g.a.o.f. Brent Hill, Hanwell  
 Dickson, A.W. e.o.f. Collett H., Bournemouth  
 Hairsine, W. ch. Read's S., Drax, Selby  
 Morgan, D.F. f. Up. Hornsey Rise High S., N.  
 Tawell, T. Friends' S., Saffron Walden  
 Barnes, F.M. Croad's S., King's Lynn  
 Bayard, J.C. e. Portway High S., Bath  
 Bennett, R. e. Reading Coll. S.  
 Boorman, A.R. e.g.a.o.f. Brent Hill, Hanwell  
 Coombe, S. o.d. Gram. S., Hayle  
 De Bourcier, H.A. h.a.o.f. Jersey Modern S.  
 Frazer, W.M. a.o.f. d. Oakes Inst., Walton, L'pool  
 Hoeken, M. e. Gravesend Modern S.  
 Lintern, C.K. a.b.k. Coll. S., Lapford  
 Thornley, H.V. e.o.f. Cliftonville Coll., Margate  
 Tompson, W. e. Redland Grove Coll., Bristol  
 Whitehead, S.G. a.o.f. St. Martin's Gram. S., Scarborough  
 Arbenz, W. f.g. e. New Coll., Worthing  
 Charlton, O. g.a. Benwell Delaval Board S.  
 Gladden, K.R. Bracondale S., Norwich  
 Nash, E. Friends' S., Penketh  
 Norris, H. e. Christ Church S., Southport  
 Parmenter, H.F. Earls Colne Gram. S.  
 Quant, B.H. h.a.o.f. Kingsholme, Weston-s.-Mare  
 Scott, F. a. Ashville Coll., Harrogate  
 Stone, R. a. Lewes Gram. S.  
 Atkinson, W.P. o.f. St. Martin's Gram. S., Scarborough  
 Brindley, J.W. a. Q. Elizabeth Gram. S., Ashburne  
 Burton, A.F. h.a. Hatfield H., St. Leonards  
 Chart, R. o.f. High S. for Boys, Croydon  
 Harvey, H.C. o.d. Brent Hill, Hanwell  
 Kyezor, A. Ramsgate School  
 Litt, H.H. e.o.f. e.u. High S. for Boys, Blackpool  
 Lyne, G.H. g. Devizes Gram. S.  
 Taylor, E.S. a. Albert H., Carlisle  
 Watson, E.R. Lewes Gram. S.  
 Webber, V.R. J. a. Coll. S., St. Mary St., Bridgwater  
 Abraham, E.S. g. Devizes Gram. S.  
 Almond, W.E. ev. Farnworth Gram. S., near Bolton  
 Bamford, W.C. e.o. Southport Modern S.  
 Bond, E.A. g. St. John's Coll., Green Lanes, N.  
 Booth, G. Edgiboston Academy  
 Hairsine, H.L. g. Read's S., Drax, Selby  
 Hills, T.G. Licensed Victuallers' S., S.E.  
 Holden, S.G. F. a. d. Worthing Gram. S.  
 Hughes, C.W.P. e.o. Lewes Gram. S.  
 King, H.L. Collett H., Bournemouth  
 May, L.G. a. Raleigh Coll., Brixton  
 Redhead, J.F. a. Elmfield Coll., York  
 Rogers, F.A. g. Bracondale S., Norwich  
 Smith, F.R. a. Brunswick H., Maidstone  
 Bennett, F. New Coll., Harrogate  
 Brunsell, B.A.S. e.f. d. Westbury H., Southsea  
 Clark, H. e.g.d. Chaloner's S., Braunton  
 Conlan, B.D. Lewes Gram. S.  
 Filleul, W.F. e.o.f. Jersey Modern S.  
 Grist, E.G. a. Wilsford H., Devizes  
 Hasler, A.B. a. Jersey Modern S.  
 Quayle, A. Castletown Gram. S., I. of Man  
 Rubinstein, B. Ramsgate School  
 Surgey, J. Waltham Coll., Waltham Cross  
 Butler, O. e. Ashville Coll., Harrogate  
 Dorey, G.B. f. Gorey Comm. S., Jersey  
 Dupuis, G.E. f. St. Leonards Coll. S.  
 Falle, A.W. e. d. Jersey Modern S.  
 Hains, F.W. e.o.f. Croad's S., King's Lynn  
 Hudson, R.P. e.h.g.a. Thorne Gram. S.  
 Juleff, S. a. Friends' S., Saffron Walden  
 Parmenter, A.W. S. Earls Colne Gram. S.  
 Walters, W.E. a.o.f. d. Kingsholme, Weston-s.-Mare  
 Wardle, J.F. a. Q. Eliz. Gram. S., Ashburne  
 Bickford, F. a. E. Devon County S., Sampford Peverill  
 Clover, H. o.f. E. Devon County S., Sampford Peverill  
 Dugdale, D. a. d. Kilgrimol S., St. Anne's-on-Sea  
 Larke, D.B. Edward VI. Midd. S., Norwich  
 Lee, H. a.o.f. e.u. Newcastle Modern S.  
 Palmer, F.C. Ebor S., Bexhill  
 Percival, E. Earls Colne Gram. S.  
 Wheeler, H.H. Gram. S., Hayle  
 Wheeler, L.R. 2 St. Catherine's Rd., Littlehampton

White, N.C. g.o. Walden H., Herne Bay  
 Adams, L. Christ's Coll., Blackheath  
 Archer, H. d. Christ Church S., Southport  
 Billingham, H.J. Wilsford H., Devizes  
 Colebrook, A.E.N. a.o.f. Jersey Modern S.  
 Crabtree, H.S. e. High S. for Boys, Blackpool  
 Harris, S.F. a. Thornton Heath School  
 Humphreys, E.G. a.o.f. Lewisham Park S., S.E.  
 Jenkins, C. e.o.f. Hasland H., Penarth  
 Lait, H.S. Haringey Park S., Crouch End  
 Paterson, G.W. f. Lewes Gram. S.  
 Perry, R.G.P. e.e. Gram. S., Shoreham  
 Purry, H.B. f. Southdown Coll., Eastbourne  
 Rogers, F. a. d. Lucton S., Herefordshire  
 Abbott, K.W. a. Collett H., Bournemouth  
 Agnes, J.P. ch. a. d. Jersey Modern S.  
 Aston, R.N. New Coll., Worthing  
 Dowling, L. a. Pierremont Coll., Broadstairs  
 Furrell, C.L. Univ. S., Herne Bay  
 Gibson, W.R. s.g. Earls Colne Gram. S.  
 Hall, H.N. e. Dagnar H., Hatfield  
 Harvey, S. a. d. Elmfield Coll., York  
 Higgin, P. a. d. Southport Modern S.  
 Hill, H.S. Blue Coat S., Oldham  
 Lawrence, S.M. Heath Brow, Boxmoor  
 Nightingale, J. a. d. Preston Class. & Comm. S.  
 Pallet, E.P. a.o.f. Jersey Modern S.  
 Payne, F.C. d. Halesowen Gram. S.  
 Phillipson, G.E. a.o.f. d. Elmfield Coll., York  
 Ross, C.D.B. l. Alton H., Vanbrugh Pk., S.E.  
 Seward, G.F. a. St. Leonards Coll. S.  
 Siggers, H. a. Earls Colne Gram. S.  
 Waterhouse, T.H.H. Newtown S., Waterford  
 Ainsworth, W.T. e.o. Milton Abbas S., Blandford  
 Burnett, E.N. a.o.f. Ashville Coll., Harrogate  
 Faull, W.C. e. St. Ives Gram. S.  
 Hyland, D. Kilgrimol S., St. Anne's-on-Sea  
 Kidd, W. e. Pierremont Coll., Broadstairs  
 Kingston, L. a. d. Pierremont Coll., Broadstairs  
 Olden, H.G. a. Northgate S., Winchester  
 Pearson, C. St. Philip's Gram. S., Edgiboston  
 Powys, A.R.N. e. Gunnersbury School  
 Purser, H.O. a. Lucton S., Herefordshire  
 Rudd, J. Chaloner's S., Braunton  
 Sak, Chat Choo a.o.f. d. Oundle School  
 Schaeffer, E.D. St. John's Coll., Green Lanes, N.  
 Still, A.G. a.f. Cranbrook Coll., Iford  
 Wood, C.B. Northgate S., Winchester  
 Ames, F.T. Sandwich School  
 Baker, F.C. Friends' S., Saffron Walden  
 Bristow, L.C. e.o.f. d. Westbury H., Southsea  
 Flinn, R. High S., Romford  
 Harold, W. a. Ashville Coll., Harrogate  
 Lees, P. a. Comm. S., Clare St., Penzance  
 Mitchell, F. a. Friends' S., Gt. Ayton  
 Passmore, A.W. a. Manor H., Clapham  
 Pickering, E.R. St. Leonards Coll. S.  
 Wetherall, M.L. g.f. Cliftonville Coll., Margate  
 Brand, C.W. St. John's Coll., Green Lanes, N.  
 Featherston, W.S. a. Scarborough Gram. S.  
 Forrest, M.P. a. d. Benwell Delaval Board S.  
 Gray, L.C. a. Brunswick H., Maidstone  
 Halsey, W.C. Worthing Gram. S.  
 Jolliffe, D.W. Wilsford H., Devizes  
 McGrath, V.L. e.d. Boys' Coll. S., Aldershot  
 Middleton, E. o.f. Newcastle Modern S.  
 Shoosmith, A.G. e. Lucton S., Herefordshire  
 Sutton, L.B. a. Q. Eliz. Gram. S., Ashburne  
 Thistlethwaite, B. d. Ellesmere S., Harrogate  
 Berry, R.E. Southport Modern S.  
 Bray, H.S. a. Swindon High S.  
 Burr, H. o.f. Grafton H., Manchester  
 Coie, A.H. g. Edward VI. Midd. S., Norwich  
 Crowley, L. de S., a. f. New Coll., Bexhill  
 Daniels, F.K. Tankerton Coll., Tankerton-on-Sea  
 Du Jardin, F.G. a. Jersey Modern S.  
 Faikner, J.W. a. d. High S. for Boys, Croydon  
 Forster, S.B. Thorne Gram. S.  
 Jessop, H.R. Holloway College, N.  
 Kershaw, R. Kilgrimol S., St. Anne's-on-Sea  
 Liddle, W.H. d. Loughton School  
 Messervy, K. Northgate S., Winchester  
 Mollet, C.W. Jersey Modern S.  
 Palmer, H.G. Lewes Gram. S.  
 Powell, E.J. f. d. Haringey Park S., Crouch End  
 Taylor, N. Ashville Coll., Harrogate  
 Tobitt, W.C. d. Burgess Hill High S., Sussex  
 Troman, E. Friends' S., Gt. Ayton  
 Warriner, A.N. Loughton School  
 Wilson, H.H. Bracondale S., Norwich







THE EDUCATIONAL TIMES.

BOYS, 3RD CLASS, PASS—Continued.

Wesson, W.E. Halesowen Gram. S.
Armstrong, E. Coll. S., Bp. Auckland
Barrett, H. Read's S., Drax, Selby
Blake, H.R. z. Trowbridge High S.

Almond, E. Longsight Gram. S., M'chester
Barten, J. High S., Romford
Beaty, G.H.M. Sandwich School
Dawson, J.A. g. Brighton H., Oldham
Ellison, A. Christ's Coll., Blackheath

Armstrong, E. Coll. S., Bp. Auckland
Barrett, H. Read's S., Drax, Selby
Blake, H.R. z. Trowbridge High S.

(2)Wright, S.G.

Allfree, G.S. d. Alexander H., Broadstairs
Allison, H.H. Higher Grade S., Selby
Atkinson, J. The Coll., Rock Ferry

Agate, E.C. Hardwicke H., Seaford
Billiau, C.F.H. The Coll., Rock Ferry
Brabazon, E. Newtown S., Waterford

Askew, W. Oakes Inst., Walton, L'pool
Baal, G.L. Charing Cross S., St. Helier's
Barrington, H.S. Mercers' School, E.C.

Southport Modern S.

Harwood, J.H. Tower H., Anerley Rd., S.E.
Hatcher, A.R. Ilfracombe College
Illingworth, L. Wilton Grove S., Taunton

Hardwicke H., Seaford
The Coll., Rock Ferry
Newtown S., Waterford
Holmwood, Bexhill

Askew, W. Oakes Inst., Walton, L'pool
Baal, G.L. Charing Cross S., St. Helier's
Barrington, H.S. Mercers' School, E.C.

Hughes, E.

Hunt, S.H. Gram. S., Sale
Lush, A.E. Reading Coll. S.
Modiano, C. d. Enwell S., Warminster

Barlow, J.R. St. Philip's Gram. S., Edgbaston
Brown, G.S. Derwent H., Bamford
Cant, F.W. a. Haringay Coll. S., N.

Anderson, G. High S. for Boys, Croydon
Baker, L.G. d. Brighton H., Oldham
Bevitt, G. Midhurst Gram. S.

Gram. S., Sale

Reading Coll. S.
Enwell S., Warminster
Great Ealing School
The Coll., Walton-on-Naze

Barlow, J.R. St. Philip's Gram. S., Edgbaston
Brown, G.S. Derwent H., Bamford
Cant, F.W. a. Haringay Coll. S., N.

Anderson, G. High S. for Boys, Croydon
Baker, L.G. d. Brighton H., Oldham
Bevitt, G. Midhurst Gram. S.

Ginger, E.J.B.

Grose, N.A. Gram. S., Shoreham
Hart, A.P. Lansdowne, Wadebridge
Hazelwood, W.O.R. The Coll. S., Poole

Adams, P.H. Sudbury Gram. S.
Barnard, H. Edvard VI. Midd. S., Norwich
Barnes, A.N. The Cedars S., Ealing

Adams, P.H. Sudbury Gram. S.
Barnard, H. Edvard VI. Midd. S., Norwich
Barnes, A.N. The Cedars S., Ealing

**BOYS, 3RD CLASS, PASS.—Continued.**  
 Sloan, L.B. Private tuition  
 Smith, W.G. Yarmouth College  
 Snell, F.B. Hoe Gram. S., Plymouth  
 Snow, W.H. d. Gosberton Hall S., Spalding  
 Sunners, O.H. Laugarne S., Southsea  
 Thompson, G.H.D. Newcastle Modern S.  
 Vaughan, V. St. Mary's Hall, Cardiff  
 Weston, W.J. St. Leonards Coll. S.  
 Williams, E.E. Bourne Coll., Quinton, B'ham

Barnes, J. d. Gram. S., St. Anne's-on-Sea  
 Batho, A.C. Stanley H., Margate  
 Beckley, E.E.C. Bourne Coll., Quinton, B'ham  
 Blay, J. W. H. d. Woolston Coll., Southampton  
 Browne, D.P. Streatham Gram. S.  
 Challingsworth, E. d. Edgbaston Academy  
 Cole, L.B. Clifton H., Wolverhampton  
 Cooke, C. Read's S., Drax, Selby  
 Edwards, D. St. Mary's Hall, Cardiff  
 Ford, C. Caversham H., Caversham  
 Freeman, J.P. St. Ives Gram. S.  
 Harde, F.C. Maidenhead College  
 Hewett, C.H. Private tuition  
 Holt, P. Heath Brow, Boxmoor  
 Hopper, S.W. Maidenhead College  
 Le Secleur, L. St. J. f. Gorey Comm. S., Jersey

Lowe, C.J. St. Boniface's Coll. S., Plymouth  
 Montgomery, J.S. Lucton S., Herefordshire  
 Phillips, R. Long Ashton School  
 Press, J.A. E. Finchley Gram. S.  
 Royston, C. Craven Coll., Beckenham  
 Sale, R.F. Hfracombe College  
 Scammell, G. Winchester H., Redland, Bristol

Stephenson, H.W. The Western Coll., Harrogate  
 Taylor, H.G. Stanley H., Margate  
 Turner, E. St. Winifred's S., Torquay  
 Van der Linde, E. The Coll., Highbury New Park  
 Ward, R.B. New Coll., Harrogate  
 Woodbridge, L.C. St. Boniface's Coll. S., Plymouth

Bampton, R.W. The Coll., Rock Ferry  
 Beeding, A.E. Yarmouth College  
 Boulbee, T.E.M. Mary Street H., Taunton  
 Braga, L.F. Anerley College, S.E.  
 Connal, M.J. Seven Kings Gram. S.  
 Hardman, C.W. E. Finchley Gram. S.  
 Harman, A.G. Chandos S., St. Leonards  
 Harmsworth, G.A. Raleigh Coll., Brixton  
 Hodgson, W. Stamford Hill Coll. S., N.  
 Knell, J.H. Hounslow Comm. Coll.  
 Knowles, W.S. Etonhurst Prep. S., Weston-s.-Mare

McQueen, D. The Coll., Rock Ferry  
 Morrison, P.D. Gram. S., Ongar  
 Nutting, E.W. Balham School, S.W.  
 O'Ryan, J.M. Private tuition  
 Phillips, A.I. Ramsgate School  
 Polkinghorne, C. St. Austell School  
 Ramsay, G. High S., Romford  
 Segar, W.E. d. Torquay Public Coll.  
 Shaw, J.G. Friends' S., Penketh  
 Spalding, A.P. St. James's Coll. S., Jersey  
 Stedman, P.R.M. Midhurst Gram. S.  
 Trower, T.J. Highfield S., Chertsey  
 Turner, A.H. Kendrick Boys' S., Reading  
 Tyrer, R.L. Brunswick H., Maidstone  
 Vivian, M. Gunnersbury School  
 Whittle, D. Rolandseck S., Ealing  
 Wolsey, R.W. Ebor S., Bexhill

Ackland, T.V. Harringay Coll. S., N.  
 Bishop, V. High S., Melksham  
 Brown, W. The Academy, Crewe  
 Chorley, H. Oakes Inst., Walton, L'pool  
 Clacy, P.J. Kendrick Boys' S., Reading  
 Crickett, T.F. Coll. S., Range Rd., Whalley Range  
 de Marney, R. Lancaster Coll., W. Norwood  
 Glaister, J.G. Albert H., Carlisle  
 Hill, J. Halesowen Gram. S.  
 Howells, F.J. Lucton S., Herefordshire

**Karabadjakian, V.**  
 Etonhurst Prep. S., Weston-s.-Mare  
 Lohen, B. St. Bede's Coll., Hornsea  
 Martindale, A. Kilgrimol S., St. Anne's-on-Sea

\*Osborne, S.P. Maidenhead College  
 Priest, F.R. d. Gram. S., Ongar  
 Punt, R. Oakes Inst., Walton, L'pool  
 Roper, F.W. Hounslow Comm. Coll.  
 Sauvage, H.J. St. James's Coll. S., Jersey  
 Shell, P.E. Cliftonville Coll., Margate  
 Wigg, A.H. Eton H., Hull  
 \*Taylor, C.H. The College, Weston-s.-Mare  
 Taylor, D.J. St. Catherine's, L'hampton  
 \*Taylor, E.H. 25 Magdala St., Liverpool  
 Walker, H.E. Brunswick H., Maidstone  
 Walton, J.K. New Coll., Harrogate

Watkins, J.B. Trowbridge High S.  
 The High S., Brentwood  
 \*Willis, D.H. Loughton School  
 Willis, S.E. E. Finchley Gram. S.

Archer, P. Wellington S., Heaton Moor  
 Belton, H.W. Craven Park Coll., Harlesden  
 \*Blake, S.H. E. Finchley Gram. S.  
 Brodie, W.H.H.C. Maidenhead College  
 Brown, J. Brunswick H., Maidstone  
 Chapman, G.T. Newtown S., Waterford  
 Cohen, S. Tivoli H., Gravesend  
 Coombs, J.C. Keyford Coll., Frome  
 Dawson, C.K. Sudbury Gram. S.  
 Douthwaite, F.A. Wood Green Comm. S., N.  
 Emanuel, A. Tivoli H., Gravesend

Fenn, A. Christ's Coll., Blackheath  
 Gay, C. Bracondale S., Norwich  
 Germain, J.P. Charing Cross S., St. Helier's  
 Glover, J.T. Oakes Inst., Walton, L'pool  
 \*Godfrey, B. Stanley H., Margate  
 Grant, K.G. The Downs S., Clifton  
 Greenhalgh, N. Wellington S., Heaton Moor  
 Hallgarth, L. Thorne Gram. S.  
 Hassan, V. Great Ealing School  
 Jones, J.L. Lynn Gram. S.  
 Knight, W.S. Herne Bay College  
 Lear, A.W. Eton H., Hull

Perceval, J.L. West Cliff S., Ramsgate  
 Simons, J. Mt. Radford S., Exeter  
 Spero, E.M. Tivoli H., Gravesend  
 Whitworth, J. Gram. S., Blackpool

\*Addison, C.S. Private tuition  
 Anderson, W.H. The School, Wellington Rd., Taunton  
 Baker, M.J.C. Brunswick H., Maidstone  
 Bower, A.V. St. Philip's Gram. S., Edgbaston  
 Broughton, B. Bourne Coll., Quinton, B'ham  
 Cackett, C.W. Brunswick H., Maidstone  
 Charter, E.J.M. Eton H., Hull  
 Chayney, T. Waltham Coll., Waltham Cross  
 Culverwell, J.R.S. Winchester H., Redland, Bristol

Evill, W.A. Grosvenor S., Dennington Pk., N.W.  
 Grice, W.S. The Cedars S., Ealing  
 Hamilton, S.R. Highfield S., Chertsey  
 Harbman, W. Oakes Inst., Walton, L'pool  
 Harvey, W.C. Cowes Gram. S.  
 Hay, S. Oakes Inst., Walton, L'pool  
 Hudson, J.H. Ellesmere S., Harrogate  
 \*Mason, P.G. Hounslow Comm. Coll.  
 Milne, L. Tutorial S., Penarth  
 Milner, F. Gram. S., Blackpool  
 Milsom, H.L. The Coll., Clevedon  
 Palk, A. E. Finchley Gram. S.  
 Ranger, R.R. Maidenhead College  
 Reeks, V.W. The Coll. S., Poole  
 Robinson, M.B. Gosberton Hall S., Spalding  
 Scott, J.B. Grafton H., Manchester  
 Scott, R.J. Cowes Gram. S.  
 \*Walford, L. St. John's Coll., Green Lanes, N.

Brown, W.B. Kingswood S., Bath  
 Burne, V. Gram. S., Sale  
 \*Farmer, F.E. Private tuition  
 Fish, W.N. St. Aubyn's, Woodford Green  
 Goodman, H.C.T. Kendrick Boys' S., Reading  
 Hatfield, S. Ashley H., Workson  
 Hill, F.W.H. Kendrick Boys' S., Reading  
 Isherwood, A. Southport Modern S.

Johnson, E. St. Bede's Coll., Hornsea  
 Kirk, J.A.C. Kingswood S., Bath  
 Longmore, P. Willow H., Walsall  
 Millidge, J.C.D. Winchester H., Redland, Bristol  
 Rogers, N. St. Mary's Hall, Cardiff  
 Scott, W.N. Lucton S., Herefordshire  
 \*Shackell, H.K. Emwell S., Warminster  
 Shtein, L. Ramsgate School  
 White, A.H. Winchester H., Redland, Bristol  
 Wilson, L. Great Ealing School  
 Wright, F.C. Hounslow Comm. Coll.

Baker, H.S. New Coll., Bexhill  
 Bassett, L. Q. Eliz. Gram. S., Ashburne  
 Bone, J. Highfield S., Chertsey  
 Brown, L. Christ's Coll., Blackheath  
 \*Cook, E. Bourne Coll., Quinton, B'ham  
 Elliott, W.G. Brunswick H., Maidstone  
 \*Jackson, H.W.T. Gram. S., Shoreham  
 Lazarus, M. The Coll., Highbury New Park  
 Melndoe, M.J. Taunton School  
 \*Normington, H. Crossley & Porter S., Halifax  
 Paull, C.C. The School, Wellington Rd., Taunton  
 Potts, E.C. Rochdale High S.  
 Quaffe, D.W. Hounslow Comm. Coll.  
 Smith, J. Read's S., Drax, Selby  
 \*Sykes, J.H. Crossley & Porter S., Halifax

Atchley, R.W. Grosvenor S., Dennington Pk., N.W.  
 Banister, C. Scarisbrick Coll., Birkdale  
 Crowe, F.C. Worthing Gram. S.  
 Davis, L.J. e. The High S., Brentwood  
 Fancott, H.J. Sir Roger Manwood's Gram. S., Sandwich  
 Fieldman, A.G. Streatham Gram. S.  
 Holliday, H. Kilgrimol S., St. Anne's-on-Sea  
 Jones, F.J. Kendrick Boys' S., Reading  
 Lathbury, C.L. Highfield S., Chertsey  
 Muir-Smith, L. Hyde H., Eastbourne  
 Muttter, J. 22 Addington Sq., Margate  
 Newman, W. f. Christ's Coll., Blackheath  
 Norris, H.A. f. Raleigh Coll., Brixton  
 Robert, G.E. f. Charing Cross S., St. Helier's  
 Standish, J.R.M. Sandwich School  
 \*Webb, C.C. Swindon High S.  
 Willis, C.J. Hfracombe College  
 Wilson, L. Kilgrimol S., St. Anne's-on-Sea

Dabell, A. Undercliffe Coll., Ventnor  
 Dickson, G.C. Halesowen Gram. S.  
 Fairbank, H. Bourne Coll., Quinton, B'ham  
 Holmes, H.S. New Coll., Harrogate  
 Pouncey, B. D. Handel Coll., Southampton  
 Richards, N.J.M. Etonhurst Prep. S., Weston-s.-Mare  
 Roberts, J.A. Bourne Coll., Quinton, B'ham  
 Shaw, A.E. High S. for Boys, Blackpool  
 Smith, D.B. Linden H., St. John's S.E.  
 Tregillus, A.L. Taunton School

Alexander, J.E. Brunswick H., Maidstone  
 Barnham, B. Ald. Norman S., Norwich  
 Barnard, A.H. Great Ealing School  
 Cox, V.J. The Coll., Clevedon  
 D'Aeth, W. St. Mary's Hall, Cardiff  
 Faulk, R. St. Ives Gram. S.  
 Gardner, J.T. Anerley College, S.E.  
 \*Gardner, W.L. 45 Miller Arcade, Preston  
 Gray, H.D. Read's S., Drax, Selby  
 Hick, C.B. 14 Grosvenor Crescent, Scarborough  
 Lawson, A. Oakes Inst., Walton, L'pool  
 Mills, L.R. Barton S., Wisbech  
 Moir, J. Kendrick Boys' S., Reading  
 Postlethwaite, J.R. Oakes Inst., Walton, L'pool  
 Raiton, N. Stanley H., Margate  
 Ross, G.D. Jersey Modern S.  
 Townsley, J.C. Eton H., Hull  
 Williams, E. St. Mary's Hall, Cardiff

\*Betney, W.F. Gram. S., Blackpool  
 Bettles, A.L. Cranbrook Coll., Ilford

Butler, C.D. Portland Coll., Chiswick  
 Byford, W.F. Sudbury Gram. S.  
 Cooke, S.T. The Cedars S., Ealing  
 \*Glaslington, S.F. Victoria Coll., Buckingham Pal. Rd., S.W.  
 Grantham, W.M. St. Joseph's Coll. S., Totland Bay  
 Green, G.W. Read's S., Drax, Selby  
 \*Huggins, C.O. Manor H., Havant  
 Naylor, F. Gram. S., Blackpool  
 Oakes, P.A. Balham School, S.W.  
 Pool, O.E. Gram. S., Hayle  
 \*Rawle, T. Wallingbrook, Chulmleigh  
 Russell, P.H.C. Cambridge H., Margate  
 Sanders, W.H. Stanley H., Margate  
 Smith, H.M. St. John's Coll., Brixton  
 Tattersall, J. Gram. S., St. Anne's-on-Sea  
 Vaughan, W.B. Lucton S., Herefordshire  
 Viney, J.E. Highfield S., Muswell Hill

Avery, G.H. Laugarne S., Southsea  
 Farmer, R. St. Mary's Hall, Cardiff  
 Hartley, H.D. Farnworth Gram. S., nr. Bolton  
 Hill, B.J. Laugarne S., Southsea  
 \*Hindley, H. Wellington S., Heaton Moor  
 Jones, H. Lydney Coll. S., Glos.  
 Kaye, C.W. D. Old Elvet S., Durham  
 Moseley, H.G. Willow H., Walsall  
 Snell, H.K. Hoe Gram. S., Plymouth  
 Southgate, T.H. Alresford H., Margate  
 \*Williams, F.P. Warwick H., Southsea  
 Willis, P.P. Hfracombe College  
 Wilson, C.W. Harringay Coll. S., N.

Allams, A.J. Torquay Public Coll.  
 Burnham, C. St. James's Coll. S., Jersey  
 \*Collett, N.T. Private tuition  
 Daniell, H.G. Balham School, S.W.  
 Green, L. Craven Coll., Beckenham  
 Holmes, H.H. Old Elvet S., Durham  
 Hooson, H.B. a. Bourne Coll., Quinton, B'ham  
 Mayoss, C.N. Lewisham H., Weston-s.-Mare  
 Mills, M.B. E. Finchley Gram. S.  
 \*Pottan, T.F. Cliftonville Coll., Margate  
 Stevenson, R.H. St. Joseph's Coll. S., Totland Bay  
 Tassell, J. Craven Coll., Beckenham  
 Temple, R. West Cliff S., Ramsgate  
 Wigg, C.H. Yarmouth College

Atkinson, J.C. Kendrick Boys' S., Reading  
 Cook, F.W. Taunton School  
 Coult, L.E. Gram. S., Ongar  
 Ivens, C.W. Private tuition  
 James, W.S. Park H., Broadstairs  
 Morgan, C.L.D. Lucton S., Herefordshire  
 Phillips, C.H. Ebor S., Bexhill  
 Sandford, J.V. Oakes Inst., Walton, L'pool  
 Saunders, M.B. Highfield S., Muswell Hill  
 Smith, H. Holloway College, N.  
 \*Thompson, T.A. Licensed Victuallers' S., S.E.

Dunn, W.J. Haringey Park S., Crouch End  
 Ellis, J. a. Kilgrimol S., St. Anne's-on-Sea  
 Greenberg, G.R.S. Grosvenor S., Dennington Pk., N.W.  
 Hayden, J.W. St. Catherine's, Littlehampton  
 Holland, R.P. Gram. S., Sale  
 Lanning, H.C. The Coll. S., Poole  
 Patchett, R. Crossley & Porter S., Halifax  
 Prior, F.B. Taplow Gram. S.  
 \*Simister, W. Private tuition  
 Stone, A.E. St. John's Lodge, Margate  
 \*Thompson, P.J. Private tuition  
 Thunder, L.W.V. Hardwicke H., Seaford  
 Waterman, E.E. Wykeham H., Worthing  
 Williams, W.L. Lucton S., Herefordshire

Carter, H. Kendrick Boys' S., Reading  
 Coen, R. The Academy, Crewe  
 Penwill, R. Hoe Gram. S., Plymouth  
 Rankin, D. St. Mary's Hall, Cardiff  
 Spencer, R.M. Grafton H., Manchester  
 Stewart, A. St. Mary's Hall, Cardiff

CLASS LIST - GIRLS.

(For list of abbreviations, see page 96.)

FIRST CLASS [or SENIOR].

Honours Division.

Anderson, E.F. s.a.f.d. 19 Grange Park, Ealing
Wall, A.s.e.h. Ladies' Coll., Wellington, Salop
Onslow, D.E.A. s.h.f.g.e.u. Private tuition
Dobbs, B.E. s. Ladies' Coll., Wellington, Salop
Harries, G.M. s.a. Milton Mount Coll., Gravesend
Cartledge, M.F. s. Ellerker Coll., Richmond Hill
Wolstenholme, M. s.h.g.d. Milton Mount Coll., Gravesend
Goodison, H.M. s. Milton Mount Coll., Gravesend
Keen, C. s. Milton Mount Coll., Gravesend
Milne, M.T. Coborn S., Bow Rd., E.
Bretherton, G.E. s.a.g. Milton Mount Coll., Gravesend
Batty, M.L. Milton Mount Coll., Gravesend
Woolf, F.S. s.e. Mecklenburg H., Putney
Webb, G.C. s.m.u. Ladies' Coll., Wellington, Salop
Cutting, E.S. s. Grey Coat Hospital, Westminster
Mainprize, A.L. s.d.o. Devonshire H., Bridlington

FIRST CLASS [or SENIOR].

Pass Division.

White, F.E. D. bk. Home Park S., Stoke
Allison, E.B. s.f. Private tuition
Young, G.M. s.ph. Lonsdale H., Norwich
Dyer, A.G. Kilmar Coll., Liskeard
Cruse, G. St. Bernard's S., Southsea
Copeland, C.A. s. Burgess Hill High S., Sussex
Johnson, A. h. Ashburne H., Chipping
Daniels, L.M. s. Ten Mile Villa, Chigwell
Callander, G.G. Coborn S., Bow Road, E.
Cotching, M. St. Joseph's Conv., W. Hartlepool
Powicke, A.E. s. Milton Mount Coll., Gravesend
Calthrop, M.E. s.f.d. Guelph Coll., Clifton
Parke, A.M. U. Avon H., Southsea
Hatton, A.E. s. Grey Coat Hospital, Westminster
Relton, D. h. Private tuition
Matthews, E. s. Milton Mount Coll., Gravesend
Smith, E.M. s. Enwell S., Warminster
Mace, A.M. s. Guelph Coll., Clifton
Rutland, F. Westbourne H., Cowes
Blomfield, M.E. Friends' S., Saffron Walden
Wrigley, C.M. d. Private tuition
Cove, O.M. s.h. Milton Mount Coll., Gravesend
Long, B. Valley Bridge H., Scarborough
Barugh, V. Kensington H., Chiswick
Brewer, M.S. Private tuition
Jeffery, G.M. do. Home Park S., Stoke
West, M.I. s. Coborn S., Bow Road, E.
Linscott, E. Old Palace S., Croydon
Smith, G. d. Dukinfield High S.
Withers, H.M. Private tuition
Whittingham, A. do. Old Palace S., Croydon
Champion, D. s.d. Woking High S. for Girls
Stear, E. H. s. Alexandra Coll., Shirley
Bramham, I.M. a.d. Coborn S., Bow Rd., E.
Gedye, U.B. Crossbeck H., Ilkley
Levy, E.M. Clarence H., Filey
Horwood, C.E. a. Leigh Bank Coll., Leamington
Leavey, L.K. s.d.o. Millburn H., Honor Oak Pk., S.E.
Lillywhite, E. Summerland S., Richmond Hill
Granville, J.M. Guelph Coll., Clifton
Edgar, E.M. s. Ellerker Coll., Richmond Hill
Holt, E. Crossbeck H., Ilkley
Pinnacane, M.H. Langley H., Ashbourne
Staddon, W.M. Milton Mount Coll., Gravesend
Ivens, C.C. m.u. Leigh Bank Coll., Leamington
Taylor, I.M.C. h. 20 York Villas, Brighton
Taylor, N. s. Woking High S. for Girls
Gamble, A.J. s. Moseley High S. for Girls
Gillo, E. I. Conv. S., The Avenue, Southampton
Pettinger, E. s. Ennair Lodge Coll. S., New Leeds

Armitage, A.E.M. Private tuition
Barrett, E.M. d. Friends' S., Saffron Walden
Clarke, S.M. Girls' Coll. S., Aldershot
Freegard, M.F. Ellerker Coll., Richmond Hill
Cobden, N.F. Oswald, L. sh. Mayfield Coll., Marlborough
St. Andrew's Up. S., St. Helier's
Heague, A. High S. for Girls, Halesowen
Barltrop, A.M. do. Roden H., Ongar
Comrie, K.M.N. do. Private tuition
Wibberley, A.M. Langley H., Ashbourne
Marks, S.F. St. Olave's S., Taunton
Gamble, W. d. Clarendon H., Southport
Lammin, E.S. Mecklenburg H., Putney
Neave, W.M. Friends' S., Saffron Walden
Davies, G.S. Millburn H., Honor Oak Pk., S.E.
Booty, I.C. Clarence H., Filey
Lardner, W. s. Loreto Conv., Hulme, M'chester
Sumner, M.E. Kilmar Coll., Liskeard
Hutchinson, H. Valley Bridge H., Scarborough
Foale, L.E. Dixfield S., Exeter
Buisseret, M.J.H. f. St. Joseph's Coll. S., Totland Bay
Davies, M.A. Summerfield Hall, Maesywimmer
Moresby, A.A. f.g.c. Hatfield H., St. Leonards
Gillett, N.E. s. Private tuition
Matthews, L.H. s. Coborn S., Bow Rd., E.
Snodgrass, M. St. Hilda's, Exeter
Tomlinson, E. s. Woking High S. for Girls
Stewart, M.E. s. Guelph Coll., Clifton
Massey-Crosse, R.G. Private tuition
Rowland, A.G. Avon H., Southsea
Wade, G.M. Girls' High S., Sudbury, Suffolk
Barcroft, E.D. m.u. Oxford Lodge, Wolverhampton
Woodhams, E. d. High S. for Girls, Wells, Som.
Henry W. Woking High S. for Girls
Jewers, E.L. Castlebar High S., Ealing
Wallace, H.J. 5 Osnauburg Terrace, N.W.
Slosser, D. Nyanza, Gunnersbury
Wilson, M.M. Ellerker Coll., Richmond Hill
Abbott, A.J. St. Hilda's, Exeter
Bundie, F.E. The College, Churwell, Leeds
Tate, D.E. High S. for Girls, Wells, Som.
Webb, I.M. Howard Coll., Bedford
Clough, M.A. s. Private tuition
Hallifax, E. Hillside, Clifton

SECOND CLASS [or JUNIOR].

Honours Division.

Dukes, I.C. s.e.f.g.e. Milton Mount Coll., Gravesend
Lowe, F. s.m.u. Ladies' Coll., Wellington, Salop
Earle, J.M. f. Private tuition
Fry, B.D. h.f. Milton Mount Coll., Gravesend
Jennings, F. s.f.d. 5 Orchard Gardens, Teignmouth
Till, E.M. h. s. Ashburne H., Chipping
Matthews, T. s. Milton Mount Coll., Gravesend
O'Neill, B.G.M. s.m.u. St. John the Divine's High S., Kennington
McLrose, C. St. Andrew's Hall, Southport
Lyon, E.M. s. h.g. Crossbeck H., Ilkley
Powicke, G.M. Milton Mount Coll., Gravesend
Boyce, M. f. Burnard H., Worthing
Jeollroy, E. s.g.d.d.o. Wordsworth Coll., Shirland Road, W.
Smith, E.B. s. Oakley High S., Southsea
Jones, M.V. s.f. Ashburne H., Chipping
Clark, F.M. s.d.f. Lonsdale H., Norwich
Hankinson, M. h.a. Scarborough Hr. Grade S.
Osbaldeston, G. St. Andrew's Hall, Southport
Blackburn, I. s.g.a.f.p.h. Commercial Travellers' S., Pinner
Good, E.M. s. Prospect H., St. Neots
Jennings, M. al. Friends' S., Penketh
Wilson, E.C. Gosport Secondary & Coll. S.
Havers, V.E. s. Lonsdale H., Norwich
Bray, M. s. Valley Bridge H., Scarborough
Kidson, E.D. s. Ladies' Coll., Wellington, Salop
Rose, A. St. Andrew's Hall, Southport
Sanderson, M.D. s. Wilber H., Biggleswade
Hine, H.M. Oakley High S., Southsea

Bentley, E.W. Home Park S., Stoke
Bevis, K. bk. St. Bernard's S., Portsea
Fielding, M. f. g. Loreto Conv., Hulme, M'chester
Girton, A. Brompton Science S., S.W.
Duncan, E.G. a. Acoc's Green Ladies Coll., B'ham
Gruchy, C. f. St. James's Coll. S., Jersey
Shovelton, W. Private tuition
Hill, R.A. Dagnar H., Hatfield
Riley, H.V. s. Girls' Coll. S., Aldershot
Couper, H.R. s. Brompton Science S., S.W.
Deakin, A. f. Private tuition
Conquer, M.M. Adley & Stanhope S., New Cross
Daniel, M.E. Y Garn, Bromley, Kent
Hay, E. s.h. Henderson, K.M. s.f. Humdean H., Caversham
Hobbs, E. f. Vernon H., Pembroke Villas, W.
Holder, L. Grosvenor Coll., Bath
Halsall, D. s. St. Andrew's Hall, Southport

SECOND CLASS [or JUNIOR].

Pass Division.

Stanley-Jones, M.G. m.u. Arlington H., Newport, Mon.
Sinden, L.M. Northcote H., Crouch Hill
Clappell, E.A. Lonsdale H., Norwich
Carnley, M.A. s. Valley Bridge H., Scarborough
King, M.A. Vale View H., Devizes
Cribland, F.M. Emwell S., Warminster
Ford, I.L.M. Vale View H., Devizes
Halliday, R.M.M. Ellerker Coll., Richmond Hill
Herten, P. f.g.c. Grosvenor Coll., Bath
Jenner, D.G. s. Torrbill Coll., Hastings
Stewart, D. St. Andrew's Hall, Southport
Tonks, D.E. m.u. Ladies' Coll., Wellington, Salop
Washington, J. f. Girls' High S., Barnsley
Hawley, A.S. Westwood, London Rd., Maldon
Roberts, M.A. m.u. Totnes Girls' S.
Holley, D. bk.f. St. Bernard's S., Southsea
Murlitt, G. Brooklyn High S., Leytonstone
Packer, A.M. Milton Mount Coll., Gravesend
Stephenson, E. St. Joseph's Conv., W. Hartlepool
Tough, C.S. Fyde Coll., Morecambe
Cutler, E. Ladies' Coll., Wellington, Salop
Mason, L.B. Stafford St. S., Brewood
Woods, N. Ellerker Coll., Richmond Hill
Bolton, A. f. Commercial Travellers' S., Pinner
Gore, K. f. The Laurels, Herne Bay
Hoperoff, B.F.E. Alexandra Coll., Shirley
Mooney, K. Adley & Stanhope S., New Cross
Piper, H.E.M. Brompton Science S., S.W.
Brabue, A. f.g.c. Grosvenor Coll., Bath
Brookes, F.E. Wright's Lane S., Old Hill, Staffs.
Massey, E. a.d. S. Holland Central Classes, Spalding
Gardiner, M.A. Girls' High S., Sudbury, Suffolk
Harding, M.E. f. College H., Hungerford
Harnam, E.M. Stainsbridge Coll., Malmesbury
Hawerkamp, A.E. Lexten H., Aytoun Rd., S.W.
Holman, A.G. f.d. Okover Girls' S., Burnham, Som.
Lovell, P.L. Friends' S., Saffron Walden
Boss, B. Clark's Coll. High S., Fitzroy Sq., W.
Dalton, L.M. Milton Mount Coll., Gravesend
Harkness, C.E. f. Modena H., Peckham Rye
Marett, L.A. s.f. Ashton H., Jersey
Cook, G. Wordsworth Coll., Shirland Rd., W.
Curtis, H.G. Ladies' Coll., Wellington, Salop
Knight, C.I. f. High S. for Girls, Wells, Som.
Porter, E.O. Coll. S., Stanford-le-Hope
O'Connor, F. Lynton H., Portsmouth
Reed, E.D. d. Private tuition
Trowsdale, R.N. Cambridge H., W. Norwood
Walter, M. Froebel H., Worthing
Atteck, K. f. Commercial Travellers' S., Pinner
Davey, L. ch. Scarborough Hr. Grade S.
Dyer, E.K. Claremont S., Forest Gate

Fountain, M. f. Bowes Park S. for Girls, N.
Lear, E.M. Norfolk H., Gosport
Lynch, N. St. Joseph's Conv., W. Hartlepool
Mellor, A.S. 21 Derby Rd., Withington
Nicholls, M. f. do. West Ham High S.
Poch, E.M. f. St. James's Coll. S., Jersey
Sproston, L. f. Vernon H., Pembroke Villas, W.
Brown, C.M. The Mount S., Banbury
Hamar, E.M. h. Ladies' Coll., Wellington, Salop
Hamblen, M.M. Leigh Bank Coll., Leamington
Lindsay, J. Ripley Coll., Bury St. Eds.
Gittings, H.N. High S., New Brompton
Hemingway, E. Friends' S., Saffron Walden
Polkinghorn, M.M. Coborn S., Bow Rd., E.
Thompson, M. Crossbeck H., Ilkley
Vincent, E.M. f. Cliffe Lawn, Ryde
Wilkinson, M. Scarborough Hr. Grade S.
Branton, C.M. High S., Buxton Rd., Chingford
Dyke, B.L. s.s.p. Private tuition
Elliott, E. f. Elm Lodge, Petersham
Guyatt, M.E. Portsea Coll. S.
Hornby, D. The Hollies, Soho Park, Handsworth
Bartlett, M. f. Burnard H., Worthing
Blackmur, F.B. Coborn S., Bow Rd., E.
Budden, H. Froebel H., Worthing
Cooper, K.D. Milton Mount Coll., Gravesend
Marsh, E.H. Red Maids S., Bristol
Maycock, B.E. Summerland S., Richmond Hill
McCall, H.A. s. Private tuition
Morley, M.E. Milton Mount Coll., Gravesend
Stark, H. Private tuition
Wallace, E.M. Milton Mount Coll., Gravesend
Woods, E. Breck Coll., Poulton-le-Fylde
Bolt, M.E. f. Hillside, Clifton
Craston, N. Mansfield H., Clifton Gdns., W.
Hughes, M.A.K. Sandwich S.
Wood, L.M. Devonport High S. for Girls.
Davis, E.F. George Green S., Poplar
Downe, M.B. d. Zelah H., Breakspen's Rd., S.E.
Garton, L. a. Scarborough Hr. Grade S.
Parkin, O. m.u. Leigh Bank Coll., Leamington
Wells, B.M. Brookvale, Teignmouth
Atkins, A.B. Kensington H., Chiswick
Downton, E.M. Carden High S., Peckham Rye
Fairclough, M. Loreto Conv., Hulme, M'chester
Ford, A.E. m.u. Burlington S., W.
Gardiner, M.F. Girls' High S., Sudbury, Suffolk
Miskin, W. Wm. Gibbs' S., Faversham
Pickering, E. Friends' S., Gt. Ayton
Piggott, M.M.M. Hillside, Clifton
Westerby, H. h. Milton Mount Coll., Gravesend
Wright, K. s. Fyde Coll., Morecambe
Bertram, J. d. Ashley H., Worksoop
Bond, E. Gosport Secondary & Coll. S.
Edson, M.F. Scarborough Hr. Grade S.
Fitch, M. s. Ellerker Coll., Richmond Hill
Hullett, C.M. Alderhorst, Sale
Stewart, D.L. Guelph Coll., Clifton
Berry, M.D. Cleveland Coll., S. Hackney
Durstun, M. Okover Girls' S., Burnham, Som.
Gulliver, J.H. Down End, Clifton
Holmes, A.T. Fyde Coll., Morecambe
Schnefeld, C.A.M. Ferndale S., Poole
Clarke, M. Wordsworth Coll., Shirland Rd., W.
Collins, K.M. Brompton Science S., S.W.
Heller, F.M. Brompton Science S., S.W.
Lawrence, M.C.M. Northcote H., Crouch Hill
Little, J.E. Scarborough Hr. Grade S.
Risdon, E.E.D. High S. for Girls, Wells, Som.
Robertson, M. Waveney H., Harleston
Seymour, F.M. Milton H., Atherstone
Shaw, L.V. ch. Wright's Lane S., Old Hill, Staffs.
Bulmer, E. Commercial Travellers' S., Pinner
Davies, A.M. Private tuition
Emily, C.E. St. James's Coll. S., Jersey

GIRLS, 2ND CLASS, Pass—Continued.

Ferne, H. H. gr. Fern Bank, Wandsworth Comm. Hughes, L. F. Commercial Travellers' S., Pinner Mawer, F. M. Roan S., Greenwich Rider, E. C. F. Oakley High S., Southsea Harrison, M. C. Ladies' Coll., Wellington, Salop Johnson, W. A. s. Milton Mount Coll., Gravesend Stephens, G. Milton Mount Coll., Gravesend Shaw, E. E. Carleton Queen's Coll., Tufnell Park Windle, M. St. Andrew's Hall, Southport Ellerker, M. s. Arundel H., Scarborough Pratt, A. S. Havelock H., Southsea Rivers, F. S. d. Reading High S. Von Osten, C. E. Private tuition Wheatley, E. M. Acoc's Green Ladies' Coll., B'ham. Abbott, V. Modern Coll., Stoke Bishop Francis, V. M. h. Avonbank Coll., Bath Gamage, G. M. Licensed Victuallers' S., S. E. Kennedy, C. H. Eton Hall, Beckenham Moore, E. M. Howard Coll., Bedford Slater, G. M. Claremont S., Forest Gate Tyler, G. M. Oakover Girls' S., Burnham, Som. Chapman, E. St. Andrew's Hall, Southport Cole, E. G. d. Wakefield H., Norwich Maradin, K. M. Somerville H., Northampton Roe, L. M. Private tuition Townsend, J. Fyde Coll., Morecambe Bettle, B. S. York H., Stony Stratford Brewer, M. A. Arlington H., Newport, Mon. Broome, A. C. Sunfield H., Wellington, Salop Macey, E. E. Red Maids S., Bristol Saines, E. J. Horndene, Epping Simmons, D. f. Ladies' S., The Close, Brighton Baroni, E. Clark's Coll. High S., Fitzroy Sq., W. Cameron, R. Highfield Coll., Blackpool Deharr, A. f. Coborn S., Bow Rd., E. Dixon, C. Thernbeck H., Darlington Edwards, E. M. Roan S., Greenwich Gibson, E. Prospect H., St. Neot's Gower, D. W. f. Longford Girls' S., Bristol Horobin, E. M. Milton Mount Coll., Gravesend Weller, A. E. Girls' Coll. S., Aldershot Allsup, M. f. Cambridge H., Preston Harris, O. K. Longford Girls' S., Bristol Hutchins, G. M. St. Margaret's S., Cardiff Jones, F. Howard Coll., Bedford Kemp, A. O. Commercial Travellers' S., Pinner King, A. f. Ladies' S., The Close, Brighton Stephens, M. E. Mile End H., Newport, Mon. Tittley, M. H. Milton Mount Coll., Gravesend Curtis, B. Old Palace S., Croydon Exton, E. M. Addiscombe H., Margate Harris, E. G. do. Stainsbridge Coll., Malmesbury Wright, L. Coborn S., Bow Rd., E. Farley, F. B. The Limes, Buckhurst Hill Lansell, C. D. Milton Mount Coll., Gravesend Simmons, M. f. Ladies S., The Close, Brighton Toghill, E. L. Licensed Victuallers' S., S. E. Wasley, M. E. Dresden H., Evesham Blinston, E. Lutworth Lodge, Birkdale Dutch, L. E. Friends' S., Saffron Walden Elliott, E. M. Saxtonholme High S., Whalley Range Johnston, S. A. E. Guildand Coll., Tnbridge Wells Mittell, W. C. Brompton Science S., S. W. Pope, D. E. H. Boves Park S., for Girls, N. Procter, N. Milton Mount Coll., Gravesend Robinson, F. H. Upper Mount, Southsea Staddon, H. M. h. k. St. Winifred's S., Torquay Wiakar, A. J. Glenarm Coll., Ilford Balfour, E. M. South London High S., E. Dulwich Cook, L. York H., Chorley, Lanes. Hurst, R. E. Croft H., Wallingford Turner, G. M. K. Crossbeck H., Ilkley Cheal, E. C. Addiscombe H., Margate Keyte, L. F. s. Westholme, Maidenhead Bowering, E. J. Red Maids S., Bristol Clarke, M. Ashley High S., Long Sutton Clayden, I. M. Girls' High S., Sudbury, Suffolk Legge, D. M. H. s. Milton Mount Coll., Gravesend Neil, E. St. Andrew's Hall, Southport Pope, K. Stoke Public Higher S. Sears, M. de la B. f. 65 Oakhurst Grove, E. Dulwich Spedding, D. s. Stoke Public Higher S. Spargo, Z. M. Parc Bracket Girls' Coll. S., Cambrone Stone, M. G. Milton Mount Coll., Gravesend Thomas, E. M. Milton Mount Coll., Gravesend Tonzel, F. J. f. Transvaal H., Jersey Warne, G. D. N. Hackney High S.

Board, E. R. The Firs S., Weston-s.-Mare Dutton, E. S. Private tuition Groom, M. Stapleton Hall S., Stroud Green Holt, C. Somerville H., Northampton Pegg, F. do. Private tuition Tebbitt, M. Ely House Coll., Wolverhampton Bell, D. Brompton Science S., S. W. Becknell, E. L. St. Margaret's S., Cardiff Greenwood, C. d. Scarborough Hr. Grads. Illingworth, M. Fyde Coll., Morecambe Jackson, H. G. Ellerker Coll., Richmond Hill Walden, E. S. Brompton Science S., S. W. Welch, E. M. Lenden H., Aytoun Rd., S. W. Glanfield, A. E. St. Margaret's S., Cardiff Harbon, A. M. do. Osborne H., Redditch Lucas, D. M. Ferndale S., Poole Porter, H. M. Devonshire H., Bridlington Walton, E. M. Thornthorpe H., Darlington Ball, L. B. s. Meeklenburg H., Putney Evans, G. F. Lenden H., Aytoun Rd., S. W. Gibbs, K. W. f. Glengyle Coll. S., Cheltenham Griffiths, V. Stoke Public Higher S. Lamb, G. Cairnbrook Coll., S. Woodford Pilkington, A. B. a. Ellerker Coll., Richmond Hill Scott, F. D. Loretto H., Hornsey Lane Shepherd, H. d. St. Joseph's Conv., W. Hartlepool Sisley, M. Old Palace S., Croydon Wood, D. do. Harrow & Wealdstone Modern S. Gilpin, F. S. Cleveland Coll., S. Hackney Hanson, A. L. Leigh Bank Coll., Leamington Harvey, M. L. Ellerker Coll., Richmond Hill Jacks, C. L. Endsleigh Coll., Endsleigh Gdns, N. W. Kendall, F. M. s. Wakefield H., Norwich Lee, E. Commercial Travellers' S., Pinner Leighton, A. 2 Reginald Terrace, Leeds Lillywhite, M. Goodrich Rd. S., E. Dulwich Penman, I. L. s. Coborn S., Bow Rd., E. Taylor, E. Dresden H., Evesham Worswick, C. Saxtonholme High S., Whalley Range Bailey, M. Ashley H., Workop Escott, G. J. Mayville, Okehampton Graves, S. J. Clifton H., Leyton Hallett, M. Western H., Nottingham Ward, M. Devonport High S. for Girls Chafer, G. St. George's H., Doncaster Draycott, G. M. Bestreben High S., Brondesbury Hallett, G. A. Coborn S., Bow Rd., E. How, E. Bestreben High S., Brondesbury Jennings, E. Westoe High S., S. Shields Phillips, E. M. f. 2 Reginald Terrace, Leeds Pigott, E. L. M. Private tuition Shore, W. L. Somerville H., Northampton Smith, L. E. Waveney H., Harleston Stephenson, L. St. Joseph's Conv., W. Hartlepool Webb, M. Addiscombe H., Margate Williams, B. Ellerslie Ladies' S., Bromsgrove Wynne, E. Spring Bank, Moss Side, Manchester Bayley, F. The Poplars, Wolverhampton Bayley, E. M. Milton Mount Coll., Gravesend Coumbrough, E. W. s. Langport, Up. Richmond Rd., S. W. Crabtree, K. M. d. Glan Dyff S. Wisbech Godfrey, M. G. Harringay Park S., N. Kitson, L. G. d. Glengyle Coll. S., Cheltenham Lissack, F. Endsleigh Coll., Endsleigh Gdns., N. W. Robinson, R. f. Minerva Coll., Dover Wiseman, D. G. Stainsbridge Coll., Malmesbury Beck, M. E. Elmhurst, Burgess Hill Campbell, G. M. S. s. Modena H., Peckham Rye Cornish, N. Leigh Bank Coll., Leamington Dyer, G. A. Wandsworth Tech. Inst. Emery, M. E. Colston's Girls' S., Bristol Hawke, D. D. Girls' High S., Dartmouth Jordan, G. A. Hillside, Clifton Rice, M. Bank H., Blandford Barnett, L. Thrapstone High S. Brook, G. S. Cheetham Coll. S., M'chester Green, W. A. Stoneville, Blandford Nunn, A. C. Oxford H., Woodbridge Brown, E. St. Andrew's Hall, Southport Ellis, M. Modern Coll., Stoke Bishop Haggas, A. G. Western H., Nottingham Revell, L. T. Kingsley H., Clacton Young, E. M. Clark's Coll. High S., Fitzroy Sq., W. Addin, C. C. d. Saxtonholme High S., Whalley Range Allix, S. Transvaal H., Jersey Clarke, A. M. Gram S., Romford Dickenson, M. Fernside, Grantham Law, B. A. Forest Gate High S., E. Bendall, E. M. f. Fairlawn S., Newmarket Kidd, I. R. Clifton H., Leyton Waite, D. F. Milton Mount Coll., Gravesend

Bailey, M. E. St. Monica's Southampton Burch, M. M. Longford Girls' S., Bristol Hyde, G. A. Glenburnie S., Plymouth Kays, G. E. P. Roan S., Greenwich Lord, D. E. R. Dorchester H., Clacton Maxted, V. S. Zelah H., Breakspars Rd., S. E. Neale, N. F. Hillside, Clifton Pomeroy, F. M. Roan S., Greenwich Ridler, C. S. Milton Mount Coll., Gravesend Thoren, O. St. Joseph's Conv., W. Hartlepool Young, M. Mill Hill Park High S., Acton Collier, M. L. Teddington Coll. Fisher, M. Abergeildie, Clifton Hewitson, E. F. Lansdowne Coll., Notting Hill Levett, M. E. Guildown Coll., Tumb. Wells Pike, E. f. Scarborough Hr. Grade S. Purser, G. St. Andrew's Hall, Southport Ruff, E. f. Ellerker Coll., Richmond Hill Wicks, E. A. E. High S. for Girls, Wells, Som. Williams, A. L. Glenarm Coll., Ilford Williams, I. L. N. Spring Bank, Moss Side, Manchester Craig, E. M. Boves Park S., for Girls, N. Hyde, G. A. Lyndale Coll., Worthing Law, E. L. High S., Buxton Rd., Chingford Morom, H. F. Enwell S., Warmistun Ribban, N. F. Private tuition Rizz, E. Rochdale High S. Robb, H. L. Thoresby Coll., King's Lynn Willey, F. D. High S., Poplar Avenue, Edgubaston Youlden, D. E. Summerbrook, Reading Banyard, E. Somerville H., Northampton Court, E. Wm. Gibbs S., Faversham Dickens, A. M. Western H., Nottingham Ford, F. J. Summerbrook, Reading Johnson, A. Horndene, Epping Loeker, M. Brompton Science S., S. W. Malpass, F. M. Beaufort H., Stratford-on-Avon Sayle, M. Roan S., Greenwich Sewell, V. 5 Orchard Gardens, Teignmouth Shore, J. M. Somerville H., Northampton Campbell, K. M. Kendrick H., Brighton Tait, C. George Green S., Poplar Woodcock, E. J. Tinwall, Heswall, Cheshire Cox, C. W. Modena H., Peckham Rye Hill, E. M. Roan S., Greenwich Hinge, F. Chichester H., Mortimer Pery, V. f. Wm. Gibbs S., Faversham Porter, A. M. Modern Coll., Stoke Bishop Rogers, A. M. Tinwall, Heswall, Cheshire Seriven, G. M. The Chase, Halstead Shepher, A. E. Brompton Science S., S. W. Thounman, F. L. Howard Coll., Bedford Masters, F. H. f. 35 Dulwich Rd., Herne Hill Patterson, D. Wandsworth Tech. Inst. Spragg, E. a. Stoke Public Higher S. Waters, L. K. s. Roan S., Greenwich Corbett, E. M. L. High S., Oakengates Gartrell, E. f. Ville Guyon, St. John's, Jersey Greenslade, A. St. Hilda's, Exeter Murray, G. S. M. 13 Chapel Place, Ramsgate Oran, D. S. Devonport High S., for Girls Saunders, L. M. Colston's Girls' S., Bristol Wells, G. L. Private tuition Creighton, E. R. Clark's High S., Effra Rd., S. W. Matthews, M. St. Andrew's Conv. S., Jersey Heywood, M. The Rectory, Failsworth Heywood, M. Harringay Park S., N. Krauss, E. C. Ballina H., Brixton Hill Now, F. M. S. Inglenook, Newport, Mon. Neale, D. Harrow & Wealdstone Modern S. Ponsford, M. A. Mile End H., Newport, Mon. Provis, A. M. Torhill Coll., Hastings Johnson, B. A. 11 Stopford Place, Stoke Worden, W. Cambridge H., Preston Wright, L. Hanover H., Ryde Murray, V. J. Roan S., Greenwich Watts, E. B. Western H., Nottingham Wood, E. M. Private tuition Cox, A. E. Roan S., Greenwich Green, E. M. 32 Blenheim Gdns., Willesden Johnson, M. L. Woodford S., Southsea Martell, G. Southampton Girls' Coll. Balfour, E. M. Hillside, Clifton La Brooy, A. T. Roan S., Greenwich Nash, M. E. Hillside, Clifton Mid. Class S., Oxford Rd., High Wycombe Spencer, A. M. E. Finchley High S. for Girls

Bessell, E. S. d. Balham School, S. W. Jarvis, W. M. St. John the Divine's High S., Kennington Hauer, K. E. M. s. e. h. g. a. Ladies' Coll., Wellington, Salop Howard, G. s. h. a. Alexandra Coll., Shirley Bate, D. M. s. a. f. d. Royal Masonic Inst., S. W. Chubb, E. h. g. a. f. Goodrich Rd. S., E. Dulwich Robinson, G. s. e. g. a. d. St. Andrew's Hall, Southport Fawcett, A. E. g. a. Crossbeck H., Ilkley Goodman, D. V. e. a. Gosport Secondary & Coll. S. Lewis, E. M. e. g. Venecroft S., Devizes Millson, N. e. f. d. West Ham High S. Paterson, M. g. a. d. St. Andrew's Hall, Southport Smith, H. s. g. St. Andrew's Hall, Southport Brown, M. A. g. f. e. The Mounts S., Banbury Green, M. s. d. St. George's H., Doncaster Kent, E. M. al. Edgelhill, Bodmin Richmond, V. G. s. e. d. Lonsdale H., Norwich Donington, A. M. e. g. Spalding Girls' Coll. S. Lycett, M. g. a. d. Lytham & Fairhaven Coll. Read, E. M. e. a. f. West Ham High S. Waddington, G. M. e. Ashley High S., Long Sutton Billett, W. M. h. a. Malvern H., Birkdale Boswell, K. C. e. h. g. f. High S., Buxton Rd., Chingford Sharman, A. L. e. g. Spalding Girls' Coll. S. Wheatley, G. s. h. g. a. f. Royal Masonic Inst., S. W. Widdicombe, F. s. e. f. Girls' High S., Dartmouth Carter, A. M. a. d. Hr. Grade S., Regent St., Plymouth Clayton, H. h. g. d. St. Andrew's Hall, Southport Crown, E. A. e. Private tuition Jagger, F. M. e. h. f. Harborne Ladies' Coll., B'ham Rees, D. s. e. a. n. Milton Mount Coll., Gravesend Wolstenholme, H. M. s. g. a. e. d. Milton Mount Coll., Gravesend Bevis, H. E. s. h. g. Oakley High S., Southsea Goddard, A. a. f. d. West Ham High S. Weaver, H. M. Brentford Coll. S. Young, M. d. Loretto Conv., Hulme, M'chester Berthoud, N. a. o. f. Loretto Conv., Hulme, M'chester Coates, K. N. s. Ladies' Coll., Wellington, Salop Evershed, A. F. C. s. d. Private tuition Ramsell, F. I. f. Brooklyn H., Wellington, Salop Adams, D. F. f. E. Evering High S., Evering Rd., N. Bunting, C. J. f. Friends' S., Saffron Walden Newth, G. E. e. g. Ivy H. Coll. S., Crouch Hill Porter, L. a. h. k. Home Park S., Stoke Evans, D. s. a. Ladies' Coll., Wellington, Salop Rudge, E. C. Clarence Coll., Wood Green Sackett, D. G. g. d. Royal Masonic Inst., S. W. Triggs, E. a. d. f. Crossbeck H., Ilkley Benison, L. e. f. Camden S. for Girls, N. W. Boyd, A. M. e. f. Private tuition Bradley, V. a. d. St. Andrew's Hall, Southport Brooks, A. E. K. S. Royal Masonic Inst., S. W. Cortazzi, I. K. C. e. a. North Park Coll., Croydon Hopper, M. W. L. St. David's S., Carnarvon Hutchinson, B. e. a. St. George's H., Doncaster Andrews, G. h. Alexandra Coll., Shirley Denness, E. B. l. b. k. Alexandra Coll., Shirley Downes, M. s. d. Royal Masonic Inst., S. W. Osborne, D. s. a. St. Andrew's Hall, Southport Bee, B. d. St. Andrew's Hall, Southport Hearnshaw, E. M. e. g. a. d. Spalding Girls' Coll. S. Park Rd. S., Bingley Hilson, C. G. Kelly, M. A. a. St. Joseph's S., Conv. of Loretto, Hulme Morris, K. F. Cornwallis High S., Hastings Tozer, V. M. d. Friends' S., Saffron Walden Abbott, E. A. K. f. Brean Down H., Burnham, Som. Baker, M. A. a. f. Norfolk Coll., Southsea McWhinnie, J. M. s. h. Alexandra Coll., Shirley Mutton, E. J. s. e. g. o. d. Edgelhill, Bodmin Warring, M. S. h. Home Park S., Stoke Armstrong, A. d. Alderhurst, Sale Braine, E. e. h. g. f. Bayswater High S., W. Cluife, I. M. e. h. f. West Ham High S. Cunningham, M. A. h. Private tuition Duck, D. A. Oakley High S., Southsea Gibson, C. M. G. Westbury Rd., Brentwood Kilner, F. M. g. f. Camden S. for Girls, N. W.

THIRD CLASS. Honours Division.

Howl, F. M. s. e. h. a. f. g. d. Ladies' Coll., Wellington, Salop Watton, M. V. s. e. h. a. d. Ladies' Coll., Wellington, Salop Parkinson, E. h. g. a. f. The Laurels, Herne Bay MacDonald, M. s. h. g. a. f. Inter. S., Hindes Rd., Harrow

**GIRLS, 3RD CLASS, HONS.—Continued.**  
Lee, P.M. *s.h.f.* Milton Mount Coll., Gravesend  
Linton, D. *f.* Fairlight H., Croydon  
Rossiter, A. *c.d.* High S., Teignmouth  
Wise, S.E. *f.* Royal Masonic Inst., S.W.  
Woodward, M.E. Royal Masonic Inst., S.W.  
Bone, L.H. *g.a.f.* Crossbeck H., Ilkley  
Cornford, H.M. *h.* Belle Vue, Herne Bay  
Finner, E.A. *f.d.* Lynsted Coll. S., Greenstreet  
Lynsted Coll. S., Greenstreet  
Pinker, I.M. *a.* Goodrich Rd. S., E. Dulwich  
Baxter, M. *g.f.* Balham School, S.W.  
Brown, D.M. *s.* Ladies' Coll., Wellington, Salop  
Eames, F.M. Friends' S., Safron Walden  
Harrison, A.E. *s.h.a.f.* Royal Masonic Inst., S.W.  
Hollett, E.H. *h.* Girls' Coll. S., Aldershot  
McWilton, J. *d. a.d.* West Ham High S.  
Malkin, O.M. *h.d.* Private tuition  
Mayor, S.W. *g.* Warwick H., Poulton-le-Fylde  
Rhodes, V. *e.* Arundel H., Scarborough  
Ricardo, M.A. *e.* Private tuition  
Riley, M.L.B. *s.d.* Milton Mount Coll., Gravesend  
Stevenson, E. *c.a.f.* Westbourne S., Westbourne Pk., W.  
Stidolph, D.M. *a.f.* Olive H. High S., Brockley  
Tate, O.I.M. *e.* High S. for Girls, Wells, Som.  
Bellamy, C.M. *h.g.* Fernside, Grantham  
Bishop, W.M. *f.* Milton Mount Coll., Gravesend  
Bliss, H.C. *d.* Inter. S., Hindes Rd., Harrow  
Child, W. *s.h.d.* Ashborne H., Chestow  
Clark, A. *f.* Northcote H., Crouch Hill  
Coeber, B.E.L. *d.* Vallert Rd. S., Stoke  
Leat, M.A.M. *a.* Y Garn, Bromley, Kent  
Pickup, B. Dukinfield High S.,  
Redfern, M. Private tuition  
Thorne, D.G. *a.* Oakley High S., Southsea  
Willway, I.M. *h.g.* Clarendon S., Bath  
Buck, J. *g.* Quarry H., Guildford  
Brewin, F. *g.* Milton Mount Coll., Gravesend  
Daines, B.M. *d.* Hemdean H., Caversham  
Davey, J. *d.* Clifton H., Park Rd., Aintree  
Goodbehere, L. *s.g.* Lytham & Fairhaven Coll.  
Nash, M.F. *e.* Wakefield H., Norwich  
Quinn, M.S. Friends' S., Safron Walden  
Rylands, L. *d.* St. Andrew's Hall, Southport  
Wright, D.M. *e.d.* Olive H. High S., Brockley  
Buisseret, M.J. *f.* St. Joseph's Coll. S., Totland Bay  
Cable, E.C. *e.a.f.* Girtton H., Yeovil  
Cooper, L. *s.f.* Clarence Coll., Wood Green  
Green, W.T. *s.f.* Royal Masonic Inst., S.W.  
Haek, C.A. *s.* Y Garn, Bromley, Kent  
Hawkins, E. *f.* Goodrich Rd. S., E. Dulwich  
Jones, E.L. Westbourne H., Cowes  
Kelsey, M. Lynsted Coll. S., Greenstreet  
Kemball, M. *e.* Loreto Conv., Hulme, Manchester  
Pinchard, S.T.B. *f.* Harringay Park S., N.  
Rayner, E.M. Girls' Modern S., Harleston  
Terry, P.M. *s.* Lonsdale House S., Norwich  
Walker, F.M. *p.* Westbourne H., Cowes  
Webham, F.H. *e.* Private tuition  
Williams, M.B.S. *e.d.* St. Margaret's S., Cardiff  
Wilson, L.E. *e.h.g.f.* Hope Lodge S., Bexley Heath  
Acworth, E.E.A. *e.* The Laurels, Herne Bay  
Berthoud, M. *g.f.* Loreto Conv., Hulme, Manchester  
Butler, E.M. *d.* Ladies' Coll., Wellington, Salop  
Callaway, E.W. Northcote H., Crouch Hill  
Cook, I.W. *a.* Hyde H., Tollington Park  
Hayward, K. *e.* 5 Orchard Gardens, Teignmouth  
Johnstone, M.J. *h.* Ellerker Coll., Richmond Hill  
Lauder, I.M. *a.* Ladies' Coll., Wellington, Salop  
Latimer, F. *e.* The Laurels, Herne Bay  
Milner, S.H. *s.* Royal Masonic Inst., S.W.  
Newman, R. *f.* St. Joseph's Coll. S., Totland Bay  
Pitchford, F.A. *s.* Sunfield H., Wellington, Salop  
Roberts, I.K. *a.f.* Ladies' Coll., Wellington, Salop  
Smith, M. *d.* Hemdean H., Caversham  
Wilson, I.M. *e.a.* West Ham High S.  
Bush, M.A. *a.* Goodrich Rd. S., E. Dulwich  
Cambage, A.A. *e.a.* Fernside, Grantham  
Cradlock, E.K. Licensed Victuallers' S., S.E.  
Crosbie, A.H. Private tuition  
Dingley, M.D. The Hollies, Soho Park, Handsworth  
Harcastle, R.F.M. *c.f.* Royal Masonic Inst., S.W.  
Holland, M.B. *g.* Hr. Grade S., Regent St., Plymouth  
Reddall, D.C. *g.* Royal Masonic Inst., S.W.

Shepherd, F.J. *c.d.* Duke Street S., Bath  
Smith, V.G. *d.* Oakley High S., Southsea  
Sutcliffe, A. *a.* Lytham & Fairhaven Coll.  
Worthington, W.E. *e.a.* Portland Street S., Leamington Spa  
Carruthers, M.E. Cambridge H., Preston  
Edey, B. *h.g.* Prospect H., St. Neots  
Fletcher, I. St. Andrew's Hall, Southport  
French, W.B. *e.a.* Oakley High S., Southsea  
Jones, E.R. Clark's Coll. High S., Fitzroy Sq., W.  
Joynson, E.C. Ladies' Coll., Wellington, Salop  
Powell, G. *a.* Abbey H., Selby  
Procter, M.J. 18 Pavilion Square, Scarborough  
Clothier, B. *d.* Girtton H., Yeovil  
Davies, F.B. *s.e.g.* Kendrick Girls' S., Reading  
Davies, I.E. *a.* Newnham H., Hereford  
Galloway, M.A. *s.g.* The Mount S., Banbury  
Holland, E.A. *g.* Hr. Grade S., Regent St., Plymouth  
Lees, M. *e.g.* Lytham & Fairhaven Coll.  
Malsbury, C.M. Croft H., Wallingford  
Marsland, E. *f.* Goodrich Rd. S., E. Dulwich  
Mellor, J. Royal Masonic Inst., S.W.  
Nichols, D. Wilber H., Biggleswade  
Rushworth, R.H.R. Fulford Field H., York  
Wilson, A.E. Park Rd. S., Bingley

**THIRD CLASS. Pass Division.**

Franklin, E. Ellerker Coll., Richmond Hill  
Cunningham, A.M. Private tuition  
Evans, H.M. Ladies' Coll., Wellington, Salop  
Gill, M. St. Andrew's Hall, Southport  
Mitchell, G.E. Colston's Girls' S., Bristol  
Baillie, C.K. Waveney H., Harleston  
Harwar, C.E.M. Cauden High S., Peckham Rye  
Webb, D.M. Colston's Girls' S., Bristol  
Mason, E.J. Addey & Stanhope S., New Cross  
Macgregor, G.M. Private tuition  
Read, H.M. Westbourne H., Cowes  
Cooper, S.C. Stainsbridge Coll., Malmesbury  
Onions, E.M.C. Sunfield H., Wellington, Salop  
Penny, D.M. Wordsworth Coll., Shirland Rd., W.  
Welham, E.F. Girls' Gram. S., Farnham  
Lovell, L.H. Red Maids S., Bristol  
Vinecent, E.B. Cliffe Lawne, Ryde  
Caton, H.O. Private tuition  
Fowles, E. Woking High S. for Girls  
Kiln, W. Woking High S. for Girls  
Massey, E. Friends' S., Penketh  
Minty, C.A. Clifton H., Leyton  
Collin, E.S. *d.* Fairlaw S., Newmarket  
Marshall, D.C. Clark's Coll. High S., Fitzroy Sq., W.  
Barker, E. Hartfell, Birkdale  
Bond, W.E. Clarendon Coll., Clifton  
French, H.M. Northcote H., Crouch Hill  
Gall, M.A. Clark's Coll. High S., Fitzroy Sq., W.  
Green, G.R. Rose Bank S., Brentwood  
Keene, G.A. Westholme, Maidenhead  
Lowth, R.E.A. Weirfield S., Taunton  
Von Herrenberg, L.M. *s.* Hillside, Clifton  
Gardiner, W. Wm. Gibbs' S., Faversham  
Hoppee, J.A. Arundel H., Scarborough  
Rivett, E.M. Salisbury H., Plymouth  
Fish, A. Colston's Girls' S., Bristol  
Cooper, E. Ely House Coll., Wolverhampton  
Fry, L.E. Enwell S., Warmminster  
Hallifax, B.B. Hillside, Clifton  
Reinold, L.A. Brompton Science S., S.W.  
Davidson, V.E. Wakefield H., Norwich  
Le Cocq, E. Mecklenburg H., Putney  
Powell, G.G. Moseley High S. for Girls  
Thomas, M.M. Mountside High S., Hastings  
Smith, O.M. Roan S., Greenwich  
Thomas, E.L.M. Northcote H., Crouch Hill  
Burnell, E. Private tuition  
Ellis, A.M. *d.* Central Found. S., Spital Sq., E.  
Tapp, M.E. Ashley High S., Long Sutton  
Butler, A.M. Stainsbridge Coll., Malmesbury  
Clarke, E. Stoke Public Higher S.  
Harlow, E.M. Addiscombe H., Margate  
Billett, D.M. 5 Osnaburgh Terrace, N.W.  
Arcy, W. St. Joseph's Conv., Hulme  
Wither, M.E. The Crescent S., Selby  
Biglands, H. Friends' S., Wighton  
Johnson, E.M. Scarborough Hr. Grade S.  
Johnston, E.H. Guildown Coll. S., Tunbridge Wells  
Upham, C.E. Rockvale H., Brixham  
Flack, K. *g.* Servite S., Lordship Rd., N.  
Godfrey, D.M. Harringay Park S., N.  
Habgood, D.V. Private tuition

Harding, J.M. *f.* Royal Masonic Inst., S.W.  
Heap, M. *d.* St. Andrew's Hall, Southport  
Kelley, W.G. *a.* Girtton H., Yeovil  
Little, J. *f.* Cheltenham H., Newport, Mon.  
Parker, M.B. Camden S. for Girls, N.W.  
Ramshaw, N. Royal Masonic Inst., S.W.  
Raymond, K. *G.d.e.* Devonport High S. for Girls  
Roebuck, M. *s.g.d.* Lytham & Fairhaven Coll.  
Saunders, I. Minerva Coll., Dover  
Smith, J.M.M. Mayfield Coll., Marlborough  
Taylor, H. *s.a.* Purcell H., Scarborough  
Turner, N.L. *d.* Collingwood Coll., Lee, S.E.  
Wheeler, A.E. Quarry H., Guildford  
Balding, W.A. *s.e.* Kendrick Girls' S., Reading  
Braithwaite, D. *e.* High S., Buxton Rd., Chingford  
Buck, F.A.M. Girls' Coll. S., Aldershot  
Burton, M. Lonsdale H., Norwich  
Cave, E. *g.* St. Andrew's Hall, Southport  
Cawley, A.E. *d.* Vallert Rd. S., Stoke  
Cawsey, G. Stoke Public Higher S.  
Cottingham, M. *g.* Ashley H., Worksop  
Eaton, M. *d.* The Coll., Totnes  
Elsay, E.M. Mecklenburg H., Putney  
Gooding, D.M. Ivy H. Coll. S., Crouch Hill  
Gordon, W.E.S. Camden S. for Girls, N.W.  
Harvey, G.M. Clark's Coll. High S., Fitzroy Sq., W.  
Higgins, L. Broad Green S., Wellingboro  
Hill, L.G. *d.* Ellenborough H., Clifton  
Holderness, M.A. Glengarry, Birkdale  
Jay, E.A. Collingwood Coll., Lee, S.E.  
Jones, E.I. *d.* Ashburne H., Chestow  
Mathias, N. St. Andrew's Hall, Southport  
McLaughlin, E. Mayeroff Homes, Bexhill  
Piggott, E.F. *d.* Roan S., Greenwich  
Stratton, E. *d.* Dresden H., Evesham  
Thompson, I. Mowbray S., Sunderland  
Wareing, J. *d.* St. Andrew's Hall, Southport  
Wharmby, M.E. Private tuition  
Chidgey, E.I. *s.* Girls' High S., Wanstead  
Clayton, W. Royal Masonic Inst., S.W.  
Craik, E.G.M. *s.f.* High S. for Girls, Wells, Som.  
Cross, A. Royal Masonic Inst., S.W.  
Donovan, E. Loreto Conv., Hulme, Manchester  
Gay, G.A. Milton Mount Coll., Gravesend  
Goodwin, L.E. Waveney H., Harleston  
Haigh, M.F. Private tuition  
Hallatt, M.R. *d.* Portway Coll., Reading  
Hobson, M.C. Ladies' Coll., Wellington, Salop  
Levy, M.A. *f.* Minerva Coll., Dover  
Lund, A. *s.g.* Lytham & Fairhaven Coll.  
Riekus, L.S. West Ham High S.  
Sayle, E. *g.d.* Roan S., Greenwich  
Seddon, E.A. *f.* Hartfell, Birkdale  
Sibthorpe, E. *s.f.* Salisbury H., Littlehampton  
Smith, E. *e.* West Ham High S.  
Tucker, E.H. *h.d.* Rock Hill Coll., Chulmleigh  
Tyler, A.C. Colston's Girls' S., Bristol  
Walker, G. *a.* St. George's H., Doncaster  
Walpole, M.M. *e.* Ripley Coll., Bury St. Eds.  
White, E.G. Addiscombe H., Margate  
Wilton, E. Girls' High S., Dartmouth  
Attrill, W.C. Hanover H., Ryde  
Bessiche, M. *f.d.* Convent High S., Weymouth  
Billings, M.E. *e.f.* York H., Farnham  
Cooke, D.E. *d.* Waldron House, Havant  
Cooke, E.M. Spring Bank, Hyde  
Davis, E.M. *g.* Y Garn, Bromley, Kent  
Davys, M.G. *e.* Camden S. for Girls, N.W.  
Draper, D.E. *g.* Girls' High S., Sudbury, Suffolk  
Ellis, B. *s.d.* Lonsdale H., Norwich  
Gooderham, E. Glengall, Romford  
Haslem, G. Crossley & Porter S., Halifax  
Hawkins, E.G. Red Maids S., Bristol  
Isted, E.E. Alexandra Coll., Shirley  
Johnson, M.G. Horndene, Epping  
Keen, E.G. Girls' Coll. S., Aldershot  
Kitchin, M. *s.* Clanville H., Brooke Rd., N.  
Linaker, F. *s.h.g.* Lytham & Fairhaven Coll.  
Loekyer, E.H. *f.* Glenarm Coll., Ilford  
Mills, C.J. *c.f.* Somerville H., Northampton  
Norrington, Muriel Montpelier Coll., B. Salterton  
Pickford, B. *h.* St. George's H., Doncaster  
Stokes, L.M.V. *s.* Crossley & Porter S., Halifax  
Sykes, L. *s.d.* Crossley & Porter S., Halifax  
Wilkinson, M.H.M. Private tuition  
Wolf, L.H. Canonbury High S. for Girls, N.  
Wright, I.M. Brook Green Coll., W.  
Yates, H. Addiscombe H., Margate  
Young, C.L. Bellevue, Herne Bay  
Brading, G.M. *f.* Kirkburn, Bush Hill Pk., Enfield  
Calladine, M.L. York H., Stony Stratford  
Coleman, O.B. Colehill S., Tamworth  
Field, D. The Academy, Crewe  
Frost, F.E. Royal Masonic Inst., S.W.  
Gates, G.J. The Laurels, Herne Bay

Henderson, A.H. Friends' S., Wighton  
Hill, M.W.J. *s.g.* Y Garn, Bromley, Kent  
Ingham, M. Crossbeck H., Ilkley  
Livingstone, F. *a.* Fernside, Grantham  
Longlen, E.E. Somerville H., Northampton  
Morgan, A.M. *g.* Milton Mount Coll., Gravesend  
Neary, F.M. Warminster, Longley Rd., Tooting  
Rayner, D.G. Camden S. for Girls, N.W.  
Taylor, S.C. Private tuition  
Winter, A. *e.* St. Olave's S., Taunton  
Worsell, F.J. Royal Masonic Inst., S.W.  
Bengarie, D. Prospect H., St. Neots  
Brown, V.G. Private tuition  
Buisseret, K.J. *f.* St. Joseph's Coll. S., Totland Bay  
Carter, E.C. *d.* High S. for Girls, Wells, Som.  
Castle, M. Balham S., S.W.  
Clarke, H.M. Castlebar High S., Ealing  
Deeks, C. *d.* Ellerker Coll., Richmond Hill  
Gibaut, E.F. St. James' Coll., Jersey  
Hare, S. Cambridge H., York  
Harris, D. Montpellier Coll., B. Salterton  
Hewson, E. St. Andrew's Hall, Southport  
Howard, L.C. *d.* Heidelberg Coll., Ealing  
Johns, E. *c.* Crossley & Porter S., Halifax  
Munchee, R.S. Summerbrook, Reading  
Phillips, F.J.M. Raleigh Memorial S., Stoke Newington  
Relton, P. Private tuition  
Richardson, E.K.I. *g.* Private tuition  
Roberts, M.W. St. Augustine's S., Kilburn  
Smith, L.M.M. Modena H., Peckham Rye  
Stanyon, F.A. 23 North Parade, Grantham  
Stilwell, M. *f.* Home Glen, Strawberry Hill, S.W.  
Swadling, G.M. *d.* Harringay Park S., N.  
Thompson, L.A. *g.* Clarence Coll., Wood Green  
Tidswell, V.J. 11 Taswell Rd., Southsea  
Whiting, M.W. Royal Masonic Inst., S.W.  
Appleford, F.M. *g.f.* Hope Lodge S., Bexley Heath  
Attride, O.S. *d.* Kendrick Girls' S., Reading  
Bevan, D. *e.* St. Joseph's Conv., Hulme  
Benson, D.S.P. *s.* Brook Green Coll., W.  
Carter, H.V. *d.* Longford Girls' S., Bristol  
Crossley, E. St. Andrew's Hall, Southport  
Crossley, J. St. Andrew's Hall, Southport  
Darley, G.I. *a.* Milton Mount Coll., Gravesend  
Devereux, M.A. Airedale H., Gravesend  
Edkins, M.E. *a.n.f.* Beaufort H., Stratford-on-Avon  
Ellis, L. The Academy, Crewe  
Evans, A.M. Southernhay S., Exeter  
Ford, M.A. Westbourne H., Cowes  
Gill, M.E.F. 6 Westbury Rd., Brentwood  
Griffiths, D.G. *d.* Camden S. for Girls, N.W.  
Hall, E.M. *e.* York H., Stony Stratford  
Harrison, R.H. Clarendon Coll., Clifton  
Heath, O.M. *f.* Private tuition  
Hill, V. Fairlight H., Croydon  
Kirkham, A.P. Warwick H., Poulton-le-Fylde  
Lavers, E.M. *h.* Hanover H., Ryde  
Lawton, M.F. Kensington H., Chiswick  
Lockwood, A. Girls' High S., Rothwell  
Longhurst, C.G. *d.* Girls' Coll. S., Aldershot  
Lucas, G. Manor H., Havant  
Marshall, L.M. Dresden H., Evesham  
Parsons, S.L.M. *e.* Duke Street S., Bath  
Radcliffe, M. Wm. Gibbs' S., Faversham  
Speakman, M. *g.* Lytham & Fairhaven Coll.  
Spencer, G.F. *e.* Langham H., Ashbourne  
Stent, M. Froebel H., Worthing  
Towers, F.E. Private tuition  
Twig, D. Harborne Ladies' Coll., B'ham  
Turner, M.M. *e.* Avondale, Croxteth Rd., L'pool  
York, C.M. South Bristol Girls' High S.  
Atherton, A.E. Belmont, Aintree, L'pool  
Austin, G.A. Acuck's Green Ladies' Coll., B'ham  
Brain, E.M. Colehill S., Tamworth  
Cant, G. Ashley H., Worksop  
Chipp, A.M. Westbourne H., Cowes  
Clark, E.L.B. *d.* Private tuition  
Clarke, M. Glenarm S., Moseley  
Cockeroff, I.A. *s.* Royal Masonic Inst., S.W.  
Eyre, O. *g.* Ashley H., Worksop  
Foster, L. *f.* Milton Mount Coll., Gravesend  
Goodwin, E.V. Waveney H., Harleston  
Haberin, E. *g.* Loreto Conv., Hulme, Manchester  
Harding, E.E. *a.* Camden S. for Girls, N.W.  
Harrison, F.I. Guelph Coll., Clifton  
Holey, E.F. Crossbeck H., Ilkley  
Hutton, G.M. Branksome Coll., New Milton, Hants  
King, A.L. *d.* Goodrich Rd. S., E. Dulwich  
Long, M.E. Friends' S., Safron Walden  
Oldendorf, M.S. Alresford H., Chislehurst  
Pearson, G.M. *d.* Camden S. for Girls, N.W.  
Pennell, L.L.R.A. *d.* Roan S., Greenwich  
Pinney, I.A. Ellerker Coll., Richmond Hill  
Ross, M.B. Avondale, Croxteth Rd., L'pool  
Rozenbaum, E.A. *f.* Gloucester H., Kent  
Salmon, M.L. Airedale H., Gravesend  
Todd, A. St. Andrew's Hall, Southport  
Tweedell, A. St. Andrew's Hall, Southport  
Wetherill, A. *g.* Royal Masonic Inst., S.W.





**GIRLS, 3RD CLASS, PASS—Continued.**  
 Godol, E. M. Glenrose S., Jersey  
 Hawkyard, G. Norma S., Waterloo, L'pool  
 Hyett, H. L. St. Winifred's, Southampton  
 Jones, J. M. St. Winifred's, Southampton  
 Nash, B. E.  
 Westbourne S., Westbourne Park, W.  
 \*New, N. Wakeford H., Brighton  
 Richardson, K. M.  
 Cornwallis High S., Hastings  
 Smith, E. S. King's Lynn High S.  
 Thomson, V. M. Westbourne H., Cowes  
 Waldron, E. Duke Street S., Bath  
 White, E.  
 Clark's Coll. High S., Fitzroy Sq., W.  
 Woods, E. C. Hyde H., Tollington Park  
 De Lannay, D. Strasburg Villa S., Ryde  
 Fairclough, E. The Poplars, Southport  
 Foden, M. M.  
 Beech H., Holmes Chapel, Crewe  
 Horsford, M. St. Hilda's, Exeter  
 Passmore, van, R. D.  
 Stanmore Coll., Balham  
 Rawlins, R. E. Girls' High S., Swindon  
 Reynolds, A. M. Duke Street S., Bath  
 Richardson, F. L. a.  
 S. Holland Central Classes, Spalding  
 Salisbury, L. M. Burton H., Weston-s.-Mare  
 Spain, I. Milton Mount Coll., Gravesend  
 Winter, E. M. Claremont S., Crickelewood  
 Wolstencroft, E. A. Bodlondob, Colwyn Bay  
 Yates, M. d. Hartfell, Birkdale  
 Balshaw, S. A.  
 Comm. S., Seymour Rd., Astley Bridge  
 Barnes, M. Ystrad H., Newport, Mon.

**Barton, L.**  
 High S., Randalstown, Co. Antrim  
 Buckland, H. M. Kendrick Girls' S., Reading  
 Coulson, E. 21 Avenham Lane, Preston  
 Ellis, E. Broadfield, Rochdale  
 Gray, M. St. Joseph's Conv., W. Hartlepool  
 Holeyman, H. E.  
 Carleton Queen's Coll., Tufnell Park  
 House, N. Alexandra Coll., Shirley  
 Jones, C. E. Anfield Coll., Liverpool  
 Jones, E. N. Burton H., Weston-s.-Mare  
 Jordan, E. I. Prep. S., South St., Greenwich  
 Lang, M. Wilton H., Reading  
 Malden, C. Addiscombe High S.  
 Neate, E. Oxford H., Leatherhead  
 Weeks, D.  
 Evering High St., Evering Rd., N.  
 Woodruff, K. M. Stone H., Sandwich  
 Bailey, M. St. Bernard's S., Southsea  
 Balfour, C. a.  
 S. London High S., E. Dulwich  
 Bourne, G. I. Ladies' S., Sedgley  
 Cossham, D. W. Maidlee Girls' Coll. S.  
 de la Haye, M. D. St. James's Coll., Jersey  
 Graves, G. M. Camden S. for Girls, N. W.  
 Hanwell, M. C. 51 Ditchling Rise, Brighton  
 Legge, I. W. Milton Mt. Coll., Gravesend  
 Punnett, E. M. Coborn S., Bow Rd., E.  
 Stinchcomb, I. M. Down End, Clifton  
 Thompson, H. Girtonville Coll., Aintree  
 Addinell, E. C. Cranley H., Muswell Hill  
 Barker, D. a. Hartfell, Birkdale  
 Hagger, J. Athelstan H., Margate  
 Hooper, W. H. St. Catherine's S., Hatcham  
 Hault, D. Haldon View S., Exeter

**Parker, L. B.**  
 S. Holland Central Classes, Spalding  
 Patching, S. M. 51 Ditchling Rise, Brighton  
 Ormerod, A. Rochdale High S.  
 Read, D. Rose Bank S., Brentwood  
 Wenham, K. Woking High S. for Girls  
 White, A. M. Bowes Park S. for Girls, N.  
 Wiseman, E. M. Madona H., Peckham Rye  
 Young, M. K. Mill Hill Park High S., Acton  
 Barrett, M. E. Clarendon H., Southport  
 Blinston, E. Lulworth Lodge, Birkdale  
 Browning, H. Warwick H., Roade  
 Bunkall, M. D. King's Lynn High S.  
 Coleman, A. F.  
 Stapleton Hall S., Stroud Green  
 Dawson, E. G.  
 Hillside Ladies' S., Risca, Mon.  
 Gardner, L. F. d.  
 Bestreben High S., Brondesbury  
 Harrison, D. Newton H., Tunbridge Wells  
 King, M. Ballina H., Brixton Hill  
 Mullan, M. St. Joseph's Conv., Hulme  
 Breeze, E. M. High S., Oakengates  
 Fort, G. A. Private tuition  
 Gillart, J. P. Higher Grade S., Selby  
 Harvey, J. L. Ivy H., Hanwell  
 May, R. S. Queen's S., Cliftonville, Margate  
 Sutherland, M. Girtonville Coll., Aintree  
 Waite, E. E.  
 High S., Poplar Avenue, Edgbaston  
 Willes, E. M. Airedale H., Gravesend  
 Gabor, C. H. 51 Ditchling Rise, Brighton  
 Horner, E. M.  
 Carleton Queen's Coll., Tufnell Pk.

**Jackman, E.** Holloway Coll., N.  
 Whittaker, N. Brunswick H., Gravesend  
 Wright, W. C.  
 Anglo-French Ladies' Coll., Bristol  
 Yates, D. C. Fairlight H., Croydon  
 Balshaw, C. V. Girtonville Coll., Aintree  
 Brown, E. M. Burton H., Weston-s.-Mare  
 Farish, S. A. Coborn S., Bow Rd., E.  
 Holman, M. M.  
 Queen's S., Cliftonville. Margate  
 Horne, F. D. Gunnerside S., Plymouth  
 Parker, E. L. King's Lynn High S.  
 Upstill, A. K. Sea View S., Cowes  
 Walker, M. Stone H., Sandwich  
 Weatherdon, F. A.  
 St. Stephen's Coll., Hounslow  
 Riess, A. P. Private tuition  
 Tapp, A. A. Olive H. High S., Brockley  
 Wilson, E. H. Higher Grade S., Selby  
 Wolf, R. School for Girls, Gravesend  
 Ayles, M. C. Licensed Victuallers' S., S. E.  
 Clenes, I. T. Private tuition  
 Gummill, M. W. Windsor H., Ongar  
 Gyllenreutz, I. E. Private tuition  
 King, E. L. Chichester H., Mortimer  
 Mason, W. Stamford Hill & Clapton High S.  
 Hall, E. M. Oakley High S., Southsea  
 Smith, O. T. Hanover H., Ryde  
 Stockdale, F. M. 21 Avenham Lane, Preston  
 Brown, A. E. F. Addiscombe H., Margate  
 Hawkins, M. G.  
 Cairnbrook Coll., S. Woodford  
 Smith, E. M. King's Lynn High S.

NAMES OF CANDIDATES IN THE ABOVE LISTS WHO HAVE PASSED THE ORAL EXAMINATIONS IN FRENCH AND GERMAN.

f = French. g = German.

BOYS.

Ahier, P. J. Jersey Modern S.	Evans, F. N. a. Mercers' School, E. C.	Long, A. G. f. Kendrick Boys' S., Reading	Pallot, H. f. St. James's Coll. S., Jersey
Bonest, S. f. St. James' Coll. S., Jersey	Gibbons, L. R. W. f. Jersey Modern S.	Manning, A. F. f. Kendrick Boys' S., Reading	Petzsche, R. A. f. g. Mercers' School, E. C.
Bisson, J. R. f. Trinity Parochial S., Jersey	Gibson, J. A. f. g. Mercers' School, E. C.	Marran, H. J. f. Highfield S., Muswell Hill Rd., N.	Pironet, A. N. f. Oxenford H., Jersey
Bourgeois, P. f. g. St. Joseph's Coll., Denmark Hill, S. E.	Goulding, E. A. f. Chateau de la Croisiere, Ghistelles, Belgium	McCallum, A. R. f. Mercers' School, E. C.	Remington, E. f. High S. for Boys, Croydon
Browell, R. f. g. Mercers' School, E. C.	Herve, A. R. f. St. James's Coll. S., Jersey	Melikoff, G. f. Broomwood Coll., Wandsworth Comm.	Renouf, R. f. Oxenford H., Jersey
Buley, G. H. f. Sir Wm. Borlase S., Marlow	Hill, C. f. Jersey Modern S.	Muirhead, J. A. f. Jersey Modern S.	Romeril, A. J. f. Jersey Modern S.
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LOWER FORMS EXAMINATION.—PASS LIST, CHRISTMAS, 1901.

BOYS.

Table listing names and schools of boys who passed the Lower Forms Examination at Christmas 1901. The list is organized into multiple columns and includes schools such as Barton S., Wisbech, Springhaven, Eastbourne, Woodford Green, etc.





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Le Voi, B. School for Girls, Gravesend
Lewis, E.L. Brickwood Lodge, Tonbridge
Liddiard, E.M. Heidelberg Coll., Ealing
Lindsay-Renton, O.V. Home Glen, Strawberry Hill, S.W.
Line, E.N. Northcote H., Crouch Hill
Loder, E.M. New House S., Highleadon
Longden, M.E. Crossbeck H., Ikley
Long, D. Frimley Rd. S., Yorktown, Surrey
Longley, O. Crossbeck H., Ikley
Love, M.E. Westbourne H., Cowes
Lucas, O. Waldron H., Havant
Lundin, E.A. The High S., Attleborough
Lurgard, E.M. Ravenscourt H., Ravenscourt Park, W.
Lugg, H. Richmond High S., Liscard
Lund, R. Lytham & Fairhaven Coll.
Lyon, E.I. Crossbeck H., Ikley
Mackay, G.M. Brooklyn High S., Leytonstone
Mackenzie, M. Crossbeck H., Ikley
Macklin, R. Private tuition
Maerac, R.G. Portswode Coll., Southampton
Madgett, E.E.L. Portland Coll., Chiswick
Major, F. Ashton H., Southsea
Major, K.N. Private tuition
Major, M.P. Private tuition
Makin, A. Portland St. S., Leannington Spa
Maplesden, K. Woking High S. for Girls
Marmont, P. Northfields S., Woodchester
Marriott, E.V. Binswood S., Leannington
Marshall, E.M. Clark's Coll. High S., Fitzroy Sq., W.
Marshall, M. Sandgate, Berwick-on-Tweed
Martin, F.M. Home Glen, Strawberry Hill, S.W.
Martin, M. Breck Coll., Poulton-le-Fylde
Martin, M.E. Warwick H., Poulton-le-Fylde
Mate, C.H. Llanrath, Boscombe
Maudsley, M. Lytham & Fairhaven Coll.
Mawson, J. Comm. S., Seymour Rd., Astley Bridge
May, N. Garden High S., Peckham Rye
McCulloch, G. Loreto Conv., Hulme, Manchester
McKechnie, C.M. Brooklyn High S., Leytonstone
McKechnie, J.A. Brooklyn High S., Leytonstone
Meldrum, I.D. Linwood S., Altrincham
Menday, A.E. St. Monica's, Southampton
Metcalf, D. Milton H., Sunderland
Metson, W. St. Nicholas', Longley Rd., Tooting
Middle, G.F. Guelph Coll., Clifton
Mills, G.M. Marlborough H., Swindon
Mills, I.M. Airedale H., Gravesend
Mitchell, G.I. Hendean H., Caversham
Moore, K.M. Beauvridge S., Weston-s.-Mare
Moore, C.I. Salisbury Coll., Wavertree, L'pool
Morgan, N. Holloway College, N.
Morgan, P.L. Summerfield Hall, Maesywanner
Morris, E.I. Anglo-French Coll., Seven Kings
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Mount-Batten, C.C. Ellerker Coll., Richmond Hill
Mourant, H.L. 44 Val Pleasant, Jersey
Murray, F. St. Joseph's Conv., W. Hartlepool
Nairne, R. Loreto Conv., Hulme, Manchester
Naylor, E.M. Park Rd. S., Bingley
Newman, L.I. Girls' High S., Wanstead
Newman, S.K. Longford Girls' S., Bristol
Newborn, C. St. George's H., Doncaster
Norman, G.V. Guelph Coll., Clifton
Notman, R. The Laurels, Herne Bay
O'Dwyer, E. Brentwood, Southampton
Ohill, M.E. Olive House High S., Brockley
Oldridge, G.M. Transvaal H., Jersey
Oldridge, L.R. Transvaal H., Jersey
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Orr Ewing, E.W. Private tuition
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Pakeman, W. Cranley H., Muswell Hill
Parker, D.W. St. John's, South View, Eastbourne

Parker, E.W. St. John's, South View, Eastbourne
Parr, L.S. Haldon View S., Exeter
Parry, J. Ashley H., Worsop
Parsons, M.M. St. Lawrence's Inter. S., Long Buckley
Parsons, R. High S., Wyble Green
Paul, M. Girls' High S., Wanstead
Patel, D.E. Southend College
Pearce, M.F. St. Michael's Avenue S., Northampton
Pebody, W.K. Howard Coll., Bedford
Peet, M.A. Alexandra Coll., Shirley, Southampton
Penton, G. St. Bernard's S., Southsea
Perchard, L.M. Ashton H., Jersey
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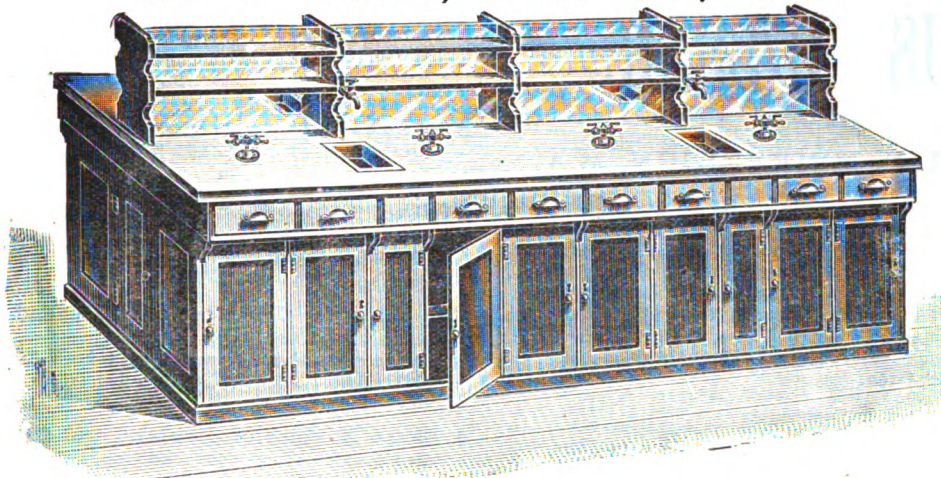
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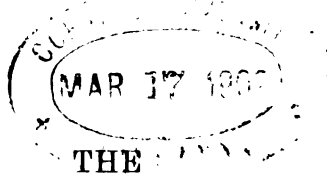
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CONTENTS.

	Page		Page
Registration of Teachers .....	127	Correspondence .....	143
Notes .....	128	Mr. Lewis Sergeant .....	143
Summary—The Month .....	130	Meeting of the Council of the College of Preceptors .....	143
Universities .....	131	College of Preceptors Certificate Examination : Colonial Pass List.....	144
Merchant Taylors' School in the Fifties .....	132	Reviews .....	145
Draft of an Order in Council for providing the manner in which a Register of Teachers shall be formed and kept ...	134	National Education—Essay towards a Constructive Policy ; Britain and the British Seas ; Source Book of the History of Education for the Greek and Roman Periods ; Henry V. ; Zoology ; an Elementary Text-Book ; A Text-Book of Zoology ; The Point of Contact in Teaching ; Better Food for Boys ; College Chemistry ; A Text-Book of Political Economy.	
Tabular Analysis of Clauses in the Order in Council for Registration of Teachers relating to Qualifications for Registration in Column B .....	136	General Notices .....	149
Histories of Literature and their Use in the Earlier Stages of Literary Study. By H. Courthope Bowen, M.A. Paper read at the Evening Meeting of the College of Preceptors .....	139	Mathematics .....	155

The Educational Times.

*Registration of Teachers.* THE Order in Council "for providing the manner in which a Register of Teachers shall be formed and kept," which was laid on the table of the House on January 21, has now become law. The text of the Order is printed on another page, together with a tabular analysis of the principal regulations, and a careful perusal of them will reveal certain features which distinguish this plan of registration from all others that have previously been put forward, as well as from those enactments which regulate the registration of members of other learned professions—in particular, that of medicine.

In previous measures for the registration of teachers promoted by the College of Preceptors, as well as in that promoted by the Teachers' Guild, the precedent of the Medical and Dentists Acts was followed, and full consideration was given to the claims of existing teachers in secondary schools by allowing them to register as such. The Order in Council makes no provision for the registration of teachers on this ground, however long they may have been employed ; and it goes further in declining to recognize, even at the outset, a number of certificates which have acquired current value, some of them as indicating sufficient attainments for ordinary school purposes, and others as all that can be reasonably required from teachers in lower forms or in kindergartens. On the other hand, it admits to the Register all classes of certificated teachers in public elementary schools, from the highest to the lowest. Thus it altogether fails to meet an urgent public need, inasmuch as it makes scarcely any attempt to discriminate among the large body of secondary masters and mistresses who are neither graduates nor certificated elementary teachers.

Other distinguishing features are that the Order in Council does not make registration compulsory, and that it distinguishes between two classes of teachers, the distinction being determined, not alone by actual qualification, but, essentially, by the kind of school in which the teacher has practised. Thus, the Register, in addition to the complete alphabetical list of registered teachers which alone was provided for by the Board of Education Act, is to contain two subsidiary lists, called Column A and Column B.

In Column A are to be included all teachers recognized by the Board of Education as certificated teachers, and in Column B teachers in other than public elementary schools who possess the qualifications referred to in Section 2 of the Schedule to the Order.

It will be seen that there is a wide difference between the minimum qualifications for Column A and those for Column B ; for the lowest Government certificate cannot be supposed to be within measurable distance of a university degree, and a certificate in theory and practice of teaching, which is to be compulsory for Column B, is not required for Column A. In spite of these differences of qualification, teachers in either column will all equally be entitled to describe themselves as "registered teachers," and the public can hardly be expected to distinguish between them. It follows that a teacher registered in Column A on one of the lowest Government certificates, who should afterwards be employed in a secondary school, might figure on the prospectus as a "registered teacher," while a less fortunate colleague, quite as well qualified by examination and experience, but unable to satisfy the much higher conditions for Column B, would be stigmatized as unregistered, and therefore not qualified to teach. It is to be expected that the demand for "registered teachers" will greatly stimulate the influx into secondary schools of teachers registered in Column A. Such a process of educational osmosis has long been in operation, and, if the regulations of the Order in Council were designed to impede the natural flow of teachers from the primary to the secondary school, they will probably defeat their object.

It is, we think, to be regretted that all teachers who possess the minimum qualification are not to be admitted on equal terms to the "Register of Teachers," and that a classification has been made which seems to have relation to the social status of the pupil, rather than to the attainments or professional position of the teacher. But a more serious objection to these regulations is that the public may be led to suppose that any qualification which is not accepted for registration is of lower value than the lowest recognized qualification—for example, than an infant-school mistress's certificate—and thus a grave injustice may be done to thousands of teachers, especially women teachers, who have worked hard to attain a standard of knowledge which, though confessedly below that required for a university degree, is at least respectable, and who have, moreover, in many cases been attested

as to their knowledge of the principles and practice of teaching. Such a refusal to recognize solid attainments of a limited range, even when accompanied by capacity to impart that knowledge, cannot fail to discourage the entry into the teaching profession of those who have special aptitude for the lower and less remunerative walks, and who are content to serve in them, and thus the supply of secondary teachers, which already falls short of the demand, will be still further restricted.

The defects in the Regulations are of such a character as seriously to impair their usefulness, but the Order in Council will, at least, make it possible for authoritative registration to be begun, and we may expect that modifications will be made in the regulations wherever they may be found inexpedient in practice, as provision for such modification is made in Section 10 of the Schedule to the Order. The value of the collective opinion of professional bodies is recognized by the inclusion of representatives of associations of teachers in the provisional Registration Council, and in the requirement that the Council "shall from time to time, and at least once a year, present a report of their proceedings to the Board, together with their observations on the working of the regulations." It is to be hoped that the Registration Council will have due regard to the legitimate claims of existing teachers in secondary schools, which have so far received but scant consideration.

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### NOTES.

LIGHT has been thrown on some obscure points in the Order in Council relating to the Registration of Teachers by answers given in the House of Commons by the Vice-President of the Committee of Council on Education in reply to questions put by Colonel Lockwood and Mr. Bartley on February 24 and 28. A "recognized" school, said Sir John Gorst, is "one that, in the opinion of the Board of Education, is efficient," and "schools conducted for private profit would, if efficient, be recognized." He did not explain under what conditions a school would be recognized as efficient, but he added that, "if the Registration Council declined to recognize a school for the purposes of Sections 3 and 4 of the Order in Council, the authorities of the school might appeal to the Board of Education, and the efficiency of the school might be established by inspection under the Board of Education Act, 1899."

FROM further answers of the Vice-President it appears that the principal of an efficient private school may, under Section 4 of the Schedule to the Order in Council, be registered in Column B during the first three years without fulfilling the conditions required from other applicants for registration. It was also stated that it is to be left to the Registration Council to determine what kind of "experience in teaching" may be accepted during the first three years as part of the registration qualification. Thus it would appear that, during the probationary period at any rate, the Register is to be open to private tutors as well as to teachers in schools.

ONE other point about which there was some doubt has been cleared up by Sir John Gorst's explanations. He was asked whether the term "elementary school" used in the Schedule was to be interpreted as relating exclusively to a public elementary school as defined in the Education Act of 1870. In reply he stated that "an elementary school is defined by law to be a school, or department of a school, at which the ordinary payments in respect of the instruction from each scholar exceed ninepence a week." From this it is clear that preparatory schools, if efficient, may be recognized for the purposes of the registration regulations.

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TEACHERS who are qualified to register in Column B will learn with some surprise that the fee charged to them is assessed so as not only to cover the cost of their own registration, but also that of registering sixty-four thousand public elementary teachers in Column A. A statement made by Sir John Gorst in the House of Commons, in reply to a question from Colonel Lockwood, leaves no doubt on this point. This arrangement seems unfortunate; it is inequitable, and it may deter secondary teachers from applying for a registration which, for the present at any rate, secures for them no privilege, nor any higher status than attaches to the lowest Government Certificate.

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WE cannot but feel that the University of London has taken a step of doubtful expediency in finally determining to accept the proposals of the Technical Education Board of the County Council in connexion with the proposed day training college for teachers. By agreeing to allow the professor who will hold the Chair of Pedagogy in the University to act as Principal of the Training College, the Senate has, it is true, exonerated the corporate funds of the University from the burden of the professor's salary at the expense of the ratepayers. As, however, the scheme is based upon the assumption that the students will be, for the most part, King's scholars, whose general education is not completed, the training course must inevitably be limited to the needs of the elementary-school master. In no way therefore does it provide even the germ of an institution suited for the ordinary graduate who may be ambitious of pursuing a post-graduate course in pedagogics. It offers no hope that the London University chair will be a beacon to give guidance to humbler institutions experimenting in the young science of education.

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WE congratulate the University of Wales on the acceptance of its Chancellorship by the Prince of Wales, in succession to his father. It was feared that a discordant note would have been introduced into the preliminary arrangements owing to the competition between the five towns of Swansea, Cardiff, Aberystwyth, Bangor, and Carnarvon for the honour of the installation ceremony. At a meeting of the University Court, held at Shrewsbury, the matter was, however, amicably settled in favour of Bangor, on the quaint ground of its proximity to Anglesey, the

cradle of the Tudors. One is tempted to draw a parallel between these innocent rivalries and the gruesome competition between English towns in the reign of Edward I. for portions of the body of the last survivor of the princely line of Wales. Fortunately, the Celtic sense of humour, which is not always brought to bear upon the solution of home problems, wisely led the Court to suppress all local jealousies, and the Prince will be sure of a loyal and enthusiastic welcome. We should not be surprised if the University adopted, as an additional motto, "Kings shall be thy nursing fathers." There is already a precedent in the case of Queen's College, Oxford—"Reginæ crant nutrices."

THE Senate of the University of London are to be congratulated on their resolution to select German as one of the four subjects to which the annual grant of £10,000 made by the London Technical Education Board is to be devoted. To advanced students in every department a knowledge of German is indispensable, and it is strange that it has not yet approached more nearly to French as a standard subject of instruction. It is to be hoped that the endowment will be devoted rather to the scholarly study of the existing language and literature than to antiquarian research. The temporary estrangement of the two great Teutonic and Protestant nations of Europe makes it all the more incumbent on educational authorities to promote mutual understanding—"Amantium iræ amoris integratio est."

THE generous offer made by the Drapers' Company and by a private individual to University College, London, amounting in all to £60,000, and subject to the condition that arrangements shall be made for its incorporation in the University of London, marks a step forward in the direction of a real teaching University for London. There are, no doubt, difficulties in the way. University College School could hardly be taken over, and might well be transferred to a good suburban site, as has again and again been urged both by the present Head Master and by his predecessor. It might also be necessary to place the Hospital and the Medical School under a separate trust. But, if the project is realized, as we trust it may be, the incorporation will be at once a well deserved tribute to the mother of University Colleges and a guarantee of a high standard of teaching and research in the reconstituted University. It may be remembered that University College was opened in 1828 as the University of London; its present designation dates from 1836. It is impossible to exaggerate the services it rendered to the nation during the dark days when Oxford and Cambridge were crippled by the ridiculous system of religious tests, and were sectarian, instead of national, institutions.

ALTHOUGH the movement for severing the connexion between the constituent colleges of Victoria University has, on the whole, been heartily welcomed by the governing bodies of the colleges as well as by the University Court, the graduates themselves are showing a strong opposition to a disruptive policy. At a meeting of Convocation, held at

Owens College, at which a hundred and fifty graduates were present, a resolution condemnatory of the scheme was carried by a large majority. The present state in the controversy is illustrative of some of the disadvantages following from the absence of deliberation. The governing fact in the situation is the determination of Liverpool to have its own University. It has been assumed that this demonstrates both the advisability and feasibility of having Universities also at Manchester and Leeds. As an impoverished and inefficient University is a national calamity, the question is of grave importance, and it is, perhaps, well that the strong action taken by the graduates in Convocation at Manchester will ensure a full discussion of the matter in all its bearings.

THE democratic element in French political life is not allowed to affect the principles which regulate the educational policy of the State, and the recent debate in the French Chamber on the reform of secondary education has shown that the majority of Frenchmen have no desire to loosen the fetters of the existing system. The whole organization of French education turns upon the pivot of the *baccalauréat*—or the leaving examination of the French secondary school. Without the diploma given to those who pass this examination no boy can hope to enter into the service of the State or into professional life. As the examination is a severe one, and none can hope to pass it who has not been through the regular mill of the *lycées*, it is evident that a boy who has followed a commercial or technical curriculum until he is fifteen or sixteen years of age is for ever debarred from a professional career. It is indeed maintained that the career of the average French boy is mapped out by his parents and the State before he is ten years old. M. Leygues, the Minister of Public Instruction, justified this during the debate by saying that "the *lycées* and the faculties must not be thrown open to all; for to do so would be to create a mass of educated men fit for nothing." There is some evidence that this result has already been produced, and it might perhaps be well if French educationists were to consider whether it is not the direct result of the present rigid uniformity of their educational system.

THE Report on Rural Education in France, issued last week by the Board of Education, is a valuable addition to the series of reports brought out by the Special Commissioners of the Board upon the state of education on the Continent. It discloses the existence of an hostility between the State schools and voluntary Church schools even more intense than that which exists in England. There is the same duplication of effort, and, it is needless to say, the children are the greatest sufferers. The hostility to the State schools is in some districts so pronounced that the teachers have the discomforts of a boycott, and in some instances they have even been stoned. Owing to the uniform scheme of salaries, the better teachers are not attracted to the towns, as is the case in England. The rural schools are said to be ahead of ours in the teaching of science and agriculture, and the children are shown the practical application of these sciences. The report is more favourable to *la morale*

—morality taught on a non-religious basis—than the usual English estimate of it. A high opinion is expressed of the French school inspector, who is “the real pivot between the schools and the Central Authority.”

PROF. SONNENSCHNIGER again writes to the *Times* in defence of the Birmingham plan of examining *viva voce* in prescribed books, leaving the choice to examinees and their teachers. It appears that the system was in use at Oxford some thirty years ago, and has since been abandoned in favour of a written examination. He calls attention to the material difficulties of setting papers in a great variety of books, involving a large staff of examiners and a good deal of printing, unless, as is the case both at Oxford and at Birmingham, plain texts are used instead of printed papers. No doubt *viva voce* is a useful supplement to a written examination, and a good antidote to the common practice of almost committing the crib to memory. But it is well worth considering whether, for the real purpose of a University matriculation, which is intended simply to ascertain whether a candidate is qualified to enter on academic studies, unseen papers are not in themselves sufficient. *Viva voce* examinations are of great value in many subjects, especially where, on the one hand, there is danger of mere reproduction, and where, on the other, a candidate's real knowledge is not in a presentable form and requires maieutic treatment to bring it out. Whether translation from a foreign language falls under either of these heads may be doubted.

In his evidence before the Lords' Committee on betting, Dr. Wood, of Harrow, said that the small amount of betting which existed in the school was due chiefly to home influence. The fact is a humiliating one, but we have little doubt that the experience of many a head master would confirm the Head Master of Harrow's statement. The Statute passed a few years ago making it an offence to send betting circulars to schoolboys explains why these missives now come from touts resident on the Continent. A recent prosecution has, however, shown that the real directing agent may reside on this side of the English Channel. Schoolmasters would, nevertheless, do well not to be confident that their boys enjoy an immunity from temptation because they take precautions against the cards of betting touts. Many highly reputable papers have their advertisements in odd corners. But the efforts of schoolmasters are of little use unless parents do their duty. In Dr. Wood's experience, he had met with cases where parents had sent money to their boys because they had been successful in backing a winning horse, and we have even known a case where a parent endowed his boy with a *Racing Calendar* on his leaving home for school.

THE sands of the life of Christ's Hospital as a London school are running out, to the keen regret of “old Blues,” whose affection for their stately home in Newgate Street is historic. In spite of the gross abuses which existed in the school when Charles Lamb and Coleridge indulged in “wit combats” in the cloisters, Elia had none but soft and golden

memories of the place when he wrote his essay thirty-five years after. The present boys, no doubt, look forward to the enjoyment, after the Easter holidays, of many delights at Horsham which were unattainable in the confined limits of their London premises. We can only hope that all their good traditions will follow them, in spite of the fact that they are entering upon new pastures, shepherded by a new Head Master, who is not a “Blue.” The boys' preparatory school at Hertford is also being removed, and the buildings thus left vacant will be used to increase the accommodation for girls. The Hertford schools still preserve their mellow mediæval atmosphere and monastic features, and no one should visit Hertford without going to see their quaint quadrangles of dames' houses, from whose hospitable doors many generations of budding Grecians have found their way to fame.

## SUMMARY.

### THE MONTH.

THE distribution of prizes at the Birkbeck Institution took place on January 29. The chair was taken by Dr. Collins, who spoke with his usual grace and good taste, and the prizes were distributed by Lord Balfour of Burleigh, who, without depreciating the evening work of the Institution, dwelt with satisfaction on the extension of the day classes. Short speeches were also made by Archdeacon Sinclair, Dr. Garnett, Dr. Kimmins, Mr. Whyte, the Chairman of the Council, and Mr. H. W. Eve. The report of the Principal, Mr. Armitage Smith, was extremely satisfactory. It appeared that during the year more than three thousand students, of whom about two thousand were men and one thousand women, had availed themselves of the advantages offered, and that the number of class entries was 10,500, 1,500 of which were for day classes, the latter showing an increase of two hundred on the previous year. Some fifty-four students had passed the Intermediate or Degree Examinations of the University of London, while numerous successes in other examinations were recorded. The average payment per student was 30s.; per class, about a lawyer's fee, 6s. 8d. Dr. Kimmins gave an interesting sketch of the improvements effected in the last few years, thanks to the energy of the Principal and the judicious and liberal aid of the London County Council, who have done much to add to the equipment. Certainly the most has been made of a very limited space; even the coal-cellar had been converted into a metallurgical laboratory. Lord Balfour, as Chief Secretary for Scotland, was gratified to hear that the Institution, the mother of the polytechnics, owed, in a certain sense, its origin to his native country. Dr. Birkbeck's first essay in this direction having been a series of lectures to Glasgow workmen. In his concluding speech, the Chief Secretary gave an interesting reminiscence. One day he received a visitor at his office. Before twenty minutes had elapsed he had an offer of £2,000,000 for educational purposes. Needless to say that the visitor was Mr. Carnegie.

At the distribution of prizes in the Technical Department of University College, Sheffield, it appeared that the same satisfactory increase in the number of day students was in progress as at the Birkbeck Institution. The metallurgical department, in particular, is developing very rapidly, and filling a gap which had long been felt. Prof. Ripper, in the course of his speech, mentioned that at the great technical school of Charlottenburg, at Berlin, alone there were 2,700 students over eighteen years of age, two-thirds of the whole number of technical students in the United Kingdom.

THE Society of Arts has followed the example of the College of Preceptors in instituting *viva voce* examinations in modern languages. At present the oral examination is intended to be supplementary to that now in existence, but hopes have been expressed that it may eventually become a necessary part of the examination for their higher certificates. For the present, oral examinations in French, German, and Spanish will be held at all

centres presenting a sufficient number of candidates, at an extra fee of 2s. 6d.

On February 12, Prof. S. J. Chapman read an interesting paper before the Manchester Statistical Society on "Education for Business and Public Life." He proposed the formation of a faculty in the University on somewhat the same lines as the London School of Economics. The point on which he chiefly insisted was the distinction between business instruments and *technique* on the one hand and "business science" on the other. The last-named, which he considered essential for the highest posts, included the academic study of many branches of social science, namely, besides economics properly so called, (1) economic geography, which describes the belts for different products and the needs of different climes, and the action of physical conditions on temperament, trade, industry, and political institutions; (2) mercantile and industrial law which presents in a systematic form the commercial obligations enforced by legal penalties; and (3) political science, which deals with the nature of the State, the scope of its activities, public administration and public finance, and which may be taken to include constitutional and international law. In this connexion, it may be mentioned that the University of London has under consideration a proposal for granting degrees in commercial science. A Faculty of Commerce is already in existence at Birmingham University.

THE University of Glasgow has sustained a serious loss by the death of Prof. Adamson at the early age of fifty. Educated at Edinburgh and Heidelberg, he was appointed at the age of twenty-four, after acting as assistant-professor for a short time at Edinburgh, to succeed Prof. Stanley Jevons in the Chair of Philosophy and Political Economy at Owens College, Manchester. In 1893 he accepted a chair at Aberdeen, and in 1895 became Professor of Logic and Rhetoric in the University of Glasgow. Few, if any, English scholars possessed a more thorough acquaintance with German philosophy. His articles in the "Encyclopædia Britannica," on Logic, and on Kant, Fichte, and other philosophers, together with a volume on Fichte in Blackwoods' "Philosophical Series," are works of permanent value, and his "Philosophy of Kant," one of his earliest books, have been translated into German. Prof. Adamson seems to have been no less distinguished as a teacher and organizer than as a philosophical writer.

THE *University Extension Journal* calls attention to the literary output of its lecturers during the past year. The Principal of Reading College, it says, has given to the world a work on the Geography of the British Isles. History is strongly represented in Mr. Alison Phillips's "Modern Europe (since 1815)," Mr. Belloc's "Robespierre" and "Paris," Mr. Gooch's "Annals of Politics and Culture," Prof. Grant's "The French Monarchy, 1483-1789," Mr. Horsburgh's "Savonarola," and in "Medieval London," written by Mr. Welch conjointly with Mr. Benham. Mr. P. J. Hartog has also edited a jubilee volume on the Owens College (1851-1900). Mr. Banister Fletcher's "History of Architecture" is a noteworthy contribution to the study of architecture by the comparative method. In literature we note the second edition of Mr. Churton Collins's "Ephemera Critica"; Mr. Hamilton Thompson's "History of English Literature" is practically a new work. Messrs. Wicksteed and Gardner have laid Dante students under a new debt by their "Dante and Giovanni del Virgilio." Mr. A. J. Wyatt's "Old English Reader" completes our list here. Social science is represented by "The Heart of the Empire," to which some of our lecturers contribute; and we can worthily close our survey with Dr. Hutchison's "Food and the Principles of Dietetics."

AN excellent idea comes to us from the Colonies. Sir John Cockburn, Agent-General for South Australia and formerly Minister of Education, has written to the newspapers about a "Nature Study Exhibition," an experiment already tried in Australia. An association has been formed to promote such an exhibition in London in the course of July. Contributions are invited from schools of all grades, and prizes and certificates are to be offered for collections of dried plants, injurious insects, &c., apparatus for class lessons, drawings of natural objects, home-made maps with a school as centre showing features of interest within a radius of two or three miles of the school, note-books, natural history calendars, plans of gardens, photographs, models in clay or plasticine of natural objects, plants grown in boxes and pots, and rustic carpentry. Of

course every pains will be taken to discourage the uprooting of rare plants, which has become such a nuisance in Switzerland. The Honorary Secretary of the Association is Mr. C. S. Roundell, 7 Sussex Square, Brighton, whose sound judgment and long experience as an efficient governor of many places of education, from Harrow down to village schools, is a guarantee that the scheme will be worked on sensible lines. In this connexion it is worth while to call attention to interesting papers on Nature Study reported in recent numbers of the *London Technical Education Gazette*.

THE *Mathematical Gazette* publishes an important memorandum on the teaching of elementary mathematics addressed to the Committee of the British Association by a number of public-school masters. As to geometry, their recommendations are:—(1) That the subject should be made arithmetical and practical by the constant use of instruments for drawing and measuring; (2) that a substantial course of such experimental work should precede any attack upon Euclid's text; (3) that a considerable number of Euclid's propositions should be omitted; and, in particular, (4) that the second book ought to be treated slightly, and postponed till III. 35 is reached; (5) that Euclid's treatment of proportion is unsuitable for elementary work. In algebra they would do as much as possible to discourage mechanical work, and, with that view, they would defer the more abstract and formal topics, and, broadly speaking, arithmetize the whole subject. Among other suggestions, it is proposed to diminish the amount of time given to complicated factors and algebraic fractions, and leave to a later stage such operations as the solution of literal equations and the elaborate working out of G.C.M. and H.C.F. They would introduce the plotting of simple graphs and treat indices only so far as is necessary for the intelligent use of logarithms. They point out that these simplifications of geometry and algebra would enable boys to get much earlier to simple trigonometry, so as to be able to solve right-angled triangles and to work easy problems in "heights and distances," and that without first going through elaborate practice in "identities."

## UNIVERSITIES.

(From our Correspondents.)

THE month of February has been, in Oxford, uneventful. Congregation and Convocation have been alike uninspiring, and rumours of startling proposals still remain rumours. One suggested change, which was alluded to in the Oxford letter of last month, has been rejected: the "Masters of the Schools" are not to be docked of part of their salary, but are to continue to receive £100 a year; the post therefore remains one of the few well paid in Oxford.

The annual statement of the Common University Fund has now been published, and it is satisfactory to find that there is a good balance. Critics are to be found who say that the management of the fund is too stereotyped and lacking in imagination; there are, of course, certain fixed Readerships and Lectureships (and, indeed, during the last year three more were added, *i.e.*, in Egyptology, Pathology, and Phonetics), but it is suggested that good men who are not Professors or Readers might well be encouraged to strike out a line of their own, or, at any rate, make public the result of their private industry in special branches, if certain temporary lectureships, terminable at the end of, *e.g.*, two years, were established. By this means, it is contended that college tutors would have a stimulus to do more original work than is required by the fixed orbit of lecturing for Moderations, *Literæ Humaniores*, or History. A further justification for such a proposal is to be found in the new regulations for *Literæ Humaniores*; in these it is pointed out that "in the assignment of Honours, great weight will be attached to excellence in a special subject." Now this is certainly a distinct change or, at any rate, an efficient recognition of a principle which has perhaps been slowly gaining ground. Not so very many years ago, to take a special subject in *Literæ Humaniores* (as distinct from History or Law, where a special subject is and has been necessary to secure a high class) was the exception rather than the rule, and it was held as a matter of faith that brilliancy in a special subject could not raise a man from a Second to a First Class, though it might, in the case of the man who was "on the line," just give the additional assistance required. Of course, the change will add a great deal to the labours of the examination, and will in many cases require the calling in of outside "assessors"—a practice which in itself leads to complications—and equally, of course, we shall be laying ourselves open to the charge

of spoiling, by specialization, the examination which is supposed to be the pride and boast of the Oxford system.

The appearance of small-pox in Oxford has created a mild scare, and the opponents of vaccination have been hurrying off to the nearest doctor. Much more serious for Oxford parents has been the prevalence of chicken-pox and measles, and in almost all the schools—with the exception of Magdalen College School—the teachers have had to discourse to very empty benches. The Girls' High School has been the worst sufferer, and Miss Haig Brown, the successor this term to Miss Leahy, has had rather an unpropitious first term. Indeed there are many who think that much illness would have been saved in Oxford families had the High School closed its doors a fortnight ago.

The Oxford University Dramatic Society's performance of the "Two Gentlemen of Verona" may be described as a creditable production of what nothing can ever succeed in making an interesting play; in some respects the performance was a considerable advance on the production of the same play by the society about nine years ago. Certainly in the matter of "supers," in the shape of brigands and so on, we find much less untrained incompetence. Among the successes may be reckoned Lord Tiverton and his dog.

The hard frost sadly interfered with the Torpids, and, indeed, on one day there was so much floating ice that the races were abandoned. The Varsity crew, having broken up one boat through a collision with an iceberg, chose the discreet alternative and went off to Bourne End. They are a fair, if not a brilliant, eight, and are perhaps rendered interesting by the fact that two Americans—brothers—have found places. Possibly this may be Oxford's counter-move to Prince Henry's visit to America.

THE Lent term has proved singularly uneventful. The threatened invasion of small-pox has not happened, and there has been no need for the University to disband itself, as at one time was thought highly probable, no measures of precaution having been taken for the isolation of any possible cases. A week's frost, with consequent skating, somewhat disorganized work and play alike; but things have now settled down to their normal condition. There is an increasing tendency among Cambridge men to pursue investigation of a geographical and ethnological character. Mr. Skeat's expedition to the Malay Peninsula is the latest example of this development. Mr. Skeat has returned from his second expedition with a large collection of objects possessing great value and interest to archaeologists. This collection he generously offered to the Museum; but the authorities have very properly granted him a sum which, while utterly inadequate as regards the cost of obtaining the objects, shows that the gratitude of the University does not confine itself to empty thanks.

The proposal to appoint a syndicate to consider the reorganization of the Poll examinations was duly embodied in a Grace which has received the sanction of the Senate; the opponents of the proposed changes reserve their opposition until the Syndicate has been appointed and has reported. Those who know the way of syndicates are fully aware that threatened institutions live long, and when the threats proceed from committees and syndicates they are not always treated with the respect with which the fulminations of individuals might be regarded. The Indian Civil Service Board has sanctioned the application of some of its reserve funds for the assistance of a group of individuals professing to prepare for the examination for the Civil Service. Cambridge has in almost all departments recognized the principle that the coach is a necessity by failing to provide the best men for the teaching work of the place; private coaching being infinitely more profitable, the better men naturally get attracted to a profession which affords an honest and not unsatisfactory livelihood; but any attempt to buttress up individuals by quasi-official recognition is bound to fail. At Oxford the educational experts are found on the staff of the colleges; at Cambridge they remain outside the magic circle, and those who have wives and families are unable to sacrifice a lucrative profession for the local distinction of college office and its perfunctory observances. The evil is plain, but the remedy is as far off as ever, because the present suits everybody except the parents and the paymasters.

A very pretty little discussion has arisen between two rival bodies in Cambridge, the Appointments Association and the Scholastic Agency, the former of which is worked by the energetic Secretary, Mr. W. A. J. Archbold, and the latter by the equally zealous Prof. Lewis. The University is asked to give a somewhat more formal recognition to the work of the first-named body, and

Prof. Lewis argues that not only has the Association trespassed on his domain, but by its system of working practically for nothing has competed with his Agency on rather advantageous terms. However, the public think well of both bodies, and smile at the idea of competition which cannot hurt them. One remark made in the course of the debate in the Senate is worth reproducing. Mr. W. N. Shaw, the Secretary of the Meteorological Office, said that, if he had to advise a pious benefactor as to the best way of spending £100 a year with the object of maintaining or raising the standard of academic ability, he would not advise its assignment to paying one or two promising boys to come to the University, but would fearlessly recommend instead the development of means for enabling annually twenty really competent graduates to go away.

In view of the impending discussions as to the substitution of two "Specials" for one "General" and one "Special" as at present, it is interesting to note the proportion of failures in the various examinations during the past year:—

Specials in Theology, 228 candidates, 53 failures; Political Economy, 11, 0; Law, 188, 38; History, 100, 52; Chemistry, 96, 17; Mechanics, 18, 10; Music, 14, 7; Modern Languages, 25, 1; Mathematics, 37, 12; Classics, 42, 10. The examinations in Botany, Physics, Logic, Geology, and Zoology attracted in all six candidates, who were all successful.

The General Examination results are as follows:—Part I., candidates 389, failures 116; Part II., 403, 131. It looks rather as if it was the searching character of the General Examination which is responsible for the latest agitation. Really the whole question lies in a nutshell. Certain colleges admit men of no literary training, and object to an examination in superior school work. There are many who object to the University being made to supplement the work of the upper fourth form master, but the obvious remedy is to close the doors of the colleges and the University to those who are not sufficiently advanced to profit by the higher teaching which can here be obtained to perfection. Till the remedy is found it will continue to be a truism that to be able to teach Greek grammar is the most profitable gift in Cambridge.

Dr. Griffiths, the new Principal of the South Wales University College, was entertained by his college on February 13 to celebrate his various successes and especially the honour of the Doctorate in Science which was conferred upon him that day by the University. Many of Dr. Griffiths's old friends and colleagues were present to do honour to the occasion, and Dr. Isambard Owen, the Deputy Vice-Chancellor of the University of Wales, was also present. This gentleman excited great interest by his description of the spread of educational enthusiasm in Wales. Much of what he said was very informing to those who live the dull, mechanical life of Cambridge working men, uncheered by any spark of enthusiasm, natural or accidental.

Personal items of the month:—Craven Scholarship, Roger Charnock Richards, Trinity; Waddington Scholarship, S. A. Sydney-Turner, Trinity; Porson Scholarship, J. T. Sheppard, King's; Chancellor's Medals (Classics), William Rennie, Trinity, and J. E. C. Jukes, Pembroke.

### MERCHANT TAYLORS' SCHOOL IN THE FIFTIES.

IN October, 1857, I entered on my duties as Fourth Under Master in Merchant Taylors' School. In its buildings, its arrangement, and its management, the school had some curious survivals to show. The building was in the late Jacobean style, on the left hand as one went down Suffolk Lane to Upper Thames Street. The name "Suffolk" suggests the history of the site. Here had stood the town dwelling of the De la Poles, Dukes of Suffolk. The Company bought part of these premises, with the garden attached to them, about the middle of the seventeenth century, when, at the prompting of Sir Thomas White, the founder of St. John's College, Oxford, they had resolved to establish a school. The buildings which were then erected or adapted perished in the Great Fire, and were restored some six years afterwards.

For more than two centuries the only place where teaching was carried on was the Great School-room; its dimensions were about 85 feet by 30 feet. It was lighted very imperfectly by windows on either side, large enough indeed, but obscured by the heavy leading of the small diamond panes and by long-standing accumulations of dirt. A single fireplace warmed a small part of it. The four class-rooms were all more or less recent additions to the school accommodation. Two had been in

use for some years; they had served in earlier times as an apartment for one of the under masters. The other two had belonged to the Head Master's house, which had been utilized for school purposes a year or two before my coming. To this change the under masters owed the convenience of a common room; up to that time they had had no other accommodation but a cupboard apiece, in which to keep cap and gown, the necessary books, and the still more necessary cane.\*

Other curiosities of arrangement were at the time of my coming in 1857 within quite recent memory. There were no desks in the school-room. The monitors (the eight seniors) had a table; the prompters (the eight next to the seniors) had a bench (furnished, I believe, with a desk). Every one else had to write, when there was occasion for writing, on his knees. And there were no lights. Every boy had to supply his own candle, which was required to be of wax. Going a little further back, there had been no fire. An old gentleman, who came to pay a subscription to the Tercentenary Fund in 1862, told Dr. Hessey that he had been the occasion of the first putting in of a fireplace. He had been a delicate boy, and his father, having friends on the Court, had obtained this concession to modern weakness. And, indeed, the boys of the older time must have been—at least, those who survived—of heroic strength. Dr. Hessey told me, I remember, that he had entered the school at the age of seven—nine was the limit in my time—and that he came from Hampstead—walked, I believe he said, though it sounds almost incredible—every day in time for morning school, then commencing at 7.

Things were not quite so hard in my time, but they were not luxurious. I taught my two forms, commonly numbering about sixty, together—the *maximum* that I remember was sixty-eight—in one of the class-rooms below the Great School, which measured about 30 feet by 20 feet, and may have been 12 feet high. Closely packed together, sitting on benches about 6 inches broad—there was no room for anything larger—allowed no time for play—there was no playground, only a paved yard some 70 feet by 20 feet—they had not a happy time themselves, and certainly did not allow their master to have one. The noise made by even the involuntary restlessness of sixty boys, sitting on uncomfortable benches, and cooped up without a recess for between three and four hours, was almost overpowering. And every now and then some huge wagon thundered down the narrow roughly paved lane, and nothing at all could be heard. Another distracting noise came from the door. The Company would not allow a porter, and the head boy of my upper form had to discharge his functions. There was neither bell nor knocker. An applicant for admission used his foot—a classical method which suited the strictly conservative traditions of the school. I remember a lady nearly related to myself coming to make some inquiry. She was standing perplexed when a drayman, better acquainted with the custom of the place, solved her doubts, and was good enough to administer a kick which was heard to the furthest end of the building. The young porter rushed to the door and opened his eyes wide in wonder that so delicate a foot had made so great an impression. But the noise of the class-room was nothing to what I had to endure when, as happened four times in the week, the room was wanted for one of the French masters, and I had to migrate up-stairs. Three or four masters were teaching there at the same time; twice a week, if my memory serves me, there was as many as five. We shouted against each other; but the victory belonged, I think, to a good friend of mine now enjoying the well earned repose of a rich but not populous City living, but still doing good service to his old school as one of its governors. (Since I wrote these words he has passed away.)

Another survival of the past was to be found in the system of appointing the under masters. The Company kept the patronage most jealously in their own hands. The members of the Court of Assistants had to be canvassed in the old fashion. The one person to whom most of them would refuse to listen was the Head Master. When I was appointed, the choice was limited by the advertisement to "Oxford graduates who had taken a First or Second Class in the Classical School." I understood at the time that this was done to exclude a candidate—a Cambridge man—whom the Head Master was supposed to favour. The consequence of this state of things was an independence which,

\* So stern was the conservatism of the place that when a new arrival, not an old Merchant Taylor, prepared to introduce, at his own expense, a washing-stand, his older colleagues declared that they would eject it. No under master ever had washed his hands at school, and none ever should.

I am sure, was mischievous. The Head Master left us almost absolutely alone. Nor had he any power to utilize our services as he might think best for the school. I was the only one of the four who had taken a degree in Classical Honours; but I never was put to anything more advanced than teaching the rudiments. I had a liking, almost amounting to a passion, for Latin verse, then held in greater honour than is now accorded to it; but I never got beyond teaching "Bland."

The proportion of teachers to taught was, of course, on the old inefficient scale. The numbers of the school ranged between two hundred and sixty and two hundred and seventy. The Head Master and his assistant provided for about fifty of these; the rest were divided between the four under masters. The place which I filled was a recent institution, dating back, I think, to 1840. The first Head Master's Assistant entered upon his duties at the same time as myself. This appointment was the result of a long struggle between Dr. Hessey and the Court. The first point gained was that he should have a helper. Before he had to teach *forty* boys! The next that he should choose this helper himself. This was a bitter pill for the Court to swallow. They showed, I remember, their jealousy and dislike by neglecting to include the Assistant in their invitation to the great festival of the "Election Day" dinner. At this our chief, a long-suffering man, who ultimately got his way by an inexhaustible patience, struck. He declared that he would not attend himself, and we backed him up with a similar threat. On this the Court gave way, moved somewhat by the fact that they had just ended another feud. "Election Day" got its name from the custom that on June 11 the President and two Senior Fellows of St. John's came to elect, with the assistance and concurrence of the Court, Merchant Taylor scholars to such Fellowships as might be vacant.\* Their labours finished, they were entertained to dinner. Of course they were the guests of the evening, and as such claimed the right to sit at the Master's right hand. On one occasion this place was given to the Archbishop of Canterbury. The offended Dons refused to come till they had been guaranteed against the slight. The quarrel was now made up, and it would have been too absurd to begin another. The result was that we all went to the dinner.

Another curious custom that must have come down from a remote past was the way in which the school fees were collected. These were called *quarterages*; each boy paid his to the master of his form. We kept a proportion—15s., if I remember right—out of the quarterly fee of £2. 10s., and paid over the rest to the head master, who, in his turn, paid it over to the Company. Another survival, I fancy, was an entrance fee of 5s. from every boy who was admitted to the school, paid to the master of the form in which he was placed, and "moving money," 5s. paid by every boy who was promoted from one form to another.

There was not a little of the survival about the teaching. There had, indeed, been a great advance within quite recent memory. Hebrew, Greek, Latin, Divinity had been the curriculum. If any one wanted to know how to write and to cipher, he had to learn it out of school. Then mathematics and arithmetic were introduced; the former at first to little purpose. A veteran under master was in charge of this teaching. "Ungrateful rascals!" he is said to have exclaimed when his classes failed in the examination, "when I have given them the whole half-year to work by themselves!" All this was changed in my time. The mathematical school, for which the forms were re-arranged in the afternoon, were under most efficient guidance. The morning was wholly given to the old studies, except, indeed, for a couple of hours on Thursdays, when the two lowest forms learnt geography, with the help of blank maps and a very dry little manual of towns and

\* Merchant Taylor boys then went up to St. John's College as "Fellows"—*probationers* at first, and, after two years, I think, *full* Fellows. This system was changed by the legislation which followed the first University Commission, much to the disgust of the Company and of the conservative party in the college. The school was treated a little harshly, having its thirty-seven fellowships changed to twenty-one scholarships. I remember Dean Mansel, a Merchant Taylor and a Johnian, quoting, at the tercentenary dinner, certain lines of Virgil, which he accompanied with a free translation: "Tercentum regnabitur annos," "It shall be ruled for three centuries"; "gente sub Iliaca," "under the Merchant Taylors' Company"; "donec regina sacerdos," "until the Queen's Government"; "Marte gravis," "pressed by a hostile opposition"; "geminam partu dabit Iliam prolem," "shall give birth to a double Commission." The "double Commission" was that of the Public Schools and that of the Universities.

rivers, and read an English history published by the S.P.C.K., the work, if I remember rightly, of Bishop Davys, of Peterborough, which would hardly come up to modern standards. All the forms above the third had two hours per week of French. When I began teaching, the Latin grammar in use was "King Edward VI.'s," a variant, so to speak, of the "Eton Grammar." A vast amount of time was spent on learning the "As in presenti" and the "Propria quæ maribus," phrases which will convey no meaning to the younger generation. The first was a set of barbarous hexameters, some two hundred and fifty in number, by which the scholar was supposed to learn the perfects and supines of verbs; the other, of about a hundred and forty like verses, was a *memoria technica* for the genders of Latin nouns. Keate, of Eton, is said to have called it "a noble poem"; but it always seemed to me a most cumbersome piece of educational machinery. I never knew but one boy who could say both these sets of hexameters without a mistake, and he was exceptionally stupid. The "Public School Primer" superseded this antiquated volume in 1862. Probably it is itself antiquated now. But this is not the occasion for criticizing school books, and I must hold my hand.

A. J. C.

**DRAFT OF AN ORDER IN COUNCIL FOR PROVIDING THE MANNER IN WHICH A REGISTER OF TEACHERS SHALL BE FORMED AND KEPT.**

WHEREAS by virtue of Section 4 of the Board of Education Act, 1899, it is lawful by Order in Council to establish a Consultative Committee for the purpose of framing, with the approval of the Board of Education, regulations for a Register of Teachers, which is to be formed and kept in manner to be provided by Order in Council.

And whereas a Consultative Committee has been established by Order in Council; and the Committee so established have, with the approval of the Board of Education, framed the regulations for a Register of Teachers set forth in the Schedule to this Order.

Now, therefore, His Majesty, by and with the advice of His Privy Council, and by virtue of the authority committed to Him by the Board of Education Act, 1899, and of all other powers enabling Him in that behalf, is pleased to order and it is hereby ordered as follows:—

1. For the purpose of forming and keeping such Register of Teachers, there shall be established a Registration Authority, called the Teachers' Registration Council, and in this Order referred to as "the Council," which shall consist provisionally of twelve members, of whom six shall be appointed by the President of the Board of Education, and of the remaining six one member shall be appointed by each of the following bodies:—

- The Conference of Head Masters.
- The Incorporated Association of Head Masters.
- The Association of Head Mistresses.
- The College of Preceptors.
- The Teachers' Guild of Great Britain and Ireland.
- The National Union of Teachers.

2. The members so appointed shall hold office for three years from the date of this Order.

3. On a casual vacancy occurring in the Council during the said period of three years, the authority by whom the member whose seat is vacated was appointed shall appoint another member in his place.

4. The first appointments of members of the Council shall be made not later than the first day of April, one thousand nine hundred and two, and each appointing authority shall as soon as may be after making the appointment communicate to the Board of Education the name and address of the person appointed by them.

5. The first meeting of the Council shall be convened by the Board of Education, and that Board may take such steps as they think necessary for the purpose.

6. After the expiration of three years from the date of this Order, the constitution of the Council shall be such as may hereafter be provided by Order in Council.

7. If any member of the Council is adjudged bankrupt or makes a composition or arrangement with his creditors, or is absent from meetings of the Council for more than twelve months consecutively, except in case of illness, or for some reason approved by the Council, his office shall become vacant.

8. The Council may appoint Committees and delegate, with or without conditions or restrictions, any of their powers and duties to any committee so appointed, and may regulate the procedure and conduct of business of the Council and of any Committee so appointed.

9. No act or proceeding of the Council or of a Committee of the Council shall be questioned on account of any vacancy in their body.

10. The Council shall establish and keep a Register of Teachers in accordance with the regulations contained in the Schedule to this Order, as framed by the Consultative Committee and approved by the

Board of Education, and with such other regulations as may from time to time be framed and approved in like manner.

11. Subject to the approval of the Board of Education, the Council may provide an office and appoint a Registrar, and appoint or employ such other officers and persons as may be required for the execution of their duties, and may assign to any person so appointed or employed such remuneration as may be approved by the Board.

12. All fees payable in respect of registration and matters incidental thereto, as fixed by or under the said regulations, shall be carried to a Registration Fund, and the expenses of the Council shall be paid out of such fund.

13. There may be paid to members of the Council out of the Registration Fund such fees for attendance at meetings and such allowance for travelling expenses as may be approved by the Board of Education.

14. The accounts of the Council shall be audited and published by or under the direction of the Board of Education.

15. The Council shall make a report of their proceedings once a year to the Board of Education.

**THE SCHEDULE.**

**REGULATIONS FOR THE FORMATION OF A REGISTER OF TEACHERS.**

1. As soon as may be after the establishment of a Registration Authority there shall be established a Register of Teachers (hereinafter called "the Register") in which the name of every registered teacher shall be set forth in alphabetical order.

In addition to this alphabetical list, there shall be two columns distinguished as Column A and Column B.

Column A shall contain the names of all persons for the time being recognized by the Board as certificated teachers under the Code of Regulations for Elementary Day Schools.

Column B shall contain the names of all persons who fulfil the conditions of registration hereinafter set forth.

There shall also be recorded in the Register, in respect of each teacher, when registered therein, his postal address, the date of his registration, and a brief statement of his qualifications and teaching experience, in the following form:—

Alphabetical List.	Col. A.	Col. B.	Address.	Date of Registration.	Qualifications.	Experience.

Additional qualifications and experience may be added from time to time, when verified by the Registration Authority.

2. A person shall be entitled to be placed on Column B of the Register of Teachers if he satisfies the Registration Authority that he fulfils the conditions set forth in Regulation 3; or if he applies at any time within three years from the establishment of the Registration Authority to be placed on the Column B of the Register, and satisfies the Registration Authority that he fulfils the conditions set forth in Regulation 4.

3. A person shall be entitled to be placed on Column B of the Register if he fulfils the following conditions:—

(1) He must have obtained a degree conferred by some University of the United Kingdom, or have obtained one of the diplomas or certificates mentioned in Appendix A to these regulations, or have attained some other approved standard of general education.

(2) He must either—

(i.) Have resided and undergone a course of training for at least one year at one of the Universities or training colleges mentioned in Appendix D to these regulations, or some other recognized institution for the training of secondary teachers, and have passed the examination for one of the diplomas or certificates in the theory and practice of teaching mentioned in Appendix C of these regulations; or

(ii.) have passed an approved examination in the theory of teaching, have spent at least one year as a student teacher under supervision at a recognized school (not being an elementary school), and have produced evidence of ability to teach.

(3) He must have spent at least one year of probation as a teacher at a recognized school (not being an elementary school), and must satisfy the Registration Authority that he has shown fitness for the teaching profession.

4. A person shall be entitled to be placed on Column B of the Register if at any time within three years from the establishment of the Registration Authority he makes application to be so placed, and fulfils the following conditions:—

(1) He must have obtained a degree conferred by some University of the United Kingdom, or must show, to the satisfaction of the Registration Authority, that he has obtained one of the diplomas or certificates, or has passed one of the examinations mentioned in Appendices A and B to these regulations, or has attained some other approved standard of general education; and



(2) He must either—

- (i.) have been engaged during the three years next preceding his application as a teacher at a recognized school or schools (not being an elementary school or schools); or
- (ii.) have passed the examination for one of the diplomas or certificates in the theory and practice of teaching mentioned in Appendix C to these regulations, and produce evidence satisfactory to the Registration Authority of experience in teaching (other than the teaching in an elementary school or teaching of a purely elementary character) extending over a period of not less than three years.

Provided that a head master or head mistress of a recognized school, not being an elementary school, shall be entitled on application to be placed on Column B of the Register without fulfilling the above conditions, if the applicant has held the office for at least one year previous to the date of his application.

5.—(1) The Registration Authority may place on Column B of the Register the name of any person who does not fulfil all the conditions of registration, but who, in their opinion, would have fulfilled all the necessary conditions but for the fact—

(a) that part of the period of his study or training was spent in an approved course of study or training at a foreign University, college, or school, or

(b) that part of the period of his study, training, or probation was spent in original research certified to have been conducted under proper supervision and to the satisfaction of the Registration Authority.

(2) The Registration Authority may, if they think fit, at any time within three years from the establishment of the Registration Authority, place on Column B of the Register the name of any person who does not fulfil all the conditions of registration, but who has, in their opinion, proved himself to be an exceptionally qualified teacher.

(3) The Registration Authority shall report to the Board every three months the name of every person registered under this regulation and the grounds of his registration.

#### SUPPLEMENTAL REGISTERS.

6. There shall be annexed to the Register Supplemental Registers of teachers of music, drawing, physical training, manual instruction, cookery, needlework, and such other special subjects as may be from time to time approved.

A person shall be entitled to be placed on a Supplemental Register if he produces evidence satisfactory to the Registration Authority—

- (i.) that he has acquired special knowledge of the subject after a thorough course of training,
- (ii.) that he is competent to teach the subject, and
- (iii.) that he has taught the subject for a period of not less than two years.

A person may be placed on one or more than one Supplemental Register whether he is or is not placed on the Register.

The form of a Supplemental Register shall be the same as that of the Register, except that Columns A and B shall be omitted.

7. A person whose name is placed on one or more of the Supplemental Registers, but not on either column of the Register, shall not be entitled to describe himself as a registered teacher without also indicating the Supplemental Register or Registers on which his name is placed.

Any person proved to the satisfaction of the Registration Authority to have wilfully so described himself shall be liable to have his name removed from any Supplemental Register on which it is placed, and shall not be entitled for a period of two years to have his name placed on any Register of Teachers.

#### GENERAL.

8. In the case of any person applying to be placed on Column B of the Register, or any Supplemental Register, the Registration Authority may, if they think fit, and after giving the applicant an opportunity of being heard, refuse to register him on the ground that his moral character renders him unfit to be employed as a teacher.

9. The Registration Authority may at any time remove from Column B of the Register, or from any Supplemental Register, the name of any person proved to their satisfaction, and after such person has had an opportunity of being heard, to have been guilty of felony or misdemeanour, or of conduct unbefitting a teacher.

10. Every person applying and qualified to be placed on Column B of the Register, or on a Supplemental Register, shall, before he is so placed, pay to the Registration Authority the sum of twenty-one shillings. A further fee of two shillings and sixpence shall be paid by a teacher registered on Column B before any additional qualification or experience is recorded on the Register or any Supplemental Register.

11. No fee shall be payable for placing a person on Column A of the Register; but if any person so placed applies to have registered any qualifications and experience other than those required by the Board from certificated teachers, he shall, before any such qualification or experience is recorded, pay the sum of two shillings and sixpence.

12. In approving or recognizing a degree, diploma, certificate, ex-

amination, or other standard of education, for the purpose of Column B, or in recognizing an institution for the purpose of training, or in approving subjects for a Supplemental Register, the Board shall act after taking the advice of the Consultative Committee.

13. The Registration Authority shall from time to time, and at least once every year, present a report of their proceedings to the Board, together with their observations on the working of these regulations.

14. The Register and every Supplemental Register shall be published annually, and shall be open at any reasonable time to public inspection on the payment of the proper fee; and any person shall, on payment of the proper fee, be entitled to take copies of and make extracts from the Register and any Supplemental Register, and to have delivered to him extracts from any such Register certified by the Registrar to be true.

The fees for the purpose of this regulation shall be such as may be fixed by the Registration Authority, with the approval of the Board.

15. In these regulations "the Board" means the Board of Education. "Approved" or "recognized" means approved or recognized for the time being by the Board for the purpose of the regulation in which the expression is used. "The Registration Authority" means the body to be established for forming and keeping the Register.

16. These regulations may be from time to time modified and altered by regulations framed by the Consultative Committee, with the approval of the Board.

#### APPENDIX A.

A tripos certificate granted by the University of Cambridge to women.

A diploma or certificate showing to the satisfaction of the Registration Authority that the applicant, if a woman, has fulfilled all the conditions which, if the University of Oxford granted degrees to women, would entitle her to a degree in that University.

A diploma or certificate showing to the satisfaction of the Registration Authority that the applicant, if a woman, has fulfilled all the conditions which, if the University of Dublin granted degrees to women, would entitle her to a degree in that University.

The Associateship of the Royal College of Science, London.

The Associateship of the Central Technical College, London.

The Fellowship of the College of Preceptors.

A Special Honours Certificate of the Higher Local Examinations (Oxford and Cambridge), granted under the following conditions:—

- (i.) That the holder has passed in four groups or sections and obtained a First or Second Class in at least two of them; and
- (ii.) that the certificate includes at least a pass in two languages, and at least a pass either in mathematics or in logic.

#### APPENDIX B.

London University—Intermediate Arts, Intermediate Science.

Oxford University—Pass Moderations, Law Preliminary, Science Preliminary.

Cambridge University—the General Examination.

In the case of women:—(i.) "Moderations" or "Finals," in the University of Oxford. (ii.) Tripos examinations of the University of Cambridge, or "the standard of the ordinary degree."

Oxford and Cambridge Higher Local Examinations (Honours Certificate).

Birmingham University—Intermediate Arts, Intermediate Science.

Victoria University—Intermediate Arts, Intermediate Science.

University of Wales—Intermediate Arts, Intermediate Science.

Dublin University—Final Examination of Senior Freshman year.

Royal University of Ireland—the Second University Examination in Arts.

College of Preceptors—Licentiatehip.

#### APPENDIX C.

Diplomas or Certificates in the Theory and Practice of Teaching, granted by the following institutions:—Universities of Oxford, Cambridge, London, Victoria, Durham, Birmingham, Edinburgh, Aberdeen, Glasgow (Diploma with Distinction), Dublin, Royal University of Ireland, College of Preceptors (Fellowship and Licentiatehip, together with the Certificate of Ability to Teach).

#### APPENDIX D.

*Institutions, &c., for the Training of Secondary Teachers.*

Course of training for secondary teachers at Oxford for the Oxford University Diploma (this training would be accepted, provided that students stayed for a year); University of Cambridge (Day Training College), Secondary Department; Durham University; Birmingham University; Owens College, Manchester; University College, Liverpool; Yorkshire College, Leeds (provided the training were of one year's duration); University College of North Wales, Bangor; University College of South Wales, Cardiff; University College of Wales, Aberystwith; Cambridge Training College; Maria Grey College, London; Cheltenham Ladies' College; Bedford College for Women, University of London; Mary Datchelor College, London; St. George's Training College, Edinburgh; Catholic Training College, Cavendish Square, London; St. Mary's Hall, Mount Pleasant, Liverpool.

**TABULAR ANALYSIS OF CLAUSES IN THE ORDER IN COUNCIL FOR REGISTRATION OF TEACHERS RELATING TO QUALIFICATIONS FOR REGISTRATION IN COLUMN B.**

UP TO 1ST OF APRIL, 1905.

I. General Education.	II. { Experience in a Recognized School } or { Experience in Teaching and a Certificate in Theory and Practice of Teaching. }	
<p><i>One of the following :—</i>            Degree Examination of any University in the United Kingdom.            Inter. Arts { London.                              or Victoria.            Inter. Science { Birmingham.                                      Wales.            Pass Mods. } Oxford.            Law Prelim. }            Science Prelim. }            General Examination—Cambridge.            Final Examination of Senior Freshman Year—Dublin.            Second Univ. Examination in Arts—R.U.I.            Higher Local in Honours.            A.R.C.Sc.            A.C.T.C.            F.C.P.            L.C.P.  <i>Some other approved standard of general education.</i></p>	<p>Three years—i.e., the three years next preceding the application for registration—as Teacher at a recognized school or schools (not being an elementary school or schools).</p>	<p>Three years' experience in Teaching (other than the teaching in an elementary school or teaching of a purely elementary character);  <b>and</b>  <i>One of the following Certificates in Theory and Practice of Teaching :—</i>            Oxford University.            Cambridge "            London "            Victoria "            Durham "            Birmingham „ (Higher Diploma).            Edinburgh „ (Sec. School Dipl.).            Aberdeen „ (Dipl. with Distinc.).            Glasgow „ " " "            University of Dublin.            Royal University of Ireland.            College of Preceptors (Fellowship and Licentiatehip, together with Certificate of Ability to Teach).</p>

*Notes.*—1. A head master or head mistress of a recognized school, not being an elementary school, shall be entitled, on application, to be placed on Column B of the Register without fulfilling the above conditions, if the applicant has held the office for at least one year previous to the date of application.

2. The Registration Authority may place on Column B of the Register the name of any person who does not fulfil all the conditions of registration, but who, in their opinion, would have fulfilled all the necessary conditions but for the fact—

(a) That part of the period of his study or training was spent in an approved course of study or training at a foreign University, college, or school; or  
 (b) That part of the period of his study, training, or probation was spent in original research certified to have been conducted under proper supervision and to the satisfaction of the Registration Authority.

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Some years ago, when explaining my views on the study of literature, I said: "By the study of literature as literature I mean the study of a poem or prose work for the sake of its substance, its form, and its style; for the sake of the thought and imagination and feeling it contains, and the methods used to express these; for the sake of its lofty, large, or acute perception of things; its power of exposition; the beauty, force, and meaning of its metaphors, its similes, and its epithets; the strength and music of its language."\* I held, and hold still, that our aim should be to appreciate thought as thought, a work of art as a work of art; and thereby not only to enlarge, enrich, and refine our minds and hearts, but also to win for ourselves a knowledge and ability of expressing ourselves, when we have something to say, both correctly and well. The study of grammar and philology and antiquarianism will help us but little to accomplish this object. But there are other things which will help us. To-day I wish to inquire whether among those other things helpful in the earliest stages to students of literature, adult or young, we may reckon *histories of literature*; and, if so, what is the nature of the help they can give and what should be the general character of their contents.

Sir Henry Wotton, in his "Aphorisms," tells us that "the way to knowledge by epitomes is too strait [narrow]"; and, he adds, "they show a short course to those who are contented to know a little, and a sure way to such whose care is not to know too much." Bacon, however, in his "Essay of Studies" says: "Some books also may be read by deputy, and extracts made of them by others; but that," he hastens to explain, "would be only in the less important arguments, and the meaner sort of books." This no doubt might provide an excuse for those histories of literature whose chief object seems to be to display a gratuitous learnedness in the small writers, and the "meaner sort of books," which the world has very unwillingly let die. But here we shall have nothing to say about the "meaner sort of books"; and so such histories will be nothing to our purpose. In his "De Augmentis Scientiarum" Bacon warns us to avoid all digests and epitomes of learning, for they are a species of imposture, giving men the means to make a show of learning who have it not. I am afraid that, only too frequently, it is this very purpose—so like that of "Mangnall's Questions"—to enable those to make a show of learning who have it not, which causes histories of literature to be read, at any rate in schools—to enable the young to chatter about books of which they have never read a line. "Oh, it is so dreadful!" I have heard it said, "that those who are supposed to be educated should not know when Milton lived and what he wrote!" Every ignorance, I have replied, is regrettable at some time or other—though there are seasons when, we are assured, it may be bliss. To me it is less "dreadful" that any one should not be acquainted with the date of Milton's period and the names of his works than that he or she should not have read with attention any one of those works. Moreover, I must confess that I am not quite clear as to what you mean by "when Milton lived and what he wrote." Do you mean by *when* the date? Or the condition of things politically, socially, intellectually, morally in England; or, more widely, in Europe? What do you mean by *what he wrote*? The names of his works, or their contents and the relation of these contents to his times—what in them belonged to Milton himself, what to his predecessors, what to his times, and what remains on to this day of value to us? I am not prepared to admit at once that the mere date and the list of titles are of any use at all. A fact is of no value by itself. Its value lies in its relations to other

\* See "English Literature Teaching in Schools." (Rivingtons, 1s. 6d.)

facts. That Milton lived in a certain period does not help us to know the character of that period, unless we know Milton; nor does it help us to know Milton unless we know the character of the period, the spirit of the times. The parade of facts and dates is mere vanity, or worse, unless we understand their mutual bearings, and their bearings on other facts and dates. History is not a mere catalogue of names and dates and events, but an *organized* body of these, wrought into a connected and intelligible narrative. Granted, has been the answer. But, if we do well to study the history of a country or of a people, why should we not study the organized and intelligible narrative of the facts and events of its literature? Why not indeed? I have replied: Why not indeed?—provided that by so doing we learn to appreciate thought as thought, a work of art as a work of art, that we enlarge, enrich, and refine our minds and hearts, and that we gain a fuller power to understand and love the writings and the writers dealt with; for this must be the true aim of our study. If we stop short of this understanding and love, we shall lose the best reward of our work and have disquieted ourselves to very little purpose.

But there are many differences between the history of a nation and the history of its literature, some of which I must briefly touch upon before I proceed further. A history of literature is inevitably to a large extent a comparison between, and an appreciation of, the works of authors; it consists largely of opinions and criticisms in addition to its narrative of facts and events. These opinions and criticisms can have no real meaning, no true intellectual value, till some personal knowledge has been acquired of the works dealt with—or of the chief of them. In the case of literature, our aim, I hold, is to get to know and to appreciate the original documents on which the history is based. This is not the aim of political or national history. There the aim is to get to know and to appreciate the nation and its political life, to get to understand how things came to be what they are. With the young student of literature there should be no question of various readings and disputed dates, no question of authenticity or reliability. These things are beyond their scope; they should study the documents actually before them. Of course, just as some passages cannot be properly understood apart from their context, so some writings cannot be properly understood apart from the environment in which they were produced. But to use the environment as an aid in the interpretation of a particular literary work or a particular writer is by no means the same as the study of a history of literature. Mr. Leslie Stephen has given an excellent example of the use of the intellectual and social environment in the interpretation of Pope in a lecture on "The Study of English Literature," printed in the *Cornhill Magazine* for May, 1887—to which I shall return later on. Let me say here, however, to avoid misunderstanding, that I am well aware that in this world we cannot learn everything at first hand; that we must accept much as information imparted by others. And I admit that this is by no means always hurtful, provided that the learner realizes the immense difference between real first-hand knowledge and merely second-hand information. And this is not possible for a young student. I have said that for immature students there should be no questions of authenticity and reliability, these things being in general beyond their scope. But in the construction of the history of a nation questions of authenticity and reliability of documents, of the degrees of credence to be given them, are of prime importance. Until these are settled we cannot even begin. Now these things are beyond the young; and the young therefore cannot in any true sense study the history of a nation from original documents—a delusion very prevalent in the United States. The quantity of fairly reliable material is often enormous. There must therefore be a selection; and this implies a selector; and the selector speaks his views through the mouths of his original authorities instead of with his own lips. That is all—very fresh and interesting—but it is only the selector, and not the reader, who in any true sense studies history from original documents. The young must take the story as the historian gives it, whether he speaks in his own person or not, with his warnings on doubtful points and his picturesque quotations from originals. Their interest and profit must lie in the narrative itself, with its examples of action, of conduct, of character, of the progress of law and order, and the rest. They do not study national history for the light it throws on the original documents on which it is based. With the history of literature I hold the reverse is the case—the young student can only profitably study it for the help it gives in the understanding of the original writings of the authors—that is, of *literature itself*—on which everything is ultimately based. Of course, the history of a nation is of great value in the interpretation of

its literature. Indeed there is much to be said in favour of the view that this history is the best introduction to the literature—when, besides dealing with politics and the constitution, it is the history of the social, intellectual, and moral growth of the nation. And, lastly, the experience of everyday life enables us to grasp in a general way—even from the mere names and terms employed—the facts and actions out of which the story of a nation is composed. But we cannot grasp the nature of a book from its name. We must, to some extent, have read it, become acquainted with it for ourselves—which marks another decided difference between the two kinds of history. To gain a knowledge of a book *as a part of literature*, it is not enough to know its name, its subject, and the general gist of its contents; while this as a rule is enough for beginners in the case of constitutional and political documents.

In a lecture delivered to his own college class of University students and printed in his "New Studies in Literature" (1895), Prof. Dowden expresses a desire for an outline map or brief "general sketch" of European literature—resembling in character Freeman's "General Sketch of European History"—which, he thinks, might, in a month or two, be made to enter the head of every student at the start—by brute force if necessary. This chart, he believes, would keep things in their right relations, and parts of it might later be filled in with more topographical details, as required. I do not know whether the Professor ever puts his tongue into his cheek at lectures; but I fancy that his tongue must have, perhaps unconsciously, assumed something like that position when he made this astonishing statement. It is better, I think, to hang a chart on the wall for frequent consultation than to attempt to hammer it into the head of any student. It will be safer on the wall, and the student's head won't suffer. It is the same old mistake made in the teaching of a language—the attempt to hammer in the grammar before any acquaintance has been made with the language itself. And the result would be the same—a not very intelligent knowledge of the grammar, and a very slight acquaintance with the language,—or, in this case, an unintelligent acquaintance with names and dates and formulas, and no knowledge of literature—while the hammered heads would have acquired a habit of turning away from learning. But the Professor reassures us by stating that there is no such sketch in existence suitable to his purpose. When he comes to English literature, he again mentions a general sketch or history, but would not have a beginner touch it till he or she has thoroughly learnt the difference between *knowing about* a book or an author and *knowing that* author or book, till he or she can appreciate the vast difference between first-hand and second-hand knowledge. Now this is precisely what a beginner cannot do; for such an appreciation can only be learnt from experience, which the beginner has not yet had. So, practically, the general sketch goes out of court—and *remains outside*. For in the admirable description which follows of how literature should be studied it does not reappear. This description—which deserves the careful attention of every student of literature—is followed by the consideration of what is called the "biographical method of study," or the study of a man's works in relation to the man's life and personality; which naturally leads us to the study of the man and his works in relation to his environment, his times. In both cases—but more particularly in the second case—Prof. Dowden's views are somewhat like those expressed by Mr. Leslie Stephen in the lecture already mentioned, and I shall discuss what they have to say together. Lastly, Prof. Dowden—again like Mr. Stephen—urges us to study English literature and English history together for their great mutual enlightenment. And I think I am not far wrong in stating that the kind of history they both have in mind is not altogether unlike Green's "Short History."\*

I may now turn to consider the biographical method of studying literature and the study of the author in relation to his environment. As far as the biographical method means—and this is what it mainly means with Prof. Dowden—as far as it means the endeavour to get at the author's mind and personality through his works, I will say at once that, in my opinion, this is not a matter for beginners, but belongs to critics of wide reading and much experience. It takes a Dowden to give us "the mind and art of Shakespeare." No doubt the difficulties differ widely in different cases. It is easier to find Milton in

\* As to how history and literature can be combined, Mr. Leslie Stephen's "History of English Thought in the Eighteenth Century" will show you. See especially Vol. II., page 330, quoted by Prof. Dowden.

"Paradise Lost" and "Samson Agonistes" and "Comus," or Wordsworth in the "Excursion," or Tennyson in the "Idylls," than Shakespeare in "Hamlet," "King Lear," "Much Ado," and his plays generally,—and, as Mr. Sidney Lee has shown us, in his sonnets. But, in any case, the attempt is full of rocks and pitfalls, and is liable to lead us all—even the most inexperienced—into forming grave misconceptions. This, as it seems to me, to quote only one instance, has been the result of the attempt to construct the true Bacon from his "Essays." Moreover, as soon as we arrive at this provisional personality we are driven, in order to understand it, to consider the circumstances and spirit of the time in which it grew, the doings of the time, its social existence, its joys and fears and hopes, its outlook on the universe and on man—its "criticism of life," as Matthew Arnold would say. Now this life and spirit of a time we cannot properly learn except from the study of its literature. So back we come once more to the study of the actual books produced. At first it would seem as if we had got into a vicious circle. We cannot understand fully the spirit of the time without first knowing the literature produced in it, and we cannot really understand the literature without first knowing the spirit of the time. But a little reflection will show us that this is merely the old question between *inductive* and *deductive* methods, which is best solved by using them alternately. We rise from our study of particular books to a general idea of the time, and then descend by applying this general idea to the interpretation of other particular books. And this rising and descending will have to be done more than once. For my own part, I would leave the finding of the author in his works—the biographical method—till the learner has gone up and down several times. You will see readily at what points of my progress I would call in the aid of a history of literature.

I am aware that the idea I have just indicated will cause dismay to those in the obscurer recesses of whose minds there lurks the thought that a learner need read, or will read, a book, or set of books, only once. My answer is twofold: first, it is not every book produced which need be read, or is worth reading, more than once; second, that I am at present considering the cases of genuine students, and not of those who would apply to literature the methods they apply to railway novels and the morning paper. The reader of *one* reading can never enter into the kingdom of literature. I am sorry for him, for he will miss one of the greatest and purest joys of life. But he cannot take this kingdom of heaven by force.

I have been led by the general chain of my argument to indicate one of my main pleas before I had intended to do so. But I must not on that account omit certain considerations which should properly have preceded it. I have stated one of my reasons for not using the biographical method at an early stage, and I believe Prof. Dowden agrees with me on that point. There is another reason. The aim of this method is to gain a conception of the personality and genius of the author; and an admirable aim it is. But my present aim, both first and last, is to understand and appreciate the *literature*, not the *author*; or rather, the author only so far as this will help me to understand the literature. I think we should begin with this aim and never lose sight of it, keeping the finding of an author in his works as quite a secondary, or at least a very late, aim. But there is another side to what may still be called the biographical method—the use of what general history tells us of the author's time and the external circumstances of his life—his biography, in fact—to help us to understand his point of view, his limitations, his purpose, and the objects of greatest interest to him. But here a caution is necessary. It is not always that the author's biography will help us to understand a particular work of his. It is mere trifling and a waste of time to require a young student to learn the life of Shakespeare as introductory to a study of "Julius Cæsar," or indeed of almost any play; for this will give him either no help at all, or not the help he needs. The play is the thing—its subject, its characterization, its dramatic art. The introductory work should call his attention to these, interest him in them, and help him to observe them intelligently. The study of the author's personal equation may come after—long after. On the other hand, some knowledge of the circumstances of Milton's life will undoubtedly help the beginner who is about to make acquaintance with the strength and beauty of "Samson Agonistes," as will also some knowledge of the general nature of Greek drama. Some knowledge of Pope's life and of the circumstances of his time is essential to the understanding of the "Essay on Man," or "The Rape of the Lock." It is evident, therefore, that, in the use of this method, careful discrimination will always be necessary.

But I will let Mr. Leslie Stephen speak on this matter in his clear-sighted, clear-mannered way:

Literature [he says in the lecture already mentioned] may be considered in two ways. A book is the utterance of an individual mind. It is the *sic cogitavit* of a Francis Bacon, a William Shakespeare, or an Alexander Pope. But it does not depend simply upon the individual mind. Every individual is a constituent part of a society. He transmits as well as creates. He utters his own thoughts, but he is also the organ through which the spirit of the age utters its thoughts. He looks upon the world, but he is also, in part at least, a product of its development. His philosophy, the enthusiasms which stir him, the doubts which torment him, the answers which he supplies to them, the form in which he states the eternal problems and tries to utter a solution, are all in great measure determined for him by the social element in which he lives. . . . Literature in this aspect is simply one function of the social organism. . . . and any serious treatment of it must recognize that fact. The greatest men, it is true, sav what is of interest for all times; but even the very greatest, the Homers and Dantes and Shakespeares, say it in the dialect and under all the conditions of their own time. . . . You should, I say, understand the spirit of the age, and by that I do *not* mean that you should study what is called the philosophy of history. There is, indeed, no more fascinating study—but in the first place, the doctrines which it announces are still the guesses of clever men rather than the established conclusions of scientific observers; and, in the next place, true or false, they are abstract theories, not concrete pictures. What you require is not a clever analysis, but a vivid representation, of the period. You should see it, not be full of formula about it.

Again, he says when dealing more particularly with Pope:

Some peculiarities of Pope's poetry are set out in every manual of English literature. There is his famous theory of "correctness"; there are the limitations which he accepted and introduced into English verse, and the so-called conventionality which produced the so-called reaction of Wordsworth and his school; and it is, of course, necessary to know what were the peculiarities thus indicated, and what was the history of their growth and decay. But, if it is necessary to know this, it is necessary also to pass beyond this knowledge. Why did he adopt these canons of taste, and why did they so impress his contemporaries? No answer can be suggested from the bare facts; you must feel the relation between the facts and the whole spirit of the time. . . . I do not mean, however, that any profound philosophical study is needed—far from it. I only mean that you must have some such acquaintance with the general drift of thought as Pope himself possessed—which, to say the truth, was superficial enough—before you can fairly appreciate him, or cease to be repelled by some otherwise unintelligible peculiarities. But still more necessary is a study which in truth is closely connected with this. The study of philosophy is most intimately connected with the study of society. The philosophical movement was congenial to, if it was not due to, the peculiar conditions of society.

After dealing in a most interesting way with the details of this question, Mr. Stephen says:

Feel this; see these men as they were, and so you will understand why Pope uttered himself in his characteristic fashion, and see the real power which was hidden under an unfamiliar mask. And how to feel this? By reading some of the most delightful books in the language.

He then proceeds to mention some of these "most delightful books, and to briefly indicate their characteristic features: Addison and Swift, Pope's Correspondence, Lady Mary's Letters, "Robinson Crusoe," "Gulliver's Travels," &c. But, strange to say, we do not in the whole list find a single history of literature.

I must not leave you, however, with the idea that Mr. Leslie Stephen is so bookish that he considers this literary preparation as alone sufficient:

It is not sufficient [he says], because after all what a man wants for the appreciation of books is not so much to have this or that kind of knowledge as to be a clever fellow and to have a sensitive nature. . . . A good education for literary purposes is by no means exclusively an education in literature. To appreciate Shakespeare you want something much more important than cramming with facts. To enjoy "Romeo and Juliet" the best qualification is to be one-and-twenty (which is compatible with being also thirty or forty). To enjoy "Hamlet" it is, perhaps, better to be, let us say, fifty-four [his own age at the time of writing]. The education which comes through life, through the possession of certain passions and feelings, is the most important of all education. But, I hasten to observe, this does not tell against education in general, but only against a narrow education which fails to stimulate all our powers. . . . If I were asked whether a young man would best fit himself for a literary career or for the study of literature by reading books about authors or by reading mathematics (supposing him to have time for only one pursuit), I should unhesitatingly advise mathematics (a subject which he considers to

have least in common with literary study). Not, of course, that he will learn anything directly useful. He will never require to apply the binomial theorem to the criticism of "Paradise Lost." But an exclusive reading of mere criticism on literary history has a strong tendency to make a man a prig, to suppress all spontaneous and independent judgment, and to leave his general faculties undeveloped.

One last quotation to conclude with :

In any case remember that reading worthy of the name is not the acquisition of a set of dates and facts, or a knowledge of correct critical labels, but an occupation which to be pursued to any purpose must be pursued with zeal—must become, if it should not begin by being, a real and keen enjoyment, and which should end by becoming not a mere luxury, but a necessity of life.

I fear I may be thought to have dealt too much in quotation from Mr. Stephen's admirable lecture. If this be so, my excuse is that it is so good, and, as far as I can ascertain, so little known; moreover, it expresses my own ideas far better than I could express them for myself; and I have wished to remind you that I have very much on my side our two greatest living authorities on English literature.

From what I have said and quoted, it will, I think, be evident that I do not think that the first stage of literary study should consist in the study of a history of literature. The literary history of a period should not be introduced, in my opinion, until we have made a personal acquaintance with some of the best, though not the most difficult, literature of that period, and are making our first attempt to rise from particulars to generals. Even then it should be used sparingly at first. Our first attempts at generalization should be brief and not too detailed or too intricate. From the nature of the case they cannot be complete or completely accurate. Let us be content if they are as complete and as accurate as the extent and character of our knowledge allow. Let us avoid hurry, and rest satisfied if we make them a little more complete and a little more accurate at each return to them, and not be too eager to adopt the generalizations and critical formulas of others.

As to what should be the nature of the contents of a history of literature such as we shall need, I have already indicated my opinion, though only indirectly. I will now be more explicit. In what I say, however, I would beg you to bear in mind that I do not refer to hand-books, or dictionaries or cyclopedias, or chronological outlines of literature. Many of these are excellent and very useful as *books of reference*—in particular I may mention Mr. Ryland's small and compact "Chronological Outlines of English Literature" and Chambers's "Cyclopaedia of English Literature," both of which I frequently turn to; and there are others. But a book of reference is not by any means the same as a class-book for young students. It is of the latter only—books for students young in their study of literature—that I shall speak. I can, of course, speak of only a few by name in the time at my disposal. In the first place, I demand that a history of literature should be a *history*, not a mere concourse or catalogue of facts, dates, and events, but an organized body of these wrought into a connected and intelligible narrative. In the second place, I require that it should show us the very form and body of the time, its spirit, the conditions of its society, and enable us to appreciate thought as thought, works of art as works of art, and that thereby it should enlarge, enrich, and refine our minds, and lead us to an understanding and a love of literature; and this cannot be done in a very small book. We do not want, I think, any gratuitous learnedness about small writers and the "meaner sort of books"—those are things to be left to books of reference and dictionaries; buried decently there, with proper mound and headstone, and for epitaph—no, not "Rubbish shot here"—that would be unkind—nor yet "Here lies one whose name was writ in water," which is a challenge; but just the word "Peace." Moreover, since our rising from particulars to generals is not to be done once for all at any one stage, but more than once and at a succession of stages, we shall want not *one* history—even with large and small type—but a *succession* of histories; a succession based not merely on size and price, but on mode of treatment.

It has been my sad fate for some years past to have to read many histories of literature, of various sizes, for notice or review. The prominent characteristic of most of them is that they are not histories. The plan seems to be to write a short biography of each author with dates, adding the names of his works with dates, and also brief appreciations; arrange chronologically; divide into chapters, with or without decorative titles; and print. You may add an index and an appendix or two, and, if, like Madame Eglentyne, you have a "conscience and tendre hert," you may give references to the sources from which you have taken your

information. But this is not really necessary—you are not expected to be original. And, besides, we noticers of books like to show our cleverness in hunting out your sources. In these books there is very little connectedness of narrative, organic or otherwise, and nothing or next to nothing about the conditions of society and the spirit of the times. But there is plenty of formula. They are not interesting to read and not very helpful. I am told, however, that they are useful in preparing for examinations, but which examinations I am not told. As an examiner I should doubt it somewhat. Faults of teaching are not always entirely due to the examiner.

I am not speaking, and do not intend to speak, about books for advanced students. Such books as Prof. Ten Brink's, for instance, are outside my purview. Moreover, I am well aware the books that I desire are not for every writer's venture. Of the many books which I have read, and sometimes used, a fair number are good in many ways, but none exactly suited to my purpose. I have to gather my honey from many flowers. But some are more nearly suitable than others. I will mention a few, though they are all well known to you. Naturally, I first think of that charming and well informed little book Mr. Stopford Brooke's "Primer." The spirit in which it is written and the character and accuracy of its information are excellent; but it attempts too much for its size—it is too full of details and too condensed for young students. Moreover, its condensation leads to another drawback—it is too full of labels and formulas, very true and excellent in themselves, but very dangerous for beginners. And it is on too small a scale for older students. Were some of the minor details and a few of the formulas cut out, and the rest of the book expanded to twice its size and provided with at least some quotations, it would be a better book; at any rate, it would be much more nearly what I want. Perhaps some day we shall get such a book from Mr. Stopford Brooke.

When we come to somewhat older students the difficulty of providing for their needs is still greater. A writer equally at home in all the twelve centuries of our literature is more needed and is hard to find. The solution commonly attempted is to divide the history into periods of various lengths, with a different historian for each period—never a completely satisfactory plan. Under this head I may mention a series—called *hand-books*, but really histories—with Prof. Hales as general editor, a name always a guarantee for accurate and scholarly work even if at times the antiquary is allowed to overshadow the man of letters. We have "The Age of Milton," "The Age of Johnson," &c., the plan being to make the great author the centre of his period and to group the lesser folk in their respective ranks around him. I can vouch for one at least of the volumes being excellent—"The Age of Johnson"; or, if you desire to divide up still further, you cannot do better than to go to that admirable series "English Men of Letters," and you can either take one volume at a time or group two or three for one period. Of course this does not entirely suit my plan; not because you are obliged to take period by period—for that is my idea—but because you may be led to take writers more or less singly, and to treat each more or less exhaustively and isolatedly before going to the next. This is not my idea. The complete treatment of single authors belongs to a later stage as I conceive it—a stage when our successive generalizations have at length given us one sufficiently full and accurate to allow us to attempt the interpretation of one great writer by the spirit and the light of his age.

The books which are only partly helpful in work of the kind which I have indicated are too numerous for me to attempt a list of them. Perhaps, however, I ought to mention Henry Morley's "First Sketch of English Literature," a wonderful compendium of information as to facts, dates, titles, contents, &c., but singularly uninspiring and lacking a steady standard of literary values and an insight into the life of the times; and yet so full and so accurate that an older student can hardly dispense with its aid as a book of reference. There are also the volumes on "Social England" edited by Mr. H. D. Traill, and I must not forget that very interesting and well written book by Mons. J. J. Jusserand, "The Literary History of England." But the monographs on particular literary epochs and particular writers, the volumes of memoirs, correspondence, &c., these are as the sands of the sea in number; and you must hunt them up for yourselves in Sargent's "Guide-Book to Books" or W. S. Sonnenschein's "Dictionary of the Best Books." But to name and discuss them now would distract attention from the points which I desire to have a very careful consideration: the possible use of a history of literature in the earlier stages of literary study; when it should be used; and what should be the general character of its contents.



I have spoken of young students, not of pupils at school. But, if you allow my plea to be valid in the case of the former, you will, I think, agree with me in holding it to be still stronger in the case of the latter. But, however this may be, I think we shall all be united in the opinion that points such as I have brought forward must be carefully considered and judged before ever we can place English literature in such a position of authority both at school and college as we most of us in our hearts desire it to occupy.

Mr. BARNETT was in entire sympathy with all that the lecturer had said, and hoped that his efforts would result in the reform of English studies in our schools and colleges. Hitherto English in the schools had been too exclusively a gymnastic on the lines set by the old classical studies, and teachers, believing that their work should be mainly interpretative, had devoted themselves to dissecting the literary work before them instead of endeavouring to make their pupils appreciate thought as thought. The purpose literature had to serve, and to which the school could contribute, was to make the pupils like, understand, and feel with the author put before them; for the cultivation of literary taste was not the same thing as the cultivation of knowledge of things. He knew from observation that it was possible to get even young children to appreciate literary expression and to sympathize with the thoughts expressed. The contrast which the lecturer had emphasized between history as history and literature as literature was particularly instructive. In the earlier stages of child life history must be treated as pictures of facts, and it was only late in the school career that history became a study of literature.

Mr. ORCHARD agreed with the lecturer that the study of the history of literature should occupy an intermediate place between the study of special works of literature and biographical study of authors. For the study of the history of literature involved an appreciation of the relations between literary works, which would be impossible unless those works were known, and to some extent understood, beforehand. The study of biographies was rightly placed at a later stage. In order to study with profit the life and literature of any author it was necessary to take account of his time, and to have sympathy and the power of analyzing character, and of weighing and estimating different elements and degrees of character. For this purpose a philosophical training was required.

The CHAIRMAN said that English literature was one of the most inspiring subjects that could be taught or learnt, but in many ways it was one of the most disheartening. There was such an immense amount of detail that the teaching of any history was very exhausting both to teacher and scholar. The choice of samples of literature must rest with the teacher, and it was, therefore, important that he should be properly instructed as to the method of selection. English literature was often rendered extremely repulsive to young pupils by the way in which it was presented. In many schools the teaching of the literature was almost entirely neglected in order that the various references might be dealt with. In this way continuity of thought was sacrificed to word exercises, complicated with reference to history and geography. No course would be more likely to make the child hate literature. It was to be hoped that the lecture would bring home to the minds of teachers that the play was the thing, and that it was quite possible to teach that in the first place in such a way as to bring before the minds of the pupils the beauty of the poem as a whole.

Mr. BOWEN, in replying to the remarks of the various speakers, said there would in the future be a tendency to leave the study of English literature out of the school curriculum. The study of French and German would become more and more a study of the languages for practical purposes instead of a study of art and beauty of expression. He would, therefore, urge the importance of teaching English literature in schools for the sake of the culture it afforded.

A vote of thanks to the lecturer concluded the proceedings.

**CORRESPONDENCE.**

*We do not hold ourselves responsible for the opinions expressed by our correspondents.—Ed. E.T.]*

**THE ORDER IN COUNCIL RELATING TO REGISTRATION.**

*To the Editor of the Educational Times.*

SIR,—The long-expected Regulations for Registration must be a severe disappointment to many, especially to those who have had the subject most at heart.

Certain of the provisions are distinctly unfair. The book of the Register will be involved and unwieldy. Unless teachers in secondary schools come forward in considerable numbers, it is difficult to see whence funds will be derived for the payment of salaries and publishing expenses. If this class of teachers boycott the Register—and there is but little inducement to place oneself

upon it, and but little fear of penal consequences if one forbears—the whole scheme must end in a *fiasco*.

It is sincerely to be hoped that secondary teachers will not commit themselves to any preliminary steps, nor even give public expression to any desire to put their names on such a list, until their various associations have met and agreed upon a common policy that shall tend to bring about essential changes in the Order at the earliest possible opportunity.

This result may seem difficult in face of the terms of the Order in Council, but the circumstances seem to demand strong language and stronger measures. Secondary teachers hold the key of the position; and, if they will only realize it, it will be possible, by combined action, to exact a pledge of revision even from the Board of Education.—I am, Sir, obediently yours,  
OBSERVER.

London, February 20, 1902.

**MR. LEWIS SERGEANT.**

WE record, with deep regret, the death of Mr. Lewis Sergeant, for over six years the Editor of this journal and a valued member of the Council. His health began to break down last summer; but, although he had been compelled by his doctor to give up most of his literary work some months ago, his active control of this journal continued up to his death, which occurred on February 2 at a sanatorium at Bourne-mouth, at the age of sixty. Mr. Sergeant was a graduate of Cambridge (St. Catharine's College), and his connexion with literature and journalism began soon after he left college, over thirty-five years ago. Few men in the ranks of London's literary army could claim a wider or more varied acquaintance with the higher branches of journalism, and he belonged to that now diminishing band whose culture is allied with sound learning and scholarship. As the *Athenæum*, to which he had been a contributor for some thirty years, said of him, he was one of the few men in London journalism who knew his Horace. For the last six years he was a leader writer and reviewer on the staff of the *Daily Chronicle*, and, in addition to the work done by him for the *Athenæum* and as editor of the *Educational Times*, he wrote several books on political and historical subjects. The principal are the following:—"New Greece" (1878), "England's Policy" (1881), "William Pitt" (1882), "The Government Handbook" (1890), "John Wyclif" (1893), "Greece in the Nineteenth Century" (1897), and "The Franks" for the "Story of the Nations" Series.

His fine courtesy and ready sympathy with the interests of others won the affection of all who came in contact with him, and he possessed in a remarkable degree a receptivity for new ideas, while at the same time maintaining his political and other principles, sometimes in the face of personal loss. Since 1878 he acted as Honorary Secretary of the Greek Committee in London, and he was created by King George a Knight of the Greek Order of the Redeemer for his services to the Greek cause. It is characteristic of the modesty of the man that the present writer, who knew him intimately during the last seven years, never discovered this fact till after his death.

**MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.**

A MEETING of the Council was held at the College, Bloomsbury Square, on February 8. Present: Dr. Wormell, Vice-President, in the Chair; Mr. Baumann, Rev. J. O. Bevan, Mr. Bowen, Mr. Brown, Mr. Butler, Mr. Charles, Mr. Chettle, Mr. Eve, Mr. Milne, Mr. Pinches, Dr. R. P. Scott, Rev. Dr. Scott, Rev. T. W. Sharpe, and Mr. Storr.

The minutes of the last meeting were read and confirmed.

The Secretary reported that the resolutions adopted at a joint meeting of representatives of the College of Preceptors, the Teachers' Guild, and the Private Schools' Association on January 8 had been forwarded to the Duke of Devonshire.

He announced, with great regret, the death of Mr. Lewis Sergeant, a member of the Council and Editor of the *Educational Times*.

The Order in Council relating to the Registration of Teachers, which had been laid on the table of the House of Commons, was referred to a Special Committee for consideration.

The diploma of Fellow was granted to Miss F. A. White, that of Licentiate to S. Jones and F. J. Wyeth, and that of Associate to J. P. Bolger and A. B. Coomb, who had passed the required examinations.

It was resolved that application should be made to the Board of Education for the recognition of the College as an Inspecting Body under Section 3 (1) of the Board of Education Act, 1899.

The Report of the Finance Committee was adopted.

The Report of the Education Committee was adopted.

The Rev. T. W. Sharpe, M.A., C.B., was elected President of the

Council, and Dr. Wormell, Sir Philip Magnus, and the Rev. J. Stewart were re-elected Vice-Presidents. Mr. H. W. Eve was re-elected Dean, and Mr. E. E. Pinches Treasurer of the College.

The following persons were elected members of the College:—

- Mr. W. E. Harrison, A.C.P., Handsworth Technical School, Staffs. Miss C. O. Hættel, 22 Abundel Square, Barnsbury, N. Mr. H. C. Osborne, A.C.P., The County School, Richmond, Surrey. Mr. O. Riley, A.C.P., The Poplars, Eiland. Mr. S. G. Shrive, A.C.P., Wesley College, Sheffield. Mr. J. B. Wilkinson, Grammar School, Brighton.

The following books had been presented to the Library since the last meeting of the Council:—

By E. ARNOLD.—Arnold's Britannia History Readers (5 vols.); Eastwood's Student's Synopsis of English History; Tatlam's Virgil's Æneid, Book II.; Wilkins and Hollingsworth's Algebra for Beginners, Parts I, II, and III., and Answers. By G. BELL & SONS.—Marchant's First Greek Reader; Masse's Cicero de Amicitia; Phillipson's Virgil's Æneid, Book V.; Roberts's Ovid's Tristia, Book I.; Walker's Elementary Inorganic Chemistry. By A. & C. BLACK.—Brandin's Grands Prévôtiers du dix-septième Siècle; Finmore's Boys and Girls of Other Days (Second Series); Florian's Dumas' Aventures de Chicot; Hartog's Histoire de Bayard; Hebertson's Descriptive Geography from Original Sources (North America); Milne's Passages for Paraphrasing; Smith's Scott's Waverley. By the CLARENDON PRESS.—Laurence's Scenes from Sophocles' Antigone. By K. & J. COOPER.—Scott's Scott's Marmion (2 vols.). By GINN & Co.—Abbott's Roman Political Institutions; Allen's Tacitus' Annals I.-VI., and Tacitus' Germania and Agricola; Allen and Greenough's Cicero de Senectute; Allen and Moore's Euripides' Medea; Atkinson's First Studies of Plant Life; Carpenter's English of the XIVth Century; Clapp's Homer's Iliad XIX.-XXIV.; Collier's Virgil's Æneid VII.; Cutler's Virgil's Æneid IX.;

Moliere's Les Precieuses Ridicules; D'Ocge's Latin Composition, and Sophocles' Antiope; Dyer's Plato's Apology and Crito; Emerson's Introduction to the Middle Ages; Fruit's Milton's Lycidas; Frye's Complete Geography; Gayley's Classic Myths in English Literature; Gold's Tales from Hauff; Greenough's Homer's Satires and Epistles, Livy, Books I, and II., and Virgil's Bucolics and Æneid I.-VI.; Greenough and Peck's Livy, Books XXI, and XXII.; Humphreys' Aristophanes' Clouds; Huntington's Milton's L'Allegro, &c.; Inamont's Burke's Speech on Conciliation with America; Lockwood and Emerson's Composition and Rhetoric; Long's Pensets of the Field and Fowls of the Air; MacMechan's Carlyle's Heroes and Hero-Worship; Moliere's L'Avare and Le Misanthrope; Montgomey's Leading Facts of English History; Macaulay's Essay on Lord Clive; Macaulay's Second Essay on Lord Clatham, and Scott's Old Mortality; C. D. Morris's The Cyclopes, Book I.; E. P. Morris's Captives and Trimmimus of Plautus; Muller and Wenckebach's Gluck Auf, and Schiller's Maria Stuart; Myers's General History, History of Greece, Rome; its Rise and Fall, and The Eastern Nations and Greece; Nicolson's Aristophanes' Plutus; Perrin's Homer's Odyssey I.-IV., and V.-VIII.; Porter's The Stars in Song and Legend; Rollins's Ercannum-Chatrium's Madame Therese; C. F. Smith's Thucydides, Book III., and Thucydides, Book VII.; C. L. Smith's Horace's Odes and Epodes; Tarbell's Demosthenes' Philippics; Tellow's Virgil's Æneid, Book VIII.; Wecklein's Æschylus' Prometheus; Winkler's Goethe's Faust; Wright's Juvenal; Yonge's Scott's Quentin Durward; Zitzkala's Old Indian Legends. By D. C. HEATH & Co.—Thomas's Goethe's Faust, Parts I, and II. By HEEFER & SONS.—Lindsey's Problems and Exercises in English History, Books Band G, and Certificate Note-Book of European History, 1814-1848. By W. HEINEMANN.—Mackinder's Britain and the British Seas. By MACMILLAN & Co.—Esser's Geobel's Hermann der Cherusker, and Word and Phrase Book for the Same; Hadley's Practical Exercises in Magnetism and Electricity. By METHUEN & Co.—Rubie's Gospel according to St. Mark; Williamson's Junior English Grammar. By J. MURRAY.—Judd's Student's Lyell. By RIVINGTONS.—Willis's Algebra, Part I., and Answers. Calendars of the University of Manitoba, 1901, and of the Pharmaceutical Society of Great Britain, 1902

COLLEGE OF PRECEPTORS.

CERTIFICATE EXAMINATION. CHRISTMAS, 1901.

The following is the list of the successful candidates at the Colonial and Foreign Centres—British Guiana, Buenos Ayres, Cape Coast, Chefoo, Colombo, Freetown (Sierra Leone), Grenada, Jamaica, Lagos, Nassau (Bahamas), St. Lucia, and Port of Spain (Trinidad).

N.B.—The small italic letters denote that the candidate to whose name they are attached was distinguished in the following subjects respectively:—

- a = Arithmetic, g = Geography, h = History, l = Latin, s = Scripture, ad = Sound, Light, and Heat, sp = Spanish. b = Bookkeeping, d = Drawing, e = English, eu = Euclid, f = French.

The small figures 1 and 2 prefixed to names in the Second and Third Class Lists denote that the candidates were entered for the First and Second Classes respectively.

Bracketing of names implies equality of merit.

BOYS.

Table listing candidates for Boys' Certificate Examination, categorized by First Class (Senior), Second Class (Junior), and Third Class (Honours).

Table listing candidates for Third Class—Honours Division, including names like Acquah, G. R., Craig, O.A., and Wilson, C. E. g.a.

Table listing candidates for Third Class—Pass Division, including names like Kay, T. L. bk., Tonkin, M. McN., and Manners, T. N.

Table listing candidates for Lower Forms Examination, categorized by Boys and Girls, including names like Durham, J. A. al., Shodlesan, A. O. al., and Wuppermann, M.M.

Table listing candidates for Lower Forms Examination, categorized by Boys and Girls, including names like Wuppermann, M.M., Prada, V., and Besson, M. e.g.a.f.d.

Table listing candidates for Lower Forms Examination, categorized by Boys and Girls, including names like Ulrich, F. f., Copp, R. A., and Gannes, E. f.

Table listing candidates for Lower Forms Examination, categorized by Boys and Girls, including names like Algernon, R. E., Barrow, J. N., and Brown, F.

## REVIEWS.

*National Education—Essays towards a Constructive Policy.* By Prof. H. E. Armstrong, H. W. Eve, Sir Joshua Fitch, Prof. W. A. S. Hewins, J. C. Medd, T. A. Organ, A. D. Provand, Rev. B. Reynolds, F. Storr, and the Editor, Laurie Magnus. (John Murray.)

This volume of essays appears at an opportune moment. It would have been an advantage to have an authoritative survey of our existing educational machinery before any endeavour was made to discuss the best ways of improving it; but, in the absence of such a survey, we must be thankful for the information and practical suggestions supplied by the highly competent private writers who have contributed to Mr. Laurie Magnus's *symposium*. The essayists make no systematic attempt to set before us either the deficiencies in our educational system or the defects in our educational methods, though, incidentally, they throw considerable light upon both. They assume as a matter of notoriety that our machinery is inadequate in amount and defective in point of efficiency, and leave us to judge of the value of their suggestions in the light of common experience.

Mr. Laurie Magnus's introductory essay, entitled "Aims and Methods," is a kind of extended preface, in which he has successfully drawn together the threads of the essays supplied by his contributors. The only subject on which he writes independently is the study of English literature in our schools and Universities, for the treatment of which, oddly enough, he found a strong reluctance on the part of those best qualified to speak:

The head master of a leading public school [he tells us] was averse from publishing his experience in the matter because, so far as it went, it told against the prospect of successful results from such teaching. He found that boys do not take to English literature, and that, unless they are able to "make" or to "do" something, they respond more readily to a call to learn foreign accidence and idioms than to appreciate the resources of their own language.

This is a lamentable confession to make. If English literature fails to attract the young, it is because youthful tastes and capacities are disregarded by the teacher. We can well understand how boys and girls are soon bored with the philological and archaeological notes with which our English classics are so frequently overlaid when treated in class, but we have never found our native literature fail to interest a class, if the subject was suitably chosen and the teacher restricted himself to what was absolutely necessary in the way of elucidation, and availed himself, wherever it was possible, of the co-operation of his pupils. Mr. Magnus thoughtfully suggests that literature-teaching should rest on a psychological foundation. He says:

The Herbartian principle must be discreetly applied and the study of the art should be adjusted to the development of the student's mind. Beginning with ballad literature and the heroic tales of Hebrew and Greek mythology, of French, German, and English legend, the course would gradually lead through all the moulds of literature to that preparation for philosophy which is enjoined in the Prussian Code.

Prebendary Reynolds's contribution on "Church Schools and Religious Education" will do good by keeping before the mind of the public that the old "religious difficulties" which attended the discussion of elementary education will inevitably re-present themselves as soon as the State seriously addresses itself to deal with secondary schools and secondary training colleges. There is a growing feeling in the country that the parent should have a voice in determining the religious education of his child, and should suffer no educational disadvantage at the hands of the State on account of his preference.

Mr. Francis Storr gives an interesting account of the history of the registration movement and takes up the cudgels for the training of secondary teachers, concerning the value of which some of our head masters are still sceptical. Mr. Storr holds:

(1) That training for secondary teachers must be post-graduate; (2) that theory and practice must be studied concurrently and in combination; and (3) that a practising school, or, at least, a school where classes can be continuously taken by the students, is an integral part of a training college. A training college without its school attached is a *chimæra bombinans in vacuo*.

He points out the unfairness of comparing the certificated Board-school teacher with the untrained public-school master, to the disadvantage of the former. The proper comparison would be between the trained and untrained elementary teacher. No training can take the place of culture, or enable a teacher to im-

part what he does not know. Mr. Storr, as an examiner for the University of London, has had the advantage of comparing the teaching of trained and untrained graduates, and has no hesitation in pronouncing in favour of the former.

Sir Joshua Fitch writes on the inspection of secondary schools. His large experience in the inspection of elementary schools and training colleges gives his opinions a special value. He holds that the inspection of secondary schools is needed for the better information of parents and the public respecting the status of the several schools, their staff of teachers, their material equipment, and their academic and other successes. It is also needed, he thinks, in order that it may be seen whether the schemes framed under the Endowed Schools Acts or the programmes put forth by the several governing bodies of the schools are actually carried into effect. In answer to the question, Is it wise to rely more on inspection or examination? Sir Joshua Fitch pronounces in favour of individual examination as indispensable. The task of Government inspectors on visiting a secondary or intermediate school would be in the first place to collect its statistics, to report on the school premises and equipment, and then to say: "Are your scholars examined by a University or other recognized public authority? If so, let us have the report, and that will suffice. If not, tell us what your plans and aims are, and what you propose to have done; we will then endeavour to see how those plans have been carried out and with what result."

Prof. Armstrong holds a brief for the teaching of physical science, and what he calls "practical studies." He considers that the school programme of the future will not be to inculcate knowledge, but to develop "knowingness." This, we presume, is only a new way of saying that the cultivation of faculty will be held of greater importance than the communication of facts.

The essays of Mr. A. D. Provand, Mr. T. Organ, and Prof. Hewins upon our industrial needs and commercial education are based upon a wide acquaintance with the facts of our commercial and manufacturing interests. The writers have little difficulty in showing that we have lost invaluable opportunities for keeping our industries abreast of the latest discoveries of science, and for fitting our clerks and business men for the special work that they have to do. One of the great difficulties to be overcome in meeting existing needs arises from the scarcity of teachers who are competent to give practical instruction in the technicalities of commerce and of practical science. The ordinary teacher does not know much about business, and the business man does not know much about teaching. These difficulties, however, must be overcome, even if we have to spend money freely in the training of specialist teachers or in inducing business men to spare some portion of their time for teaching.

Mr. J. C. Medd offers some valuable suggestions on agricultural education in connexion with the elementary school, the training of teachers, higher primary schools, evening continuation schools, practical agricultural schools, secondary schools with an agricultural side, collegiate centres, winter schools, dairying and veterinary colleges. He is in favour of the formation of a central authority, preferably the Board of Agriculture, to supervise and report upon every grade of agricultural education, but urges no good reason for leaving agricultural education under a separate authority. We have had quite enough of independent authorities, and, at a time when there is a general desire for establishing a single authority for dealing with all departments of education, the country is not likely to recognize the claims of agricultural education to separate treatment.

One of the most attractive essays is that on "The Teaching of Modern Languages," by Mr. Eve, who writes with a scholar's knowledge of languages, classical as well as modern, and balances their claims with singular fairness. A sixth-form boy, Mr. Eve reminds us, has gained from his classical studies many substantial advantages. He has worked through a delicately graduated series of problems, each just within the reach of his powers, thus exercising an increased mental activity, while constantly adding to his store of knowledge. There is no breach of continuity in his studies. Accuracy of observation has been cultivated as far as words are concerned. The discipline of applying remembered facts to new problems has been steadily enforced. The study of words has involved, to a large extent, the study of ideas. The practice of translation has formed the habit of grasping the exact idea which a group of words conveys. Delicacy in the use of words has been assiduously cultivated. Something of the rationale of language has been learnt that could not have been equally well learned from the mother-tongue, and will not be without its value in studying other languages. Lastly, the sixth-form boy has been com-

pelled to read with minute attention some masterpieces of literature, and he has incidentally been introduced to a good many serious problems—ethical, historical, and philosophical—in a form not too closely associated with modern controversies. Mr. Eve admits, however, that these results are accessible only to the few. To the large majority of the pupils of secondary schools Greek remains a sealed book, and Latin is intelligible only through the help of a crib. Mr. Eve would substitute, in the case of boys and girls leaving school at sixteen or seventeen, German and French for Greek and Latin, and one of the most interesting parts of his essay is devoted to showing how the modern languages may be made to supply the disciplinary and humanizing influences associated with successful classical training. He makes a convincing defence of the utility of translation as part of a training in modern languages.

The editor contributes a bibliographical note on "Educational Treatises," which will be found useful for purposes of reference; and an appendix is supplied presenting the various Church of England schemes that have been put forward for dealing with elementary education.

*Britain and the British Seas.* By H. J. Mackinder, M.A.  
(Heinemann.)

Few men have done more than Mr. Mackinder to popularize the teaching of geography and to raise it from the dull accumulation of facts into a systematic training of the reasoning powers. The work before us, the first of a series on "The Regions of the World," will, therefore, be welcome to the rapidly increasing number of intelligent teachers of the subject. The first chapter discusses the position of Britain. The contrast is pointed out between Virgil's "penitus toto divisos orbe Britannos," the Britain on the very edge of the old map in Hereford Cathedral with Jerusalem in the middle, and Britain the centre of the land hemisphere. Attention is called, too, to the remarkable fact that the nearest point of England to the Continent is just opposite to the end of the dividing line between Teutonic and Latin Europe. In the following chapters water takes precedence of land, and the British seas, the submarine platform, and the tides are discussed. The structure of the land is then described in detail, and that in language intelligible to any one possessing only an elementary knowledge of geology. Special attention is called to the "Rift Valley" of Scotland, between the Grampians and the Southern Uplands, a phenomenon reproduced in many parts of the world, notably in the Great Rift Valley of Africa. These chapters lead up to an interesting sketch of the probable history of our islands as worked out by modern geologists. Their view is that there once existed a Northern "Atlantis," a continental area connecting Greenland and Norway, and dividing the Atlantic from the Arctic Ocean. Traces of this continent are found in the submarine ridge joining Iceland to the North of Scotland. On its southern frontier stood the chain of hills now represented by the Outer Hebrides and part of the Northern Highlands. Southward and eastward spread in the course of the Carboniferous epoch, and again of the Cretaceous epoch, a vast extension of the Atlantic Ocean covering a great part of Europe, including much of the British Isles. Only at a late period of the Tertiary epoch did "Atlantis" entirely disappear, leaving the British Isles in connexion with Europe; next came the separation of Ireland, and, last of all, the cutting of the Straits of Dover. It has often been pointed out that the absence of snakes in Ireland is due, not to St. Patrick, but to the comparatively short period during which that island remained in connexion with the European continent.

The river system is also treated in detail, with an interesting appendix on the formation of rivers, and the way in which it is possible, from time to time, for one river to capture the tributaries of another. It almost seems as if modern science had revived the myth of Alpheus pursuing Arethusa. The larger generalization of this part of the book is that of a greater Rhine in a more extended continent still connected with "Atlantis," flowing past the Dogger Bank, and receiving as tributaries the Elbe, on the right bank, and the Thames, Trent, and other British streams, on the left. A discussion of British climate follows, with a lucid explanation of weather charts and their interpretation.

Thus far we have been concerned with Nature. The second half of the book treats of Nature as modified by man. On the racial question Mr. Mackinder's general conclusion is that, "while Britain has been subjected to overpowering Celtic influence, the amount of Celtic blood in Britain is probably not very

great. In the main, the races of Britain were either Teutonic or aboriginal and pre-Celtic. This is much what M. d'Arbois de Jubainville says of the Celts in Gaul. The chapter on "Historical Geography" is necessarily brief, and gives only in outline the growth of the division into counties, so charmingly worked out in the late J. R. Green's "Making of England" and "Conquest of England." One interesting point may be noticed: the counties constituting Mercia are named after their county towns, and not, as Essex or Suffolk, on independent grounds. Mr. Mackinder supplies an explanation. Coming down to modern times, we have a description of the several divisions of the British Islands. For this purpose England is divided into metropolitan England and industrial England, the line of demarcation being drawn from the mouth of the Severn to the Wash, and these are again subdivided for purposes of description. The term "metropolitan" may seem somewhat proleptic: the distinguishing features of the section are (1) that nearly all the main roads and railways converge on London; (2) the coast-line looks over the narrow seas; (3) there are no considerable sources of mechanical motive power. Anyway, the distinction between the two sections is a very real one. The causes which have located towns form, of course, an important element in this part of the book; the various influences that have made London are traced in considerable detail.

It only remains to add that the book is admirably illustrated with about a hundred and thirty inset maps and plans, each confined to the elucidation of a single point. Most of them are due to Mr. A. W. Andrews and Mr. B. B. Dickinson, to whom teachers are much indebted for the useful lantern slides circulated by the Geographical Association. It forms an excellent compendium of the results of modern research, and fully justifies Mr. Mackinder's high position among *Stubengeographien*, to which he has recently added the qualifications of an explorer. Each chapter is supplemented by a useful list of authorities.

*Source Book of the History of Education for the Greek and Roman Periods.* By P. Monroe. (Macmillan.)

It is always an advantage, when time permits, to study original authorities rather than what other people have said about them. In the case of Greek and Roman education, those authorities are not very numerous, and Dr. Monroe has performed useful work in doing for them what Mr. Bosanquet has already done for the educational chapters of the "Republic." Non-classical students will be grateful for a useful selection of extracts from books otherwise inaccessible to them, and even those to whom some of the passages are familiar in the original will be glad to have them in combination. The extracts from Plato are from the late Master of Balliol's translation; other passages mostly from recognized versions. Each group is preceded by a short introduction, summarizing the *pieces justificatives* which follow. In the first chapter we have the famous speech of Pericles contrasted with an extract from Plutarch's "Life of Lycurgus" and with a passage from the "Protagoras" to indicate the scope of the change that had taken place in educational ideals. In another chapter the contrast between the rhetorical teaching of the Sophists and the more conservative views of education is brought out by extracts from "The Clouds" and from the orations of Isocrates. Longer passages follow from the "Cyropædia" of Xenophon, the "Republic" and the "Laws" of Plato—the one ideal, the other more practical and conservative—and the "Politics" of Aristotle. Later Greek education, as represented by the University of Athens, so well described by Mr. Capes, is illustrated by decrees of the Athenian Senate and Assembly, dating from about 100 B.C., and by an extract of the fourth century A.D., dealing with the college life of St. Basil and St. Gregory of Nazianzen. It will be remembered that it was from the University of Athens that Horace was carried off to join the standard of Brutus and Cassius, and that Atticus was one of its most distinguished *alumni*.

As to early Roman education, our sources of information are not numerous. The Laws of the Twelve Tables, which formed an important part of it, give us some hints, and it is easily gathered from the classical writers that it consisted mainly in an apprenticeship to the duties of a citizen. According to the legend, Virginia went to school in B.C. 449, but it is not till the third century B.C. that we have any details. In that century Livius Andronicus translated the "Odyssey," which became a standard text-book. With Greek influence grammar and rhetoric came to play a more and more important part. Dr. Monroe gives us extracts from the lives of eminent grammarians and rhetor-

icians by Suetonius, and a short passage from the "Bacchides" of Plautus, showing that the conflict between the old and the new had already begun. For the period between 100 B.C. and 200 A.D. the sources of information are comparatively abundant. Horace, Juvenal, and Martial supply incidental hints; Marcus Aurelius, in his "Thoughts," details the influences which had contributed to form his character; Cicero, in the "De Oratore," sets up the orator (or, rather, the statesman) as the ideal product of education; Musonius anticipates modern ideas in assimilating the education of women to that of men; Tacitus gives a pessimistic description of the results of the newer education as compared with those of the good old discipline, while Pliny takes a kindlier and more sympathetic view. A more systematic *conspectus* is presented by Quintilian, himself a famous teacher. Two short extracts may show how little the world has changed. Juvenal, after describing all that is required of a tutor, adds: "And, when the year comes round again, receive for your pay as much gold as the people demand for the victorious charioteer." Modern schoolmasters might draw a similar comparison between their own stipends and the pay of successful jockeys. Hear, again, Tacitus on the gilded youth of his day:—

To say truth, it seems as if a fondness for horses, actors, and gladiators—the peculiar and distinguishing folly of this our city—were impressed upon them even in the womb; and when once a passion of this contemptible sort has seized and engaged the mind what opening is there left for the noble arts? Who talk of anything else in their homes? If we enter the schools, what other subjects of conversation do we hear among the boys?

"Heroes of the Nations."—*Henry V.* By Charles Lethbridge Kingsford, M.A. (G. P. Putnam's Sons.)

"The most Christian champion of the Church, the beam of prudence and example of righteousness, the invincible King, the flower and glory of all knighthood, Henry the Fifth," was not only a monarch so fortunate, so capable, so popular, that, under him, according to Bishop Stubbs, even "Parliament forgot to grumble," but the typical mediæval hero whose extraordinary achievements were equalled by his sincerity and grandeur of character.

It is true that to most Englishmen the military genius of Henry has eclipsed his other qualities. We are apt to think of him only as the victor at Agincourt, the Regent of France. The ballad of Drayton, the play of Shakespeare, are the sources of the popular conception of the warrior king. But Shakespeare's "little touch of Harry in the night" really reveals far other qualities in his hero than mere military skill and prudence. It shows him as great in counsel as in war, able not only to conquer, but to rule; far-seeing, laborious, just, self-restrained, a man of ideals, and with a strong sense of duty. The elaborate historical studies on which Mr. Kingsford's interesting monograph is founded bear out this view; and, if he may seem, as is the way of biographers, unduly to exalt the virtues of his hero, it is beyond question that he has more justification than is frequently the case. There is, however, one point in which we can hardly agree with him—that Henry's nature was merciful. To us Henry's severity appears inflexible. It was an act of mercy to take the fire from the half-roasted martyr Badby when there appeared to be signs of his recanting; it may have been a religious duty to have the fire relighted when there was no recantation; but it was not the religion of mercy. It may have been a military necessity to massacre the prisoners at Agincourt; but what are we to say to the horrible story of the twelve thousand old men, women, and children, expelled from the besieged city of Rouen, whom Henry kept between his lines and the city walls, to die slowly of starvation? That he gave them a dinner on Christmas Day is a somewhat ineffectual proof of his mercy.

A noteworthy element in this book is the treatment of Henry as a constitutional sovereign. "In its outward form, the Revolution of 1399 resembled closely that of 1688. Both owed their success to the existence of a genuine national feeling; both were actually the work of an oligarchical party." The reign of Henry V. was, perhaps, the period of the most constitutional government before 1688. That it was premature was not his fault. He knew how to meet his Parliament half way; under him the estates obtained the first constitutional boon, the statutes were to be made without altering the words of the petitions on which they were based. But Henry knew how to control his Parliaments; witness the enormous grants they were always ready to make him. The importance and success of his foreign policy is also well brought out. Henry was his own Foreign Minister; in fact, his capacity for work, his mastery of details,

was fully as remarkable in civil life as it was in military. Nor was his determination to establish a good and equitable government confined to England. His wise and liberal domestic policy—if it may so be called—in France throws a new light on his aggressive wars.

An interesting part of the book deals with the legends of Prince Henry's early life. The facts of history show that all the time Prince Hal was said to have been amusing himself by beating the watch and robbing travellers he was fully occupied in fighting the Welsh, and that he had hardly reached manhood before he was called to preside over the affairs of the nation. It may comfort some to be told that, though "the evidence of facts is overwhelming, on the other hand the weight of tradition is too great to be lightly put aside." There is no evidence of his ever having been addicted to vicious courses. But Mr. Kingsford pleasantly suggests that "high-spirited and full of vigour, his enjoyment of life was complete."

With regard to the sudden change of life on assuming the crown, to which many traditions point, the author very pertinently points out that it may mean nothing more than that his sometime friendship for the unpopular Lollard leader Oldcastle came to an end:—

The historians who charge Henry with wildness as Prince find his peculiar merit as King in the maintaining of Holy Church and destroying of heretics. . . . It is probable that his religious attitude after his accession to the throne was a blow to Lollard hopes; perhaps it was somewhat of a surprise to his political opponents. Did his "change suddenly into a new man" mean no more than this?

(1) "Cambridge Natural Science Manuals."—*Zoology: an Elementary Text-Book.* By A. E. Shipley, M.A., and E. W. MacBride, M.A., D.Sc. (Cambridge University Press.) (2) *A Text-Book of Zoology.* By G. P. Mudge, A.R.C.Sc. (Arnold.)

(1) Unlike most of the other manuals in this well known series, the present one cannot be said to strike out a new line. The purpose it serves is already served by several other recent works, from which it differs only in those details of arrangement, selection of illustrative material, and the like which depend on the personalities of the authors. The purpose of the book is to give a progressive account of the adult anatomy, habits of life, and classification of all the main classes of the animal kingdom—progressive in the sense that it is not planned as a book of reference, but as one in which the reader of later chapters is assumed to have read the earlier ones. The disadvantage of such a work is that it must begin with an introduction dealing with a number of important abstractions before the concrete facts on which they are based have been laid before the student in their normal context. When will some zoologist have the courage to break with traditions, and write a text-book in two parts—an elementary one dealing with the concrete study of a few selected species, with such generalizations as may safely be drawn from them; and an advanced part, dealing systematically with the whole animal kingdom, but in definite sequence to the first part?

The treatment of those parts of the book that we have sampled is clear and well arranged; the diagrams are good and plentiful. One innovation in arrangement is a distinctly good feature—the relegation to the end of the work of the miscellaneous small groups of "worms," which in most books stand as a Slough of Despond on the path leading to the more important great phyla. Embryology, histology, and palæontology are very rarely touched upon—only where essential to the understanding of some feature of adult anatomy. We think the classification of Cephalopoda and Vertebrata would have been improved by the inclusion of extinct forms.

Since a reviewer is allowed the privileges of the unmuzzled ox treading out the corn, we wish to take objection to two statements in the book, both of which are matters of opinion and do not affect the value of the work. The first (page 12) is that the Protozoa are "slightly modified survivors of the first animals which appeared on the globe." Perhaps we have misunderstood the phrase, but it strikes us as overlooking the immense possibilities of degeneration at which the combination of very simple structural characters with the possession of a perfectly well defined nucleus seems to hint. The second (page 475) is the objection to Huxley's union of birds with reptiles as one class—Sauropsida, in contrast with Mammalia. We think the authors overlook the fact that the Mammalia branched off at the very bottom of the reptilian trunk when it was scarcely, if at all, above the amphibian level, while birds had a long ancestry admitted as reptilian before they became birds. If birds are to go in a separate class from lizards

and crocodiles, at least the reptilian ancestors and first cousins of birds should go into the former class, and not the latter; but no classifier has proposed to do that yet. Or else, to be consistent, the lowest grades now included among Mammalia should be relegated to the reptiles.

(2) This is an elementary text-book based on the "type-system," but in which the original idea of that method of teaching is very greatly altered, whether for better or worse may perhaps be disputed. That original idea found its first expression in the now almost forgotten "Huxley and Martin," which consisted of a series of simple monographs of selected species, as a foundation on which, by comparison and generalization, the building-up of the knowledge of biology might proceed. In the work before us we first find an introductory chapter which deals, not with any one species, but with such broad subjects as the physical changes which may have led to the evolution of the horse from *Eohippus*, and much more, among which such words as *thigmotaxis*, *homoplasia*, and *bioplasts* catch our eye in clarendon type. When we proceed to the description of the vertebrate "types," we find, instead of a connected account of each animal, a description of the skeletons of dogfish, frog, and rabbit compared with one another; then in turn follow the vascular systems of the same three, their nervous systems, &c. There are possible advantages in this method of treatment, but it appears to us to tend too much to make the student think he is only studying morphological abstractions instead of animals that live a life in the world. The same method is followed with the Invertebrata chosen. Finally the book ends with some chapters on embryology, and the problems of heredity, variation, &c.

Apart from our objection to the general plan, we have little fault to find with the book. The diagrams are effective, and the descriptions clear. The author is to be congratulated on not tying himself down to any syllabus that we are acquainted with; for, though the Intermediate Science Examination of London University seems to be in his view, he includes several animals unknown to that syllabus. He also allows himself plenty of space for the discussion of broad questions like heredity. A few verbal inelegancies must be noticed, such as "intersusception" for "intussusception," and the irritating use of "area" as the plural of the thoroughly naturalized word "area." And we wish that the author had taken geological advice before propounding to elementary students his theory of the causes of the evolution of the horse, which is that the reduction of toes just kept pace with the change of the surface of North America from swampy ground to dry prairie. What, we wonder, does he think would have happened to the horse tribe if the swamps had been drained in much less time than the length of one or two geological periods? And what is his evidence that they were not?

*The Point of Contact in Teaching.* By Patterson du Bois. (American School and College Text-Book Agency.)

This little book contains much good sense—to the address, mainly, of Sunday-school teachers, but of interest also *urbi et orbi*. For the latter, small as the book is, it might have been still smaller without any great loss of effectiveness; and it cannot be commended for cheapness. It has, however, had a considerable sale, we are told, in America, amongst all sorts of teachers, "secular" and other, and, no doubt, they have profited by it. For the point of contact is Mr. Du Bois's presentment of what the Herbartians call interest; and, under this name, the author illustrates very agreeably, if with some prolixity, the principle of connectedness, the profitableness of proceeding from the known to the unknown, the need of fitting new ideas to the old stock in the pupil's mind, and so forth. It may be commended to the notice of two different sets of dealers in education—first of all to those who mistake minuteness and particularity for precision and connectedness, the victims of a most unsound psychology, who do not realize that the young require *wholes*—large units—so that the wood may not be obscured by the trees, who would impose on children the wearisome, and often exceedingly abstract, procedure of the "scientific" investigator, with his balances, his measurements and minute pursuit of detail, *and his previous logical knowledge*; and, next, to those who present to children the last results at which they themselves have arrived as the first for children to apprehend—rules before processes, "concepts" before "percepts," and the rest.

Mr. Du Bois does not seem to recognize the importance of the obsession of emotional ideas in education; but this is a common fault with the "scientific" writers on that very unpositive sub-

ject. The austere preachers of positive processes as the only valid types of education have done, and are doing, much harm; and readers of such tractates as this should remember that there is a large field of education to be worked by example, injunction, iteration, if only to supply the aesthetic and emotional matter to which the action of reason is logically and actually posterior.

*Better Food for Boys.* By Eustace H. Miles, M.A. (Bell & Sons.)

It ought to be more generally known and acknowledged that too much flesh meat is eaten at our tables, that a diet for school or home is often improperly chosen, that the cooking and preparing of food frequently leave much to be desired, and that the English—as a nation—have to be credited with excessive waste in respect of food. We ought, therefore, gratefully to acknowledge the efforts of any writer who treats of such important subjects as these. The book before us is hardly the work of an expert in dietetics. Indeed, the author acknowledges his obligations to the works of Dr. Robert Hutchinson and others. His style, too, is somewhat confused, and the language slipshod: e.g., on page 14 we have "the power of these two allies of health are not unlimited." In fact, the book seems to have been composed in a hurry, and, perhaps, dictated to an amanuensis. In spite of all this, the testimony of the author is valuable as that of an athlete as well as a brain worker. He insists strongly upon the necessity for studying the laws of dietetics for the individual, and earnestly puts forward the desirability of substituting for flesh fleshless foods, such as milk, fruit and grain, and their respective products, vegetables and salads.

But there is a more serious side to the work. In the preface the object is stated to be that of drawing the attention of parents and schoolmasters to the following question:—Are we wise or right in subjecting our boys to a heating and stimulating diet, at the most impressionable time of life, when not merely physical, but also intellectual and moral, habits are being formed? It is alleged that to preach to the mind of the boy that the body must be kept in temperance, soberness, and chastity while that body is being regularly goaded to rebel against such restraint can hardly have any other result than that with which some of us are familiar. That an evil of this kind exists is but too certain; and, if a beneficial change could be wrought by paying greater attention to dietary, that, of itself, should furnish a cogent reason why this matter should receive close attention.

Few of us, perhaps, would be prepared to follow the author in his complete practice, but most persons who have investigated the ground-work of the moral and physical well-being of children—girls as well as boys—would be disposed to allow that flesh food should be used more sparingly than custom warrants, and that greater reliance should be placed upon foods of less actively stimulating properties.

*College Chemistry.* By Ira Remsen. (Macmillan.)

The preface states that this book has been written with the object of filling a place intermediate between the author's "An Introduction to the Study of Chemistry" and his "Inorganic Chemistry." It is further said that the time has not yet come for the abandonment of the study of the elements and compounds in what some are pleased to call the old-fashioned way. It is not surprising, therefore, to find that the method of treatment presents no new features, and is of a highly conventional type. The earlier chapters are devoted to theoretical considerations and a somewhat detailed study of the non-metallic elements, and the later chapters deal more briefly with the metals and the first principles of organic chemistry. Each chapter has a set of experiments appended. The apparatus suggested for performing them is, in some cases, quite impracticable, as may be seen from the drawing on page 80, which illustrates the collection, under impossible conditions, of a considerable quantity of water from burning hydrogen. The instructions given for making many of the experiments clearly indicate that the author has no conception of the manner in which they should be carried out. On page 74, for example, it is stated that hydrogen, mixed with about half its volume of oxygen, may be exploded noiselessly in a eudiometer, and with little or no danger. Apart from the question of personal safety, the author ignores the great possibility, when the gases are exploded in the proportions indicated, of the rupture of an instrument which may have taken many hours to calibrate. Again, if the directions for the preparation of perchloric acid, given on page 152, were followed,

a serious mishap might occur, for no mention of the necessity of separating any unchanged chlorate before distillation with sulphuric acid is made. The experiment for the preparation of phosphoric acid, in which the student is told to boil in a reflux apparatus 10 to 15 grams of ordinary phosphorus with commercial nitric acid, if carried out in accordance with the instructions, could not fail to lead to a violent and dangerous explosion.

Many expressions in the book are wanting in accuracy, for example, combining weight and atomic weight are confused. In the earlier part of the book the terms are regarded as synonymous, whilst later on the equivalent significance of the former is brought out. Taken as a whole, the book compares unfavourably with the author's earlier publications, and is not likely to add to his reputation as chemist or writer.

"Normal Tutorial Series."—*A Text-Book of Political Economy.*

By E. C. Robinson, M.A., LL.B. Lond.

This small book of some two hundred pages successfully achieves in its own department what appears to be the aim of the series; it is not an elementary introduction to economics, but contains a large amount of valuable information on its special topic compressed into the narrowest limits. It is concise, clear, and methodical, and leaves untouched very few of the subjects which are more exhaustively handled in ordinary treatises on economics; but the result is that many points are treated with exceeding brevity. The writer is well informed, and gives frequent quotations from authors whose names are regarded as authoritative. As a condensed summary of economic doctrine and the chief arguments involved in economic issues it is a good piece of work, well arranged and well carried out.

The defects of the book arise from its conditions; it keeps the examination standpoint always in view, and thus suggests rather a concise compendium or abstract than a treatise or a text-book. It will not displace the larger manuals: as a matter of fact, economics is too vast and comprehensive a subject to be condensed into very small compass. Full and detailed discussions and illustrations are essential if the foundations of economic truths are to be thoroughly grasped; there is no short cut to general knowledge in this complex branch of social science, and only patient study will make an economist, but the busy man who has not time for fuller investigation will find this a useful book of reference; also to the school teacher who has made himself familiar with economic doctrine it will supply a valuable handbook for his class lessons; and the examination student will find it a useful refresher, but he will be well advised not to substitute what is practically a valuable guide or abstract for a thorough and detailed study of the full arguments and history of the subject.

GENERAL NOTICES.

CLASSICS.

Κλίμαξ πρώτη. A First Greek Reader. By E. C. Marchant. (Bell & Sons.)

The first part of this little book consists of some twenty pages of simple stories and conversations, mostly in sentences of a single line, including, for example, a dialogue between Hermes and Charon, the story of Arion, and some simple adaptations from Xenophon. The second part is a version in Attic Greek of some of the adventures of Ulysses, adapted from the "Odyssey," a proceeding for which the writer quotes the authority of Lucian. They take the hero as far as Ithaca. Perhaps his adventures there are reserved for a Second Reader. It is a happy idea to introduce boys thus early to Greek legend. The reading of Xenophon, like the reading of Cæsar, does nothing to stimulate the imagination. Perhaps it would be worth while to try a similar plan with the "Metamorphoses" of Ovid, once a favourite subject for school reading. There is a vocabulary with a few notes, but intentionally very few. Is it wise, by the way, looking to the future, to say "μέν is generally to be omitted in translation"? Mr. Marchant would be horrified if the converse proposition were suggested in hints on writing Greek iambs. The illustrations are well selected from the antique, with the addition of a few of Flaxman's studies, and the book is a most valuable addition to our resources for the elementary teaching of Greek.

Homer, *Iliad IX. and X.* Edited by J. C. Lawson. (Cambridge University Press.)

The introduction and notes are well stocked with the usual matter, including constant references to Mr. Mouro's "Homeric Grammar," to

Prof. Jebb, and to Dr. Leaf. But, at the same time, there is a certain independence about the notes that redeems the volume from being superfluous. Mr. Lawson makes several suggestions that are certainly worth consideration, and some of the remarks that a reviewer looks for in school editions of Homer are conspicuous by their absence. Thus Mr. Lawson passes over the favourite interpretation of the epithet γλαυκῶπις, "with flashing eyes," and declares for "owl-faced." He also refers often to Prof. Ridgeway's "Early Age of Greece," to which various epithets are applied by those who think they know. Some of the notes merely repeat what is very accessible elsewhere, particularly those on the development of grammatical constructions. We agree with Mr. Lawson that ἔβρα nowhere, even in the "Odyssey," means anything but "price of the bride," and, in "Odyssey," l., line 277, we would render ἐπὶ παδός "in quest of a daughter."

*The Odyssey of Homer, Book I.* Edited by Rev. E. C. E. Owen. (Blackie.)

A bright, serviceable, and scholarly edition, which will be welcome to sixth-form boys. The well executed illustrations enhance the value of the book. We think that here and there a difficulty is not commented on with sufficient fulness. For example, the meaning of the aorist participle in line 24, as compared with the present, is not easy to see; and the reason of the change from dative to nominative case in lines 50 and 51 seems to call for remark. Mr. Owen does not devote any space to philological points, and he takes no account of the effect of pronunciation on the Homeric prosody. Nevertheless, his edition is well laid out and should prove stimulating.

*Scenes from Sophocles: Antigone.* By C. E. Laurence. (Clarendon Press.)

We have not had any opportunity of putting Mr. Lawrence's interesting experiment to a practical test, and can only repeat what we said recently of his "Ajax"—that he seems to us to have done all that can be done to simplify Sophocles and to bring him within the range of middle forms. But we must confess to misgivings, and, despite what the editor says in justification of his venture, we should prefer to stick to Euripides.

*The Æneid of Virgil, Book I.* Edited by H. B. Cotterill. (Blackie.)

This volume of Blackie's "Illustrated Classics" contains a great quantity of information collected by an editor who is evidently an enthusiast; and, though we have an irrepressible misgiving that for schoolboys—we do not include schoolgirls—Mr. Cotterill overdoes it, yet we very gladly acknowledge not only his ability, but also that he possesses in a marked degree the admirable curiosity that impels a true scholar to insist on getting to the bottom of things. As one among many good results of this quality we may mention a most useful appendix on the risings and settings of stars, from which much is to be learned that will help classical students—and even editors of the classics. We cannot understand what a vocabulary is doing in such a book. Surely Mr. Cotterill, who was formerly a master at Haileybury, knows that his commentary and appendices are far above the range of those who use vocabularies.

*Cæsar, De Bello Gallico, Book I.* Edited by E. S. Shuckburgh. (Cambridge University Press.)

Mr. Shuckburgh has provided a good elementary edition. He keeps to the beaten track of grammatical comment, translation, and a sort of stage directions; but the introduction, with its woodcuts, shows an approximation to a newer order of things. There is a vocabulary, and the text is printed in a bold type. On the whole, a very practical edition.

*Ovid, Metamorphoses, Book VIII.* Edited by W. C. Summers. (Cambridge University Press.)

Mr. Summers's edition deserves high praise, and we can say without hesitation that a better guide could not be desired. The editor combines good scholarship with the sound common sense of a practical teacher; and, while he knows all about the subject, nevertheless, like Longfellow's maiden fair, he "knows how much it is best to show." His notes are embellished by contributions from Dr. J. S. Reid and Dr. A. S. Wilkins. The introduction is an excellent piece of work, and, though quite short, it contains many suggestive remarks. Specially good sections are those on the "Metamorphoses" as a poem, and on the diction of Latin poetry. It seems to us that Mr. Summers would do well to employ his leisure, if he has any, in continuing his studies in the Latin poets. Whatever he writes on the subject seems to show the man capable of a *magnum opus*.

*Phædrus, Books I. and II.* Edited by J. H. Flather. (Cambridge University Press.)

Because it is on a small scale, and is carefully prepared to meet the needs of beginners, this edition of "Phædrus" deserves mention. Mr. Flather confines himself to simple comment, and does not give parallel passages. No reference is made to the characteristic features of Phædrus's Latinity; but the brief introduction contains paragraphs on Phædrus, Æsop, and metre. The book should fulfil its humble purpose successfully.

## SCIENCE.

*Guide to the Examinations in Physiology, and Answers to Questions, Elementary Stage (1894-1902).* (Blackie.)

This is a new issue of one of the well known "Guides to the Science Examinations of the Education Department" issued by Blackie & Son. The summary of regulations and hints to candidates are clear and useful; but brief model answers of this kind are liable to great abuse, for they are often committed to memory, with the worst possible results. It may also be added that some of these particular answers are far from being good models. For example, on page 24, Question 4, the only use assigned to the thin walls of capillaries is to provide for the easy passage of the nutrient material to the tissues"; and, on page 49, Question 5, the action of the diaphragm is described in an imperfect and mi-leading way.

*An Introduction to Chemistry and Physics.* By W. H. Perkin, Jun., Ph.D., F.R.S., and Bevan Lean, D.Sc., B.A. Second Edition. Two vols. (Macmillan.)

These little books will be welcomed by the science teacher who recognizes that the learning of how knowledge is gained is more important to his pupils than the acquiring of actual facts. The lines followed are almost identical with those recommended in the syllabus of a course of instruction in elementary science, including physics and chemistry, issued by the Incorporated Association of Head Masters. The books are written with great care, and the illustrations are good; so that any intelligent teacher will have no difficulty in carrying out the experiments and obtaining satisfactory results.

*Practical Chemistry.* By R. Abegg and W. Herz. Translated by H. T. Calvert. (Macmillan.)

An attempt to apply the ionization theory to qualitative analysis. The book is practical in little else but name.

*Graduated Exercises in Elementary Practical Physics.* By C. J. Leaper. (Biggs & Co.)

This book describes a series of experiments in practical physics, intermediate in difficulty between those of which an account is given in the primers used in some boys' and girls' schools and those described in the manuals employed in colleges of University rank. The theory of most of the experiments is given in detail, which makes the book particularly suitable to those students who have had very little mathematical training.

*Practical Exercises in Magnetism and Electricity.* Being a Laboratory Course for Schools of Science. By H. E. Hadley, B.Sc. (Macmillan.)

The first ninety pages of this useful little book are devoted to magnetism, the remaining one hundred and twenty to electricity. Though all are good, the former are the better. The latter contain a few theoretical explanations of which but few applications are given. The principle of Wheatstone's Bridge, for instance, may be applied in a very large variety of measurements and in many forms of experiment that are both useful and interesting, and not too complicated for a school laboratory. Many such uses of the principle have been devised by Prof. G. Carey Foster.

*Snaith and Field's Elementary Botany.* (Thomas Laurie.)

In the preface the authors of this little book take as their ideal "a dry text-book," to be learnt by heart; and those who think with them will, no doubt, find the present volume eminently satisfactory. Unfortunately, however, the pupils who commit the book to memory will store up in their minds a number of mistakes, imperfect definitions, and antiquated ideas, of which examples may be mentioned. On page 7 vegetable physiology is regarded as distinct from botany, the latter being incorrectly defined. Cells (on page 10) are inadequately described, and the *nucleus* is not even mentioned. It is hardly correct to say that leaves (page 34) convert the food into "secretions, by which the plant is nourished, &c." Even the beginner ought to know better than that the cells of the cambium layer "are produced from a viscid substance, called *cambium*, having almost the same composition as gum" (page 36). The embryo sac is badly maltreated on page 56. The ancient and misleading terms "exogens" and "endogens" are retained on pages 60 and 61. In conclusion, it may be stated that the cuts are far from good, and some of them are printed from ancient worn blocks.

*Browne's Elements of Botany.* Fifth Edition, rewritten and greatly enlarged. (John Heywood.)

This text-book has been carefully written, and is reasonably good so far as flowering plants are concerned. The account of chlorophyll requires amendment, and so does the summary of facts regarding respiration. Only a very meagre sketch is given of such things as dispersal of seeds and fruits, cross-pollination, and other biological topics which constitute the most interesting part of the subject. And, after reading in the preface that the author means to keep in view the leading results of investigations on the relation of phanerogams to cryptogams, it is disappointing to find that the latter receive scant justice, while there is no attempt to explain the flower by reference to the reproductive arrangements of lower types.

## MATHEMATICS.

*An Elementary Treatise on the Calculus.* By George A. Gibson, M.A., F.R.S.E. (Macmillan.)

Mr. Gibson's work forms an important addition to the text-books which have been written on the subject. The author throughout has kept before him the needs of students of applied science, who require the calculus chiefly for the sake of the valuable assistance afforded to them by a knowledge of its leading principles. He criticizes, however, the fallacy of supposing that an entirely superficial acquaintance with the subject is sufficient for the purpose. Due regard for these points has been paramount in determining the scope of the work and the mode of treatment. The book deals both with the differential and the integral calculus, and also gives a slight sketch of the standard methods of solving ordinary differential equations. A feature of the work is the introduction of useful and interesting chapters on various subjects, in order that these may be used later to show how the processes of the calculus can be applied to them. Another characteristic is the reversion to the custom of earlier writers, who drew their illustrations largely from natural philosophy as well as from branches of pure mathematics. Stress is constantly laid on the value of graphical representation, and the use made of it in the course of the work fully bears out the theory of its importance. Owing to the wide range that the text seeks to cover, many theorems that the author was anxious not to omit entirely, but for which he was unable to find space in the body of the work, have been included as exercises.

*Algebraical Examples, with Answers.* By H. S. Hall, M.A. (Macmillan.)

This is a small volume, published with a two-fold object. It is intended, in the first place, to furnish additional exercises for students using Hall and Knight's "Algebra for Beginners," or the "Elementary Algebra" by the same authors, though it must be noted that the present work corresponds only to a discussion of the subject as far as and including quadratic equations. In the second place, the volume has been compiled in order to meet an existing demand for a collection of graduated algebraical exercises not connected with text. Course of time has proved that, for questions of certain types, a further representation than that given in the above-named text-books would be desirable. To such portions of his subject the author has taken this opportunity of devoting some special attention. To aid the task of revision, several sets of test papers have been introduced at intervals. The name of the author should be, in itself, the best of recommendations for any work on algebra due to his pen.

*Algebra.* Part I. By H. W. Willis, M.A. (Rivingtons.)

This is a book of examples collected into graduated exercises suited for a lesson of about an hour. The chief difficulty in the use of such exercises lies in the difference in the rate of working of members of a class. Some will finish the exercise while others are not half through it. What is to be done then? Are the laggards to be left behind, or are we to delay the foremost to bring up the rear? Experience suggests a compromise. In the last ten minutes of the time allotted to a paper the whole class may be brought to discuss the last part of the work of its best members, and by the process the lame dogs may be helped over the stile. With judicious supplements of this kind the collection will be useful.

## MODERN LANGUAGES.

*German Lyrics and Ballads.* Selected by J. T. Hatfield. (Isbister.)

The late Prof. Ruggles, of Dartmouth College, in the United States, had collected materials for an anthology, and his work has been completed by Prof. Hatfield. It contains a good many old favourites, and some extracts from the most recent poets—as Ferdinand Meyer, Fontane, and Liliencron. The introduction is thoughtful and interesting, but is, perhaps, pitched a little too high for the young students for whom it is intended. It is a very difficult task to present literary history and criticism in an elementary form. The notes give careful indications of the sources and associations of the different poems. They are hardly suggestive enough in the way either of scholarly interpretation or poetical rendering.

"Blackie's Little French Classics."—(1) *Rabelais, Gargantua and Pantagruel.* Edited by E. C. Goldberg, M.A. (2) *Mérimée, Mateo Falcone.* Edited by J. E. Michell, M.A. (Blackie.)

This admirable little series of cheap classics is growing rapidly, and the general editor is to be congratulated on his excellent choice of authors and editors. (1) It was a happy thought to include some selections from Rabelais; it is, we believe, the first time that any part of the writings of the great French humourist has been made accessible to the pupils of our schools. The notes and glossary are helpful; some explanation of the peculiar spelling might have been added with advantage. A skilful teacher will be able to make the most varied use of this little volume. (2) The other book contains the complete story of "Mateo Falcone," one of the cleverest that Mérimée ever wrote, and some extracts from "La Vénus d'Ille," which he considered his masterpiece. The notes are quite satisfactory.

*A. von Kotzebue, Der gerade Weg der beste.* Edited by J. H. D. Matthews, M.A. (Blackie.)

This is a bright little play, which will be read with interest. Its



literary value is not great, but there is plenty of action, and the moral is unexceptionable. More care should have been taken over the spelling; *nichts* is no longer written with a capital, *Witue* has only one *t*, and *bisschen* is preferred to *bischen*. The notes are very brief, but will probably be found sufficient. There are some "short exercises" for retranslation, and also subjects for short pieces of composition.

*French Conversational Sentences.* By G. E. Avery. (Blackie.)

This useful little book contains a large number of words and phrases, with the English renderings in parallel columns. They are taken from everyday conversation, and are classified under such headings as numbers, the time, the weather, parts of the body, examples of interrogation, &c. Those who teach according to the translation method will find the book very useful for purposes of revision; while teachers on reform lines will be able to utilize the lists for class-work, though they may not like to put the book into the hands of their pupils.

"Black's French Series."—General Editor, Mr. F. B. Kirkman.

(1) *Histoire de Bayard.* Abrégée et modernisée par W G Hartog. (2) *Dumas, Les Aventures de Chicot.* Annotées par A. R. Florian, M.A. (Black.)

We can warmly recommend this series to our readers; and the publishers are to be congratulated on having secured in Mr. Kirkman a most able general editor. He is responsible for the excellent head-notes and footnotes which elucidate the text, as well as for the selection of suitable pictures, which in the volume before us are particularly good. The idea of issuing the books with or without the English notes and French-English vocabulary is a welcome concession to teachers who are anxious to exclude the mother tongue from French lessons as far as possible.

(1) The story of "Bayard" makes capital reading, and will appeal specially to boys. In the second edition, which we believe will soon be called for, it will be necessary to correct a certain number of misprints, and to overhaul the vocabulary.

(2) The "Aventures de Chicot" is taken from Dumas's novel "Quarante-Cinq," and is full of thrilling incidents. An appendix contains a contemporary account of the taking of Cahors, which is welcome; and a list of the principal parts of the irregular verbs, which seems out of place in a book which, though presenting no great difficulties, is yet too hard for elementary classes. The vocabulary is better than in the book just noticed, but we have observed several omissions here also.

*Deutsche Sagen.* By Franciska Geibler. (Longmans.)

Another German reading-book from across the Atlantic, with a wordy introduction, in which we are told, for instance, that "memory finds its best chance in moments of imaginative activity," and that the teacher, "in seeking for simplicity of structure suitable to the linguistic weakness of his pupils, is driven back to the use of trivial books of an inane simplicity of sentiment and diction quite unsuited to the better tastes of adolescent Americans." This kind of verbiage is getting distressingly common in American text-books. The idea of telling a number of German legends in a short and interesting form was a happy one, and has been executed with some skill. At times the condensation has been carried too far; the tale of "Roland" occupies seven lines! The style is not always good; there is an excessive use of *derselbe*, a sure sign of *der papierne Stil*. Sometimes the wording is distinctly funny, as when we read that Venus lives in the Venusburg: "mit vielen schönen, leichtsinnigen Frauen," and that "Tannhäuser führte in ihrer Mitte ein fröhliches doch unmoralisches Leben." The text is not free from misprints; most strange it is to find three times the form *grösste* for the superlative of *gross*. Is this taught in American schools? There are no notes, a good deal being left to the teacher. The vocabulary is fairly complete, but we miss the principal parts of verbs and the plural of substantives.

*H. von Sybel, Prinz Eugen von Savoiën.* Edited by E. C. Quiggin, M.A., Ph.D. (Cambridge University Press.)

There is no doubt that this must be regarded as the standard edition of Sybel's famous account of Prinz Eugen. Mr. Quiggin has done his work with very great care. A capital historical introduction, a map illustrating the campaign against the Turks, and copious notes give every help for following the hero's eventful career; and difficulties of language are fully and clearly explained. The book is very well and correctly printed, and forms a welcome addition to the "Pitt Press Series."

#### HISTORY.

*First Makers of England.* By Lady Magnus. (John Murray.)

A new volume in "The Home and School Library Series." The term "maker" is used in a wide sense; it is the making of our "welfare," of our "national character," rather than of our institutions and material well-being, that Lady Magnus has in view. Her three types are Julius Cæsar, King Arthur, and Alfred the Great. Her account of the early life of Cæsar and the influences that tended to form his character is interesting; but it is a little difficult to believe that his main object in attacking Britain was to introduce "the arts of peace," or to see how he gave our brave barbarian ancestors "their very first glimpse into the Beyond." Roman law has, as she rightly says, had

great influence on English law; but this did not come through the Roman occupation, but through the great jurists of a much later period. But she is fully entitled to say that "the ideal of honour which the 'Round Table' typified" is "as much a part of English history as all the accurately dated events which have occurred since the Norman Conquest." From this point of view she tells the old tales of Arthur and his knights—acknowledging, of course, that they "are not quite history, and there is no dull exactness of dates about them." In her hands the old legends lose nothing of their beauty or force or power of inspiration. With Alfred we come to more definite history. But, though we are told a few dates, we can truly say this is the only "dull exactness" in the story. It is told in a manner that cannot fail to interest both the children for whom it is primarily intended and children of a larger growth. The moral teaching which forms the basis of the work, though not obtruded, is beyond praise. A book of heroes, it is well adapted to light one to foster the heroic fire.

"The Picture Shakespeare."—Henry V. (Blackie.)

The title "The Picture Shakespeare" is hardly justified by the merit of the pictures. The portrait of Henry V. is well known, but the pictures of him in this book are in no degree like the known portrait. The notes are said to have been revised by some well known teachers. On the first page we find: "This wooden O refers to the Globe Theatres, which were built of wood and were circular within." How many Globe Theatres do the editors suppose there were?

*A First History of England.* Part II., 1066-1272. By C. L. Thomson. (Marshall & Son.)

The writer's opinion is that children from nine to twelve years of age should be taught history orally in the form of stories, and that then a book should be given them for revision. The plan may be good, but we cannot help suspecting that the author's oral method was simpler than her written method. Her stories are good, but are somewhat too crowded with detail. In other respects the book has the faults of most books of its type; the geographical basis of history is not brought out. The wars of William I. with Hereward and with the Danes did not, like the wars of the angels, take place in Chaos, but in the Fen country. But, though the term *Fenland* is repeatedly used, and though we are told that it was not then drained, there is nothing in the text, or even on the accompanying map, to show the child that it was situated in this country. That "Aldred of York was now dead, and was succeeded by Thomas of Bayeux," is a fact for which no child of twelve ought to be asked to grieve. Children, unlike Macbeth, love to sup full with horrors; but the story of the head of Watheof continuing to recite the Lord's Prayer after execution seems too gruesome even for young children. The best part of the book is its pictures.

(1) *Problems and Exercises in English History.* Book G, 1688-1832

(2) *Certificate Note-Book of European History, 1814-1848.* By J. S. Lindsey. (Cambridge: Heffer & Sons.)

An elaborate apparatus for helping examiners in history to prepare for any attack or "surprise" on the part of the examiner. The author has apparently been at the pains to tabulate the "Persons, Places, and Terms" asked in recent examinations, and gives a selection of questions with specimen answers. In the hands of a good teacher or careful student the book might prove a valuable auxiliary. A most valuable feature is an exhaustive list of books, pamphlets, scattered articles, poems, and even novels, bearing on each period.

*Aids to the Study of English History.* Issued by the Principal of Clark's Civil Service. (Civil Service Book Depot.)

This book is designed for the purpose of enabling students to "more easily grasp and treat of the difficulties of examination papers." The title should have rather been "Aids to the Passing of History Examinations." In its own line it is clever, and the writer well understands how to economize work and assist the memory. It will enable many a candidate to pass, and some perhaps who ought to fail.

*A Little History of the Midlands.* (Nelson.)

The history and geography of seven counties, with illustrations and poetical extracts, are here treated in some 150 pages. Not much, in any direction, can be expected, but the little book may prove useful as a change from the ordinary geography, and give at least a fresh point of view.

*A Brief Sketch of French History, 1789-1815.* By Léony Guilgault. (Blackie.)

The period dealt with in this small text-book is the whole revolutionary period. The book is well written, and will be found a reliable guide, intermediate as regards size between the voluminous histories of Thiers, Louis Blanc, and others and the historical outlines so much used in cramming.

#### MISCELLANEOUS.

"Rambles after Flowers."—(1) *Across the Common.* (2) *Through the Copse.* (3) *Around a Cornfield.* (4) *A Stroll on a Marsh.* (5) *Down the Lane and Back.* By M. C. Cooke, M.A., LL.D. (Nelson & Sons.)

These five little books are intended to lead children to take note of the wild flowers they meet with in their rambles. The form used is that of a dialogue between teacher and pupil, the language on both sides

being simple and natural, without condescension on the one hand or pertness or priggishness on the other. The popular names of the flowers only are given in the text, their botanical names being relegated to footnotes. The print is large and clear, the illustrations sufficient for the comprehension of all necessary details; a coloured frontispiece serves as an epitome of the contents of each separate booklet, and there is an index at the end of each. The binding is pliable, and the size suited to the pocket. We can thoroughly recommend the series as one of the best introductions to the study of Nature that we have met with.

*The Gospel according to St Mark.* Edited by A. E. Rubie, M.A. (Methuen)

We cannot recommend this book too highly for the use of junior students. There is an excellent introduction, containing all that can be known concerning the origin and purpose of the Gospel, and divers interesting particulars connected with the land of Palestine and its people at that time. The text is according to the Authorized Version, while the notes at the bottom of each page contain the revised variations, together with such explanations of the text as are needful, and there are valuable appendices. The editor has gathered his material from the best sources, notably from Edersheim's "Life and Times of Jesus."

*The Old Testament Narrative for Schools.* By Marcus Dodds, M.A. (Nelson.)

It is somewhat difficult to understand what purpose this book is designed to fulfil; but, as it contains a prefatory recommendation by a head master of so wide an experience as Bishop Welldon, we are bound to suppose that its usefulness is thus guaranteed. It is simply the historical portions of the Old Testament arranged chronologically in the *ipsissima verba* of the sacred writers, according to the Authorized Version, and without note or comment. The narrative is broken up into paragraphs, with appropriate headings. The feature likely to commend it for the use of young students is that the history is "Bowdlerized"; all genealogies and undesirable passages, as well as repetitions, being omitted.

*"Stops"; or How to Punctuate.* By Paul Allardyce. (Fisher Unwin.)

There is such diversity in the matter of punctuation, and so little of apparent law, that Mr. Allardyce may be credited with the performance of good service in the construction of this little book. It costs only a shilling, like Prof. Nichol's equally useful little *vade mecum*, and it is well worth the money. The author has drawn up a set of rules—though too many, we think—which should help diffident writers, and some also who are confident on insufficient grounds, to guard against misconstruction. He is rather too lenient with the colon, leaving it too free to intrude on the domain of its half-brother. On the other hand, he gives no countenance to the artificial and misleading trick (which we seem to have learnt from the French) of leaving out the comma after the second of a trio of concatenated words before the *and*. But, making all allowances for some unnecessary detail, the book is cheap, complete, and useful.

*How to enter the Civil Service,* by Ernest A. Carr (Grant Richards), can be recommended as a reliable and up-to-date guide to State employment for boys and girls, men and women. The standpoint of the author, as a Service man, is within; and from that vantage ground he deals, in a clear, matter-of-fact, sometimes colloquial style, with conditions of entry, examination subjects, appointments and prospects for posts at home, in the colonies, and abroad. Hints to students, specimen examination papers, and an index complete a handy half-crown volume which should be very acceptable to intending candidates.

*A Junior English Grammar,* by William Williamson, B.A. (Methuen), is a new book for younger pupils. It is obviously the work of a practical teacher, and based on the sound historical principle that Modern English must find its grammatical explanation in Old English. A prominent place is rightly allotted to sentence analysis. Useful practical hints are given on essay writing, paraphrasing, and punctuation; Oxford and Cambridge Junior Local Examination papers and other sets of questions are appended, and a useful index completes the work. A convenient, if not original, illustration of the various periods of our speech is afforded by quotation of the Lord's Prayer (1) in Old English (*minus* the accents), (2) in the Middle English of 1250, and (3) in the practically Modern English of Tyndale's Version (1526). Altogether this neat little work seems excellently suited to the requirements of those for whom it is intended.

*Perspective.* By Robert Pratt. (Longmans.)

This new elementary treatise on perspective also includes the discussion of the projection of shadows and reflections. Its scope and character will be best understood from the statement that it is written primarily, though, of course, not exclusively, for art students following the course prescribed for candidates for the Art Class Teacher's Certificate under the new regulations of the syllabus of 1901.

*A Commercial Geography of Foreign Nations.* By F. C. Boon, B.A. (Methuen.)

A handy book of reference for rough statistics of trade and for general facts bearing on the commercial wealth of all countries except the British Empire. It is intended as a companion volume to Mr. Lyde's book in the same series, treating of the latter only. Evidently

pupils are not meant to commit the contents to memory, but only to use the facts as a basis for intelligent comparison and reasoning. As such it will be found very useful, and to many minds intensely interesting.

*Tales of the Spanish Main.* By Mowbray Morris. (Macmillan.)

A more fascinating title for a boys' book could hardly be found. As the author says, those three little words, "The Spanish Main," are among the most eloquent in our language, and dull indeed must be the imagination in which they can kindle no spark of enthusiasm. Boys will enjoy here yet another chance of worshipping Columbus, Drake, Sir Richard Grenville, and many another hero. Maps, dates, and a thorough historical treatment are given, so that the book will inform and enlarge the reader's mind as well as delight his patriotic feelings. We say patriotic, for to the English mind all noble sailors are their countrymen. It is very attractively bound and printed, and will serve admirably as a gift-book.

*A Second Illustrated Composition Book* (Nelson) consists of a simple grammar, with exercises and copious pictures intended to be described by the pupils as composition work. The directions are clear and the grammar rules simply given, but too much is crammed into each page.

*The Stars in History and Legend.* By C. G. Porter. (Ginn & Co.)

This is a collection of legends and poetical quotations connected with the heavenly bodies. Under "The Moon," for example, we have, among others, the legend of Buddha, who, disguised as a hare, cast himself into the fire to be roasted for his guest Indra who presented himself as a beggar, the story of "Jack and Gill," an Indian legend from "Hiawatha," and quotations from Ben Jonson, Morris, Milton ("Satan's Shield"), and Browning ("One Word More"). "Perseus and Andromeda" suggest quotations from Mrs. Browning and Charles Kingsley. The legend is told and attention is called to the beautiful double star Almach and to the great nebula. The book is illustrated with excellent reproductions of Albert Dürer's drawings.

*Shakespeare's Julius Cæsar.* Edited by Stanley Wood, M.A., and Arthur Syms-Wood, B.A. (Gill.)

Every possible requirement for schools and examination purposes seems to be met in this edition. There are marginal notes for the younger, and footnotes for the elder pupils, and notes at the end for senior students, with a wealth of historical, dramatic, and critical introductions, glossaries, &c. The text itself is much marred by excessive use of italics referring to the notes, so that it would be impossible for a pupil to read it intelligently. The whole strikes one as being overloaded, and nothing is left for research or imagination. There is something humorously incongruous in the juxtaposition of a map of the Mediterranean and a picture of Anne Hathaway's cottage.

*A Counting-House Guide.* By W. G. Cordingley. (Eppingham Wilson.)

This is a fairly complete guide to most of the commercial principles and practice followed in London business houses. A useful feature is the large number of copies of actual commercial documents which are given to illustrate the ordinary routine business operations; and the explanations are sufficiently clear and simple to suite the requirements of boys who have just left school. The chapters on shipping documents and bills of exchange are particularly well done, though a future edition should more fully explain the actual mode of protesting foreign bills of exchange. Some of the arithmetical portions might be omitted, while the book would be more complete if the more important provisions of the Sale of Goods and Factors Acts were given.

*Twentieth Century Dictionary of the English Language.* Edited by the Rev. Thomas Davidson. (W. & R. Chambers.)

We can recommend this work to those who require a trustworthy English dictionary at a moderate price. We have tested it for many words which have recently crept into the language, including South African importations, and have only found it wanting in the case of "sjambok."

*Elementary Practical Hygiene.* By William S. Furneaux. (Longmans.)

This is a practical guide to elementary physics and chemistry, designed as a basis for the study of domestic science covered by Section I. of the Elementary Hygiene Syllabus of the Board of Education. The diagrams are clear, and detailed explanations of the more important experiments are given. The book is well adapted for use in class.

*The Child at Home.* By Mrs. Clement Parsons. (Nisbet.)

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**MATHEMATICS.**

Note on Quest. 14954, evaluating the integral  $\int_0^x \frac{\sin(\frac{1}{2}r\pi + ax)}{x^{n-r}} dx$ . By  $\theta$ .  $\beta$ .

It appears to have escaped notice entirely that the integral in question may have no meaning. In fact, the integral  $\int_0^a \frac{\sin x}{x^m} dx$  ( $a > 0$ ) has no meaning unless  $m < 2$ ; and  $\int_0^a \frac{\cos x}{x^m} dx$  has none unless  $m < 1$ ; while  $\int_a^\infty \frac{\sin x}{x^m} dx$  and  $\int_a^\infty \frac{\cos x}{x^m} dx$  require  $m > 0$ , in order that they may have a meaning.

Summing up, it appears that when  $r$  is even the integral

$$\int_0^\infty \frac{\sin(\frac{1}{2}r\pi + ax)}{x^{n-r}} dx$$

requires the condition  $2 > (n-r) > 0$ , and, when  $r$  is odd, the condition is  $1 > (n-r) > 0$ . Both of the cases are thus reduced to familiar results.

The first solution published affords an excellent illustration of the danger of differentiating under the integral sign without first examining whether such an operation is permissible. Consider, for instance, the integral

$$\phi(a) = \int_a^\infty \sin(ax) f(x) dx,$$

$f(x)$  being supposed such that  $\phi(a)$  has a meaning. Then

$$\begin{aligned} \frac{1}{h} [\phi(a+h) - \phi(a)] &= \int_a^\infty \frac{\sin(a+h)x - \sin(ax)}{h} f(x) dx \\ &= \int_a^\infty \frac{\sin \frac{1}{2}hx}{\frac{1}{2}h} \cos(ax + \frac{1}{2}hx) f(x) dx, \end{aligned}$$

and  $\phi'(a)$  will be the limit of this expression (if such limit exists) as  $h$  tends to the limiting value zero. But, since the upper limit of the integral is infinite, we cannot say that, for all values of  $x$  within the range of integration  $\text{Lt}_{h \rightarrow 0} \frac{\sin \frac{1}{2}hx}{\frac{1}{2}h} \cos(ax + \frac{1}{2}hx) = x \cos(ax)$ .

It may be possible, of course, if  $f(x)$  has a suitable form, to avoid the difficulty; for instance, let  $f(x) = e^{-x}$ , and then we can write, if  $h$  is

$$\begin{aligned} \text{positive, } \frac{1}{h} [\phi(a+h) - \phi(a)] &= \int_a^{1/\sqrt{h}} e^{-x} dx \frac{\sin \frac{1}{2}hx}{\frac{1}{2}h} \cos(ax + \frac{1}{2}hx) \\ &+ \int_{1/\sqrt{h}}^\infty e^{-x} dx \frac{\sin \frac{1}{2}hx}{\frac{1}{2}h} \cos(ax + \frac{1}{2}hx). \end{aligned}$$

In the first of these we may put

$$\text{Lt}_{h \rightarrow 0} \left\{ \frac{\sin \frac{1}{2}hx}{\frac{1}{2}h} \right\} \cos(ax + \frac{1}{2}hx) = x \cos(ax),$$

while the second is, in absolute value, less than

$$\int_{1/\sqrt{h}}^\infty \frac{2}{h} e^{-x} dx = [2/(\sqrt{h})^2] e^{-1/\sqrt{h}},$$

which tends to zero with  $\sqrt{h}$ .

It has been assumed that  $h$  is positive; but a similar method can be applied when  $h$  is negative, and the same result is obtained. Thus we have

$$\phi'(a) = \int_a^\infty x \cos(ax) e^{-x} dx,$$

where

$$\phi(a) = \int_a^\infty \sin(ax) e^{-x} dx,$$

so that the ordinary rule is justified; but it has required a special proof. It is, unfortunately, impossible to refer to an English text-book in which such questions are adequately discussed; they are fully treated in good foreign books on the calculus, and in Mr. G. H. HARDY'S recent papers.

**15023.** (R. CHARTRES.)—If  $C_r$  denote the combinations of  $n$  things  $r$  together, and  $D_r$  those of  $(2n-1)$  things  $r$  together, sum the series

$$\frac{C_1 C_1}{D_1} - \frac{C_2 C_2}{D_3} + \frac{C_3 C_3}{D_5} - \frac{C_4 C_4}{D_7} + \dots$$

Solution by the PROPOSER.

Taking LEGENDRE'S  $n$ -th coefficient  $P_n$  ( $n$  even)

$$n \int_{-1}^{+1} x^n - \frac{n(n-1)}{2(2n-1)} x^{n-2} + \dots = 0,$$

$$\text{or } n+1 = \frac{C_1 C_1}{D_1} - \frac{C_2 C_2}{D_3} + \dots$$

**14665.** (H. MACCOLL, B.A.)—Each letter denoting a statement, and  $\alpha'$  being the denial of  $\alpha$ , show that  $(\alpha x = ay) (\alpha' x = \alpha' z)$  and  $\alpha(x = y) + \alpha'(x = z)$  are equivalent when  $\alpha$  is a constant ( $x, y, z$  being unrestricted), but not necessarily when  $\alpha$  is a variable. [Def.: A state-

ment is a constant when it is either certain or impossible; a variable when it is neither certain nor impossible.]

Solution by the PROPOSER.

Let  $\phi$  denote  $(\alpha x = ay)$  ( $\alpha' x = \alpha' z$ ), and let  $\psi$  denote  $\alpha(x = y) + \alpha'(x = z)$ . Employing my usual notation, we get by mere inspection

$$\begin{aligned} \alpha' : \{ \phi = (x = y) \} \{ \psi = (x = y) \} : (\phi = \psi), \\ \alpha : \{ \phi = (x = z) \} \{ \psi = (x = z) \} : (\phi = \psi). \end{aligned}$$

Hence,  $\alpha' \cdot \alpha : (\phi = \psi)$ . That is, when  $\alpha$  is a certainty ( $\epsilon$ ) or an impossibility ( $\eta$ ),  $\phi$  is equivalent to  $\psi$ .

But this equivalence does not necessarily hold when  $\alpha$  is a variable ( $\theta$ ). It fails, for example, in the case  $\alpha' x y z$ ; for then (remembering that no variable or its denial can be impossible)

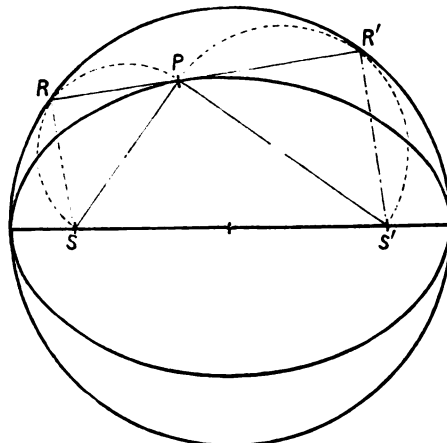
$$\begin{aligned} \phi &= (\theta \epsilon = \theta \epsilon) (\theta' \epsilon = \theta' \eta) = \epsilon (\theta' = \eta) = \eta, \\ \psi &= \theta (\epsilon = \epsilon) + \theta' (\epsilon = \eta) = \theta + \eta = \theta. \end{aligned}$$

An impossibility is a statement whose chance of being true is absolute zero. The chance of a variable may be infinitesimal, but it is never zero; it is always  $> 0$  and  $< 1$ . A certainty is a statement whose chance is absolute unity. [The rest in Volume.]

**14979.** (Rev. T. ROACH, M.A.)—Circles are described on SP, S'P in an ellipse as diameters and meet the auxiliary circle in R, R'; show that RR' is the tangent at P.

Solution by M. R. PEIRIS and LIONEL E. REAY, B.A.

Since circle SPR is described on SP as diameter, this circle touches the auxiliary circle at R; therefore SRP is a right angle and RP touches



the ellipse. Similarly, R'P touches the ellipse, therefore RPR' is the tangent at P.

**9848.** (Professor HANUMANTA RAU.)—Solve the equation

$$x^3 - 3mx^2 + 3x - m = 0.$$

Solutions (I.) by Professor S. SIRCOM; (II.) by Rev. T. WIGGINS, B.A., F. W. REEVES, B.A.; and others.

(I.) If  $m < 1$ ,  $x = \tanh(2r_1 \frac{1}{2}\pi + \alpha)$ ,  $r = 0, 1, 2$ , where  $m = \tanh 3\alpha$ . If  $m > 1$ ,  $x = \coth(2r_1 \frac{1}{2}\pi + \alpha)$ ,  $r = 0, 1, 2$ , where  $m = \coth 3\alpha$ .

(II.) For  $x$  substitute  $(a + m)$ , and the equation becomes

$$a^3 + 3a(1 - m^2) + 2m(1 - m^2) = 0.$$

For  $a$  substitute  $(y + z)$ , and the new equation becomes

$$y^3 + z^3 + 3yz(y + z) + 3(1 - m^2)(y + z) + 2(1 - m^2) = 0.$$

This is satisfied if  $y^3 + z^3 = -2(1 - m^2)$ ,

and  $yz = -(1 - m^2)$  or  $y^2 z^2 = -(1 - m^2)^2$ .

Hence  $y^3$  and  $z^3$  are the roots of  $t^2 + 2m(1 - m^2)t - (1 - m^2)^3 = 0$ ; therefore (by solving)  $y^3 = (m^2 - 1)(m + 1)$ ,  $z^3 = (m^2 - 1)(m - 1)$ ; whence

$$x = a + m = y + z + m = \sqrt[3]{(m^2 - 1)(m + 1)} + \sqrt[3]{(m^2 - 1)(m - 1)} + m,$$

which is the real root.

**14761.** (A. F. VAN DER HEYDEN, B.A.)—Let  $I, I_1, I_2, I_3$  denote the in- and ex-centres of a triangle. Given the circum-centres of the triangles  $II_2 I_3, II_1 I_3$ , and of the original triangle, construct the triangle.

Solutions (I.) by H. W. CURJEL, M.A.; (II.) by Professor SANJANA, M.A.

(I.)  $I$  is the orthocentre of  $I_1 I_2 I_3$ , and the circum-circle (centre  $O$ ) of triangle  $ABC$  is the nine-point-circle of triangle  $I_1 I_2 I_3$ . Hence the circum-centres of  $II_1 I_2, II_1 I_3, II_2 I_3, I_1 I_2 I_3$  are all equal. Therefore the middle point  $F$  of the line joining the centres  $L, M$  of circles  $II_2 I_3, II_1 I_3$  (i.e., middle point of  $II_3$ ) lies on circle  $ABC$ . Therefore the circle  $ABC$  can

be described, and line  $I_2I_3$  drawn; where it cuts the circle ABC again is point C, and  $I_1I_2$  passes through C and is at right angles to  $I_2I_3$ . Also  $I_2OM$ ,  $I_1OL$  are straight lines; hence  $I_2, I_1$  are determined, and hence also  $I_3$  as intersections of circles with centres L, M and radii  $LI_2, MI_1$ . And the intersections of  $II_1, I_1I_2$  with  $I_2I_3, I_2I_1$  are the points A and B.

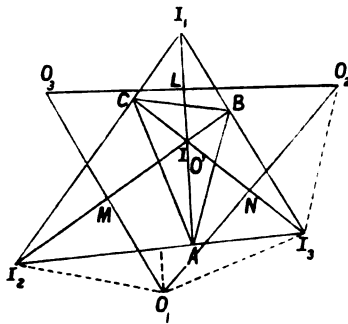
(II.) Bisecting  $II_1, II_2, II_3$  at right angles by the lines  $O_2LO_3, O_3MO_1, O_1NO_2$ , we get  $O_1, O_2, O_3$  as the circum-centres of  $II_2I_3, II_3I_1, II_1I_2$ , respectively. Now

$$\begin{aligned} \angle O_1I_2I_3 &= \frac{1}{2}(\pi - I_2O_1I_3) \\ &= \frac{1}{2}\{\pi - (2\pi - 2I_2II_3)\} \\ &= I_2II_3 - \frac{1}{2}\pi \\ &= \text{BIC} - \frac{1}{2}\pi = \frac{1}{2}A, \end{aligned}$$

and  $\angle II_3I_2 = \frac{1}{2}B$ ;  
hence  $\angle NI_3O_1 = \frac{1}{2}(B+A)$ .

So also  $\angle O_2I_3I_1 = \frac{1}{2}B$   
and  $\angle II_3I_1 = \frac{1}{2}A$ ;  
hence  $\angle NI_3O_2 = \frac{1}{2}(B+A)$ .

Therefore N is the mid-point of  $O_1O_2$ . So L and M are the mid-points of  $O_2O_3, O_3O_1$ . Thus the circle ABC is the nine-point-circle of  $O_1O_2O_3$ , as it goes through L, M, N. Hence, of the triangle  $O_1O_2O_3$ , two angular points  $O_1$  and  $O_2$  are given, and the nine-point-centre O is also given; this triangle therefore can be easily constructed. With centres  $O_1, O_2, O_3$  and radii each equal  $2ON$ , strike arcs meeting two and two in  $I_1, I_2, I_3$ ; the pedal triangle of  $I_1I_2I_3$  is the original triangle.



**15006.** (Professor IGNACIO BEYENS, Lt.-Col. du Génie.)—Soit SABC un angle trièdre trirectangle; SD une droite intérieure que l'on projette sur les faces SAB, SAC, SBC, suivant SC', SB', SA'; démontrer que  $A'SB' + A'SC' + B'SC' = 180^\circ$ , et déduire de ce théorème la propriété correspondante du triangle sphérique (démonstration géométrique).

Solution by ALETROP.

Considérons le parallépipède dont l'un des angles trièdres est SABC et SD une des diagonales. Menons  $A'B', B'C', CA'$ . Par avoir un côté commun et les deux autres côtés égaux comme diagonales de rectangles égales, on a  $\triangle SA'B' = SB'C'$ , d'où  $\angle A'SB' = SB'C'$ ;  
 $\triangle SA'C' = SB'C'$ , d'où  $\angle A'SC' = SC'B'$ ;

par suite  $\angle A'SB' + \angle A'SC' + \angle B'SC' = \angle SB'C' + \angle SC'B' + \angle B'SC' = 180^\circ$ .

De là on déduit aisément: Le périmètre du triangle pédal d'un point pris dans l'intérieur d'un triangle sphérique trirectangle (de référence et égal à une demi-circonférence de cercle maximale).

**14970.** (Lt.-Col. ALLAN CUNNINGHAM, R.E.)—Show how to find a set of three or more numbers  $q_r$  such that  $(x^{q_0}-1), (x^{q_1}-1), (x^{q_2}-1), \dots$  are divisible by  $q_1, q_2, q_3, \dots$ , respectively for several assigned values of  $x (= a, b, c, \dots)$  at once. Give examples when  $x$  has each of the values 2, 3, 4, 5, 6, 8, 9, 10, 12, 15, 16, 18, 20, 24, 25, 27, 30 for the same set of exponents  $q_0, q_1, q_2, \dots$ , &c., with the respective divisors  $q_1, q_2, q_3, \dots$  &c.

Solution by the PROPOSER.

Let  $q_1, q_2, q_3, \dots$  be a succession of primes such that

$$q_1 = 2q_0 + 1, \quad q_2 = 2q_1 + 1, \quad q_3 = 2q_2 + 1, \quad \&c. \dots (1);$$

$$\text{whence } q_0 = \frac{1}{2}(q_1 - 1), \quad q_1 = \frac{1}{2}(q_2 - 1), \quad \&c. \dots (1A).$$

Then the question requires

$$x^{q_0} \equiv 1 \pmod{q_1}, \quad x^{q_1} \equiv 1 \pmod{q_2}, \quad \&c. \dots (2);$$

so that  $x$  should be a 2-ic residue of  $q_1, q_2, q_3, \dots$  (2A).

This is satisfied if  $q^r = 4m_r \cdot x - 1$  for each  $r = 1, 2, 3, \dots$  (3).

Now, taking  $q_1 = 4m \cdot x - 1, \dots$  (4)

gives, by (1),  $q_1 = 4(2m) \cdot x - 1, \quad q_2 = 4(4m) \cdot x - 1, \quad \&c. \dots (4A)$ , which are all of the required form (3). If several of these ( $q^r$ ) in succession be prime, they would satisfy (2), and therefore solve the problem for any particular base  $x$ .

Next, giving  $x$  several values  $x = a, b, c, \dots$ , and taking

$$X = \text{L.C.M. of } a, b, c, \dots (5),$$

and, taking  $q_1 = 4mX - 1$ , giving by (1),

$$q_2 = 4(2m)X - 1, \quad q_3 = 4(4m)X - 1, \quad \&c. \dots (5A),$$

these  $q$ 's are all of the required form (3) for each of  $a, b, c, \dots$ ; and, if several of them in succession were prime, they would also satisfy (2) for any base  $x = a^p \cdot b^q \cdot c^r, \dots$ .

This completes the general solution.

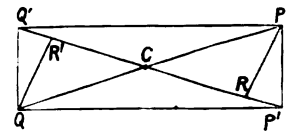
[The rest in Volume.]

**14959.** (R. KNOWLES, B.A.)—P, Q are the ends of a diameter of a conic, centre C; R, R' are the points through which pass all the chords

which subtend a right angle at P, Q respectively. Prove that R, R', C are collinear.

Solutions (I.) by JAMES BLAIKIE, M.A.; (II.) by R. TUCKER, M.A.; (III.) LIONEL E. REAY, B.A., and others.

(I.) Let a circle described on PQ as diameter meet the conic in  $P', Q'$ ; then the normals at P and Q will meet the diameter  $P'Q'$  in R, R', the points through which pass all the chords which subtend a right angle at P, Q respectively. Thus R, C, R' are collinear.



(II.) R, R' are the FRÉGIER points for P, Q, and their coordinates (see ONY, Conics, ch. xii., Ex. xxxv., 29, or other text-books) are  $a^2e^2 \cos a, \frac{-a^2b^2 \sin a}{a^2 + b^2}$  and  $(\frac{-a^2e^2 \cos a}{a^2 + b^2}, \frac{a^2b^2 \sin a}{a^2 + b^2})$ ; whence, &c.

(III.) R is the FRÉGIER point of P and is on the normal at P. Similarly, R' is on the normal at Q. By the symmetry of the figure  $PR = QR'$ ; therefore, at once, R, C, and R' are collinear.

[Other solutions, too numerous to publish, have been received.—EDITOR.]

**14725.** (ROBERT W. D. CHRISTIE.)—Prove the following theorems on circulators. P = any prime having an even period;  $H_1$  = the number formed by the figures of the first half;  $H_2$  = the number formed by the figures of the second half. Then

$$\begin{aligned} P-1 &= (H_2+1)/(H_1+1), \quad H_2(P-1) = (P-2)10^{4p} + H_1 \dots (1, 2), \\ (H_2+1)/(H_1+1) &= (10^{4p}-H_1)/(10^{4p}-H_2), \quad 10^{4p}-H_1 = 0 \pmod{P} \dots (3, 4), \\ H_1+H_2+2 &= 0 \pmod{P} = 10^{4p}+1 \dots (5), \\ (H_1+H_2+2)/(H_2-H_1) &= P/(P-2) \dots (6), \\ P(H_1+1) &= 10^{4p}+1 \dots (7), \end{aligned}$$

and various others by combination.

Example of (1)—  $P = 7, \quad \dagger = 142857$ ;

therefore  $7-1 = (857+1)/(142+1) = 6$ .

Solution by ALETROP; H. W. CURJEL, M.A.; and A. M. NESBITT, M.A.

Soit p le nombre pair de chiffres de la période de 1/P. On a

$$1/P = (10^{4p}H_1 + H_2)/(10^{4p}-1) \dots (a).$$

D'ailleurs, on sait bien que, p étant pair,

$$H_1 + H_2 = 999 \dots (\text{jusqu'à } \frac{1}{2}p \text{ chiffres}) = 10^{4p} - 1 \dots (b).$$

$$\text{De (a) et (b) on tire } H_1 = 1/P(10^{4p} + 1) - 1 \dots (c),$$

$$H_2 = 10^{4p} - 1/P(10^{4p} + 1) \dots (d).$$

Maintenant, il est facile de vérifier les égalités proposées. Tout d'abord

$$H_1 + 1 = 1/P(10^{4p} + 1), \quad H_2 + 1 = (P-1)/(10^{4p} + 1) \dots (e, f),$$

d'où, par division, (1). Multipliant (d) par P-1 et en regard de (c), il vient (2). En divisant les valeurs de  $H_2+1$  et  $H_1+1$  tirés de (b), on a (3). De cette dernière et de (1),

$$10^{4p} - H_1 = (10^{4p} - H_2)(P-1) = 0 \pmod{P-1} \dots (4).$$

De (1), après avoir ajouté 1 aux deux membres,

$$H_1 + H_2 + 2 = (H_1 + 1)P = 0 \pmod{P} \dots (5).$$

L'addition de (e) et (f) donne  $H_1 + H_2 + 2 = 10^{4p} + 1 \dots (5)$ .

Cette-ci divisée par la différence entre (f) et (e), fournit (6). Enfin, (7) est (e) mise sous forme entière.

**14967.** (R. TUCKER, M.A.)—The tangent at P ( $ap^2, ap^3$ ) to the curve  $ay^2 = x^3(A)$  meets the curve again at Q; prove that (1) the normals at P, Q meet, in R, on the curve  $6561y^4 + 2430axy^2 + 32a^2y^2 = ax(75x + 8a)^2$ ; (2) the evolute to (A) is  $9y^2(729y^2 + 1728ax + 32a^2) + 512ax(6x + a)^2 = 0$ . (GREGORY'S Exercises, p. 195, gives a surd result.) If  $9p^2 = 2$ , then PR is also a tangent. Find the locus of the intersection of orthogonal tangents, and also of the circum-centre of POQ (O the cusp), and show that the mid-point of PQ lies on another semicubical parabola.

Solution by the PROPOSER and LIONEL E. REAY, B.A.

$$1. \text{ Tangent at P is } 2y - 3px + ap^3 = 0 \dots (i).$$

This meets the curve in  $p' = -\frac{1}{2}p$ . The normals at P, Q are

$$\begin{cases} 3py + 2x = a(3p^4 + 2p^2) \\ -24py + 32x = a(3p^4 + 8p^2) \end{cases} \dots (ii),$$

After some reduction we have to eliminate p between

$$729y^2p^2 - (1620xy + 144ay)p + 900x^2 + 96ax = 0$$

and  $2ap^2 + 9yp - 10x = 0$ ;

$$\text{whence } 81y^2(16a + 225x)(729y^2 + 360ax + 32a^2) = x(3645y^2 + 900ax + 96a^2)^2.$$

When cleared we get the result.

2. To obtain the evolute we eliminate  $p$  between (ii.) and  $3y = 12ap^2 + 4ap$ . Reducing, we get the equations

$$27y^2p^2 + 4(6x+a)p - 3y = 0, \quad 4ap^2 - 9py - 8x = 0.$$

Ultimately we have

$$144y^2(18x-a)^2 = (243y^2 + 96ax + 16a^2)(27y^2 + 192x^2 + 32ax).$$

This reduces to the result in question.

3. If (ii.) is a tangent, we have  $3pp'^2 + 2p'^2 = 3p^4 + 2p^2$ . This gives for contact  $(3p^2 + 2)(9p^2 - 2) = 0$ ; hence  $9p^2 = 2$ .

4. For locus of intersection of orthogonal tangents, we have (i.) and  $2y - 3\lambda x = -a\lambda^3$ , where  $9p\lambda + 4 = 0$ ; i.e., multiplying,

$$4y^2 - 6xy(p + \lambda) - 4x^2 = -\frac{4}{9}a^2p^2, \quad \text{also} \quad 3x = a(p^2 + \lambda^2 + p\lambda);$$

whence  $(27x - 4a)x^2y^2 = 4a(y^2 - x^2 + \frac{1}{9}a^2p^2)$ .

This reduces to  $(729)^2(27x - 4a)x^2y^2 = 4a[729(y^2 - x^2) + 16a^2]^2$ .

5. If equation to circle OPQ is  $x^2 + y^2 = 2ax + 2\beta y$ , we get

$$ap^2 + 6\beta p - 10a = 0, \quad 9\beta^2p^2 - (30a + 2a)\beta p + 2a^2 + 25a^2 = 0;$$

whence locus is  $a(25a + 2a)^2 = 4\beta^2(4a^2 + 45a + 10\beta^2)$ .

6. The locus is readily got to be  $125y^2 = 98x^2$ .

11264. (Professor ZERR.)—Show that the intrinsic equation to the evolute of the curve  $r^m = a^m \cos m\theta$  is

$$S' = \frac{a}{m+1} \left\{ \left( \cos \frac{m}{m+1} \phi \right)^{(1-m)/m} - 1 \right\}, \quad \text{where } \phi \text{ has its usual meaning.}$$

Solution by the PROPOSER.

We easily get that  $dr/d\theta = r \tan(\theta - \phi)$ . From the equation to the curve  $dr/d\theta = -a(\cos m\theta)^{1-m} \sin m\theta = -r \tan m\theta$ ; therefore

$$\tan(\theta - \phi) = -\tan m\theta, \quad \phi - \theta = m\theta, \quad \text{or} \quad \theta = 1/(m+1) \phi \dots (1).$$

$S' = \rho - C$  is the equation to the evolute  $ds/d\theta = a(\cos m\theta)^{(1-m)/m}$ , but  $d\theta = 1/(m+1)d\phi$ ; therefore  $ds/d\phi = a/(m+1)[\cos m/(m+1)\phi]^{(1-m)/m} = \rho$ ; therefore  $S' = a/(m+1)[\cos m/(m+1)\phi]^{(1-m)/m} - C$ , when  $S' = 0$ ,  $\phi = 0$ , and  $C = a/(m+1)$ ; therefore  $S' = a/(m+1) \{ [\cos m/(m+1)\phi]^{(1-m)/m} - 1 \}$ .

QUESTIONS FOR SOLUTION.

15064. (H. MacCOLL, B.A.)—Let  $\phi$  denote the alternative statement  $xyz'a' + xyb' + xy'z' + y'z'a'$ . Express the implication  $\epsilon : \phi$  (which asserts that  $\phi$  is certain, i.e., follows necessarily from our data) in the form  $(M : z : N)(P : y : Q)(R : x : S)(T : \eta)$ ; in which M denotes the weakest statement from which (in conjunction with our data) we can deduce z, and N denotes the strongest conclusion we can draw from z. Similarly P, Q, R, S are to be interpreted. It is understood that M and N may contain y and x, but not z; that P and Q may contain x, but neither y nor z, and that R, S, T contain neither x nor y nor z, though they may contain a or b. The implication T :  $\eta$  asserts that T is impossible, i.e., inconsistent with our data or definitions. The symbol A' is the denial of A, so that, whatever be the statement A, we have always  $\epsilon : A + A'$  and  $AA' : \eta$ . Logicians will notice the connexion between this Question and the "inverse problem" of Prof. JEVONS; and mathematicians will notice the analogy between it and the problem to find the successive limits of integration in multiple integrals.

15065. (Rev. Prebendary W. A. WHITWORTH, M.A.)—Show that, if  $x > y + z + 1$ ,

$$1 + \frac{y^2 R_1^2}{R_1} + \frac{R_2^2 R_2^2}{R_2} + \frac{R_3^2 R_3^2}{R_3} + \dots \text{ ad inf.} = \frac{(x-y-z-1)(x-1)!}{(x-y-1)!(x-z-1)!}$$

( $R_n$  here denotes, as in *Choice and Chance*, the number of combinations of n things r at a time when repetitions are allowed.)

15066. (R. KNOWLES.)—Prove that the sum of the series  $1 + 4^2(\frac{1}{2}) + 10^2(\frac{1}{2})^2 + \dots + \{ \frac{1}{2} [(r+1)(r+2)(r+3)] \}^2 (\frac{1}{2})^r + \dots$  ad inf. = 1008.

15067. (Lt.-Col. ALLAN CUNNINGHAM, R.E.)—If  $\sigma(N)$  denotes the sum of the divisors of N (including 1, but excluding N), find when  $\sigma(N) = 2^n$  admits of solutions of form  $N = 2^p \cdot p$  (p being an odd prime). Ex.—Solve  $\sigma(N) = 2^{24}$ .

15068. (ROBERT W. D. CHRISTIE.)—Solve generally the following Christmas puzzle:—Find four integers a, b, c, d, such that

$$(1) \quad ad = bc = 1 \text{ mod } p, \quad (2) \quad a^2 + b = c + d^2 = 0 \text{ mod } p, \\ (3) \quad a^2c + 1 = bd^2 + 1 = 0 \text{ mod } p, \quad (4) \quad bc^2 + d^2 = 0 \text{ mod } p,$$

where p = prime of form 4m-1, and give all the solutions.

15069. (ALBROG.)—N et k étant des entiers donnés, de combien de manières différentes a-t-on en nombres entiers  $N = a^2 + kb^2$ , lorsque cela soit possible? (Voyez GAUSS, *Disq. Arith.*, Lipsiæ, 1801, p. 219.)

15070. (C. F. SANDBERG, M.A.)—If, for all values of r from 0 to n,

$$a_r = a_r + ra_{r-1}x + \frac{r(r-1)}{1.2} a_{r-2}x^2 + \dots + ra_1x^{r-1} + a_0x^r,$$

then, for the same values of r,

$$a_r = a_r - ra_{r-1}x + \frac{r(r-1)}{1.2} a_{r-2}x^2 + \dots + (-1)^r a_0x^r.$$

15071. (R. F. DAVIS, M.A.)—Solve the equation  $x^4 - y^4 = x + y$ .

15072. (R. TUCKER, M.A.)—PSQ, RST are orthogonal focal chords of a parabola. O, O' are the respective co-normal points (i.e., PO, QO are normals, and also RO', TO'). Show that the join of O, O' passes through a fixed point, that O, O' lie on the same parabola, and find the locus of the intersection of OO' and the join of the third co-normal points of (P, Q) and (R, T).

15073. (A. M. NESHITT, M.A. See Quest. 14917, July, 1901.)—If we call the conic which touches the nine sides of the triangles  $\Delta_1, \Delta_2, \Delta_3$  the "nine-tangent conic" of the three original conics, prove that, if four conics P, Q, R, S be such that all pass through one point, while not more than two pass through any other point, then the four "nine-tangent conics" of QRS, RSP, SPQ, and PQR have a common tangent. The following particular case of the reciprocal of Quest. 14917 ought to admit of a solution by purely geometrical methods. Two parabolas P, P' have a common focus S, and a circle C touches their common tangent. If the common tangents to P and C, and to P' and C form triangles  $\Delta$  and  $\Delta'$ , prove that the point S and the six vertices of  $\Delta$  and  $\Delta'$  all lie on a circle.

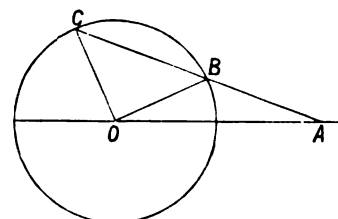
15074. (Professor NEUBERG.)—Construire le centre et les asymptotes de l'hyperbole équilatère qui passe par deux points donnés A, B et qui touche une droite donnée d en un point donné C.

15075. (H. L. TRACHTENBERG.)—The straight line joining the centres of the two rectangular hyperbolas that touch four fixed straight lines is bisected at right angles by the directrix of the parabola which touches these straight lines.

15076. (Professor N. BHATTACHARYA.)—A conic is circumscribed about a triangle whose diameters parallel to the sides of the triangle are proportional to the corresponding sides. Show that the locus of the inverse of a point on this conic is the line joining the three points, where the tangents (at the vertices) to the circum-circle meet the opposite sides. If the vertices A, B, C are joined to any point in this line meeting the sides BC, CA, AB in A', B', C' respectively, then B'C', C'A', A'B' meet BC, CA, AB respectively in three collinear points whose envelope is the BROCARD ellipse of the triangle.

15077. (Professor COCHEZ.)—

On donne une circonférence O et un point A, par lequel on mène une sécante variable coupant la courbe en B et C. Lieu de l'orthocentre du triangle BOC.



15078. (Professor HUDSON, M.A.)—If a uniform chain of length 2s be fastened to two points distant 2x apart in the same horizontal line, and be acted on by vertical forces such that the force acting on a length ds is  $mgds + \mu gdx$ , prove that the horizontal tension is approximately  $(m + \mu)g \{ x^2/6(s-x) \}^{1/2}$ , and that the sag at the middle point is  $\{ \frac{2}{3}x(s-x) \}^{1/2}$ , assuming that  $(s-x)/x$  is small.

15079. (Rev. T. ROACH, M.A.)—Prove geometrically

$$\sin^{-1} \frac{1}{3} + \sin^{-1} \frac{1}{\sqrt{5}} + \sin^{-1} \frac{1}{\sqrt{10}} = \frac{1}{2}\pi.$$

15080. (Professor NANSON.)—Lines drawn through the vertices of a triangle  $\Delta$  divide the angles into the segments  $\alpha, \alpha'; \beta, \beta'; \gamma, \gamma'$ , and form a triangle  $\Delta'$ . If R, R' are the radii of the circum-circles of  $\Delta, \Delta'$ , prove that  $\frac{R'}{R} = \frac{\sin \alpha \sin \beta \sin \gamma - \sin \alpha' \sin \beta' \sin \gamma'}{\sin(\beta + \gamma') \sin(\gamma + \alpha') \sin(\alpha + \beta')}$ , and deduce the theorems of CEVA and MENELAUS.

15081. (D. BIDDLE.)—Given the in-circle and the circum-circle, with the distance between their centres =  $(R^2 - 2Rr)^{1/2}$ , construct the triangle.

15082. (Professor SANJANA, M.A.)—The SIMSON-line of a point P makes an angle  $\theta$  with the base BC of the triangle of reference; prove that the distances of P from the line, and from BC, CA, AB, are respectively  $2R \cos \theta \cos(\theta - B) \cos(\theta + C)$ ,  $2R \cos \theta \sin(\theta - B) \sin(\theta + C)$ ,  $2R \sin \theta \sin(\theta - B) \cos(\theta + C)$ ,  $2R \sin \theta \cos(\theta - B) \sin(\theta + C)$ , R being the radius of the circum-circle.

15083. (JOHN PRESCOTT, B.A.)—Given two lines AB and CD in the same plane, but not parallel, find a point P such that the triangles formed by joining P to the extremities of AB and CD shall be similar, the two given lines subtending equal angles at P.

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8938. (D. EDWARDS.)—Prove that

$$2\sum x^2 \frac{\sinh(2r+1)\alpha}{\sinh(2r+1)\beta} = \sum_0^x [\text{cosech}\{(2r+1)\beta - \alpha\} - \text{cosech}\{(2r+1)\beta + \alpha\}].$$

9688. (A. E. THOMAS.)—Solve the equations

$$a^2x^3 - 3acxy^2 + 2bcy^3 = p, \quad 3a^2x^2y - 6acxy^2 + y^3(4b^2 - ac) = q.$$

**9781.** If  $ax + by + cz + dw = 0$ , and  $a'x + b'y + c'z + d'w = 0$ , where  $a, b, c, d, a', b', c', d'$  are functions of a parameter  $\theta$ , be the equations to a line, this line will generate a ruled surface of order  $m+n$ , where  $m$  and  $n$  are the orders of the two given equations as functions of  $\theta$ . Especially examine the case when  $m=n=1$ , and show that a second set of lines exists in this case.

**9850.** (Professor NEUBERG.)—On considère tous les triangles de même somme des carrés des côtés. Quelle est la probabilité que l'angle de BROCARD de l'un de ces triangles, pris au hasard, soit compris entre  $\alpha$  et  $\beta$ ?

**9933.** (Professor SEN.)—Find the curve which always intersects an ellipse at right angles (1) when it moves with its major axis along a right line, (2) when its centre moves on another ellipse with their major axes parallel.

**10049.** (J. LEMAIRE.)—Soit un quadrilatère ABCD et une droite parallèle à la diagonale BD. Cette droite rencontre AB, BC, CD, DA respectivement en E, F, G, H; AF et AG coupent CD et BC en I et K. Enfin EK et HI se rencontrent en O. Démontrer que la droite CO passe par le milieu de EH.

**10157.** (R. W. D. CHRISTIE.)—If  $p$  be a prime number  $> 2$ , prove  $\{(2p-1)/2 \times p! \times p!\} - 1 = p^2(M)$ , where  $M$  is the sum of  $\frac{1}{2}(p-1)$  integral square numbers.

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#### THE LONDON MATHEMATICAL SOCIETY.

Thursday, February 13th, 1902.—Dr. Hobson, F.R.S., President, in the Chair. Thirteen members present.

Prof. Lamb read a paper on "Boussinesq's Problem." Messrs. Love, Hargreaves, Cunningham, Macdonald, and the President, took part in a discussion on the paper.

Mr. Alfred Young read a second paper on "Quantitative Substitutional Analysis." Prof. Elliott asked one or two questions.

Prof. Love explained a new proof of a well known theorem concerning zonal harmonics.

The following papers were communicated by the President:—

(i.) "On the Density of Linear Sets of Points," (ii.) "On Closed Sets of Points defined as the Limit of a Sequence of Sets of Points": Mr. W. H. Young.

"On Plane Cubics": Prof. A. C. Dixon.

"On the Wave Surface of a Dynamical Medium, Anisotropic in all respects": Prof. Bromwich.

"Elementary Proof of a Theorem for Functions of several Variables": Dr. H. F. Baker.

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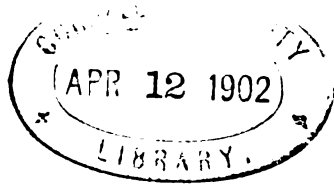
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## Journal of the College of Preceptors.

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APRIL 1, 1902.

{ Price to Non-Members, 6d.  
By Post, 7d.

### COLLEGE OF PRECEPTORS.— (Bloomsbury Square, W.C.)

The next Monthly Evening Meeting of the Members will take place on Wednesday, the 23rd of April, when J. L. PATON, Esq., M.A., will read a Paper on "The Feelings as a Factor in School Education."  
The Chair will be taken at 7.30 p.m., and a discussion will follow the reading of the Paper.  
Members have the privilege of introducing their friends.

C. R. HODGSON, B.A., *Secretary.*

### COLLEGE OF PRECEPTORS.— EXAMINATIONS, 1902.

1. **DIPLOMAS.**—The next Examination of Teachers for the Diplomas of the College will commence on the 8th of July, 1902.—At the *Midsummer* Examination, persons who have previously passed in Theory and Practice of Education at the Diploma Examination may be examined practically for Certificates of Ability to Teach.

2. **CERTIFICATE EXAMINATIONS.**—The Midsummer Examination for Certificates will commence on the 1st of July, 1902.

3. **LOWER FORMS EXAMINATIONS.**—The Midsummer Examination will commence on the 1st of July, 1902.

4. **PROFESSIONAL PRELIMINARY EXAMINATIONS.**—These Examinations are held in March and September. The next Examination will commence on the 2nd of September, 1902.

5. **INSPECTION AND EXAMINATION OF SCHOOLS.**—Visiting Examiners are appointed by the College for the Inspection and Examination of Public and Private Schools.

#### PRIZES.

**Diploma Examination.**—The following Prizes will be offered for competition:—Theory and Practice of Education, £10; Classics (Greek and Latin), £5; Mathematics, £5; Natural Science, £5. The Doreck Scholarship of £20 will be awarded on the results of the Christmas Examination.

**Certificate Examination.**—Prizes will be awarded as follows, subject to the conditions stated in the Regulations:—

**First Class.**—Four Prizes for General Proficiency: two each for Classics, Mathematics, Modern Languages, Natural Sciences, and English subjects; one for Scripture History.

**Second Class.**—Four Prizes for General Proficiency.

**Third Class.**—Four Prizes for General Proficiency.

Two Medals will also be awarded to the best Candidates in Shorthand.

The Regulations for the above Examinations can be obtained on application to the Secretary at the College, Bloomsbury Square, W.C.

C. R. HODGSON, B.A., *Secretary.*

**PROFESSIONAL PRELIMINARY EXAMINATIONS.**—The COLLEGE OF PRECEPTORS will hold an Examination for Certificates recognized by the Board of Education, the Incorporated Law Society, the General Medical Council, the Royal College of Physicians of London, the Royal College of Surgeons of England, the Royal College of Veterinary Surgeons, the Pharmaceutical Society of Great Britain, and other bodies, on the 2nd, 3rd, and 4th of September, 1902.

The Examination will take place in London, and at the following Local Centres:—Birmingham, Bristol, Leeds, Liverpool.

Examination Fee, 25s.

Regulations and Entry Forms may be obtained on application to the Secretary of the College of Preceptors, Bloomsbury Square, W.C.

C. R. HODGSON, B.A., *Secretary.*

### UNIVERSITY DIPLOMA FOR WOMEN.

**THE UNIVERSITY OF ST. ANDREWS** grants Diploma and Title of L.L.A. to WOMEN.  
60 Examination Centres in Great Britain and abroad.  
For Prospectus, apply to the SECRETARY, L.L.A. Scheme, The University, St. Andrews, N.B.

### THE ASSOCIATED BOARD OF THE ROYAL ACADEMY OF MUSIC AND THE ROYAL COLLEGE OF MUSIC FOR LOCAL EXAMINATIONS IN MUSIC.

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LOCAL CENTRE EXAMINATIONS held annually in March and April. (See Syllabus A.)

SCHOOL EXAMINATIONS, held three times a year—viz., March and April, June and July, and October and November. (See Syllabus B.) Entries for the June-July Examination will be received on or before May 14th, 1902.

Specimen Theory Papers set in the Local Centre and School Examinations of 1896 to 1901, inclusive, can be obtained on application to the Central Office. Price 3d. per set, per year, post free.

Copies of Syllabuses A and B, and all information, will be sent on application to

JAMES MUIR, *Secretary.*  
14 Hanover Square, London, W.  
Telegraphic address: "Associa, London."

### HOME AND COLONIAL SCHOOL SOCIETY.

(Incorporated for Examination and Certificate purposes with the National Froebel Union.)

#### TRAINING COLLEGE FOR SECONDARY TEACHERS.

HIGHBURY HILL HOUSE, LONDON, N.  
*Principal*—The Rev. DAVID J. THOMAS, M.A.  
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Students (Resident and Non-resident) trained for the Examinations of the National Froebel Union, and for the Teachers' Diploma of the College of Preceptors.

Froebelian Training for Mistresses of Lower Forms.

A High School for Girls, Transition Class, and Kindergarten are attached to the College for purposes of Demonstration and Practice.

Matriculation Classes for intending Teachers.

### LONDON MATRICULATION and PROFESSIONAL PRELIM. EXAMS.—Mr. A.W. BAIN, B.A. (Lond.), Inter. B.Sc. (Lond.), F.C.S., Anglo-Saxon and Early English Text Society's Prizeman (Univ. Coll., Lond.), Silver Medallist and Exhibitor in Chemistry (Univ. Coll., Lond.), Honours in Theoretical and Practical Chemistry (S.K.), &c., holds Classes for these and other Examinations, at 207 Gray's Inn Road, London. Coaching in Science and Higher Mathematics, &c., for Degree Examinations by Private Tuition, 12 years' successes.

#### Diploma Correspondence College.

A HIGH-CLASS CORRESPONDENCE INSTITUTION.

*Specially arranged Courses for*

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EXAMINATIONS in PIANOFORTE PLAYING, SINGING, THEORY, and all branches of Music will be held in London and 350 Provincial Centres in July (June for Scotland and Ireland), when certificates will be granted to all successful candidates.

The Higher Examinations in Practical and Theoretical Music for Diplomas of Associate (A.L.C.M.), Licentiate (L.L.C.M.), the Teachers' Diploma (L.C.M.), and Fellowship (F.L.C.M.), take place in July (June for Scotland and Ireland) and December.

SYLLABUS for 1902 containing particulars of (1) The Teachers' Diploma (L.C.M.), (2) The new Cumulative Certificate, and (3) Four Exhibitions value £6. 6s. each, may be had of the SECRETARY.

In the Educational Department students are received and thoroughly trained under the best professors at moderate fees. Day and Evening Classes are held.

A VACATION COURSE of Instruction in Special Subjects for Teachers and others is held at Easter, August, and Christmas.

T. WEEKES HOLMES, *Secretary.*

#### THE INCORPORATED

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TALGARH ROAD, WEST KENSINGTON, LONDON, W.

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#### TRAINING COLLEGE FOR TEACHERS.

*Principal*—Miss E. E. LAWRENCE.

KINDERGARTEN AND SCHOOL.

*Headmistress*—Miss A. YELLAND.

Further particulars may be obtained on application to the PRINCIPAL.

### ST. GEORGE'S TRAINING COLLEGE FOR WOMEN TEACHERS, EDINBURGH.

*Principal*—Miss M. R. WALKER.

This College provides a complete Course of Professional Training for Ladies who desire to become Teachers in Secondary Schools or Governesses in Families. The Course, which lasts for one year, includes attendance at the University Lectures on Education, in addition to Lectures delivered by the College Staff, and the Students have ample opportunities of gaining experience in Class Teaching in good Schools. Students are admitted in January and October. For prospectus and further particulars apply to the PRINCIPAL, 5 Melville Street, Edinburgh.

### London Matriculation.

DURING THE LAST SEVEN YEARS

**2043**

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**UNIVERSITY OF LONDON.  
THE MIDDLESEX HOSPITAL  
MEDICAL SCHOOL,  
CLOSE TO OXFORD CIRCUS, W.**

The SUMMER SESSION, 1902, will commence on Thursday, May 1st.

Full opportunities for study are offered to Students preparing for any Examinations in Medicine and Surgery in the United Kingdom.

Classes will be held in the following subjects:—Midwifery, Pathology, Pathological Histology, Forensic Medicine and Public Health, Anatomy, Practical Physiology and Histology, Chemistry and Practical Chemistry, Therapeutics, Mental Diseases with Clinical Demonstrations, Practical Pharmacy.

Students entering in May are eligible to compete for the Entrance Scholarships (value £100 and £60 awarded at the commencement of the ensuing Winter Session). The Broderip Scholarships, Governors' Prize, Hetley Prize, Lyell Medal, Leopold Hudson Prize, and Freeman Scholarship are awarded annually, the Murray Scholarship (in connexion with the University of Aberdeen) every third year.

Eighteen resident appointments are open for competition annually, without fee.

The composition fee admitting to the whole curriculum for the diplomas of L.R.C.P., M.R.C.S., and L.S.A. is 135 guineas; or by three yearly instalments of 60, 50, and 35 guineas.

For University of London Students requiring Preliminary Science instruction, 145 guineas, or by instalments, 155 guineas. For members of Universities recognized by the General Medical Council and other Students who have completed their Anatomical and Physiological studies, the Fee for admission as General Students is 70 guineas, or by instalments 75 guineas. Students from the Universities of Oxford and Cambridge entering in May are eligible to compete for the University Scholarship of £60 awarded at the commencement of the Winter Session. Fee for Dental Students, 54 guineas.

The Residential College contains accommodation for thirty Students.

For prospectus and further particulars, apply to  
J. MURRAY, M.B., F.R.C.S., *Dean*.

**S. THOMAS'S HOSPITAL  
MEDICAL SCHOOL,  
ALBERT EMBANKMENT, S.E.**

The SUMMER SESSION will commence on May 1. St. Thomas's Hospital being one of the Medical Schools of the University of London, provision is made for the courses of study prescribed for the Preliminary Scientific, Intermediate, and Final Examinations in Medicine.

Students entering in the summer are eligible to compete for the Science Scholarships of £150 and £60, awarded in October.

All Appointments are open to Students without extra payment.

Tutorial Classes are held prior to the Second and Final Examinations of the Conjoint Board in January, April, and July.

A Register of approved lodgings and of private families receiving Boarders is kept in Secretary's Office.

Excellent Day Club accommodation is provided in the School Building, and an Athletic Ground at Chiswick.

Prospectus and all particulars may be obtained from the Medical Secretary, Mr. G. RENDLE.

H. G. TURNEY, M.A., M.D. Oxon., *Dean*.

**LONDON HOSPITAL MEDICAL  
COLLEGE.**

The SUMMER SESSION COMMENCES on May 1. Students entering then are eligible to compete for the Entrance Scholarships in September and October. Twenty-seven Scholarships and Prizes are offered annually.

Special arrangements are made to meet the requirements of Students entering in the Summer Session.

As one of the constituent schools of the University of London, complete courses of instruction are provided for the medical and surgical degrees of the University.

A reduction of 15 guineas is allowed to the sons of members of the profession.

Enlargement of the College.—The new laboratories and class rooms for bacteriology, public health, operative surgery, chemistry, biology, &c., are now open.

For prospectus and full particulars apply to MUNRO SCOTT, Warden, Mile End, E.

**GUYS' HOSPITAL. — PRELIMINARY SCIENTIFIC (M.B. Lond.) CLASSES** are held throughout the year. Special instruction is given for the July Examination. Fee 16 guineas.

**GUYS' HOSPITAL. — ENTRANCE SCHOLARSHIPS** in September, 1902. Five Open Scholarships, three (£150, £60, and £50) in Science, and two (£100 and £50) in Arts.

Particulars and copies of examination papers on application to the DEAN, Guy's Hospital, London Bridge, S.E.

**B.S.C., PH.D., Coaches in Botany, Zoology, Geology, Mineralogy, and Mathematics,** for all Science Examinations.—Low terms. Apply to Dr. FRITSCH, 145 King Henry's Road, Hampstead, N.W.

**BEDFORD COLLEGE FOR  
WOMEN  
(UNIVERSITY OF LONDON).**

YORK PLACE, BAKER STREET, W.

The Easter Term begins Thursday, April 24th.

The College provides instruction for students preparing for the University of London Degrees in Arts, Science, and Preliminary Medicine; also instruction in subjects of General Education. There is a Training Department for Teachers, a Hygiene Department, and an Art School.

Students can reside in the College.

Entrance Scholarships.  
One Courtauld Scholarship in Arts, annual value £31. 10s., tenable for three years;

One Pfeiffer Scholarship in Science, annual value £48, tenable for three years;

One Plesner Scholarship in Science, annual value to be awarded on the results of the Examination to be held in June.

Particulars on application to the PRINCIPAL.

**BEDFORD COLLEGE FOR  
WOMEN  
(UNIVERSITY OF LONDON).**

YORK PLACE, BAKER STREET, W.

DEPARTMENT FOR THE PROFESSIONAL TRAINING OF TEACHERS.

A Scholarship of the value of £25 is offered by the Council in conjunction with the Reid Trustees, to a Teacher entering the Training Department, who has a Science Degree or its equivalent, has experience in teaching, and will specially devote herself to the teaching of Science.

Applications to be sent in by April 14th at latest. Term begins April 24th.

Full information can be obtained from the Head of the Training Department, Miss H. ROBERTSON.

**THE CAMBRIDGE TRAINING  
COLLEGE FOR WOMEN TEACHERS.**

Principal—Miss M. PUNNETT, B.A. (Lond.).

A residential College providing a year's professional training for Secondary Teachers.

The course includes preparation for the Cambridge Teacher's Certificate (Theory and Practice), and for the Teachers' Diploma of the London University. The Students attend the Cambridge University Lectures on Teaching, in addition to those of the Resident and Visiting Lecturers. Ample opportunity is given for practice in teaching science, languages, mathematics, and other subjects in various schools in Cambridge.

Students are admitted in January and in September. Full particulars as to qualifications for admission, scholarships, and bursaries may be obtained on application to the PRINCIPAL, Wollaston Road, Cambridge.

**WESTFIELD COLLEGE (FOR  
WOMEN),  
HAMPSTEAD, LONDON.**

FOUR SCHOLARSHIPS, of the value of from £30 to £60 a year for two years, will be offered for competition at an Examination to be held on June 24th and 25th, 1902.

Candidates must not be under 18 years of age, and must have passed the Matriculation Examination of the University of London. The successful candidates will be required to come into residence in October next, and to read for the B.A. or B.Sc. Degree of the University of London. Entrance forms and full particulars may be obtained from the Secretary, Miss S. M. SMER.

**BIRKBECK INSTITUTION,  
BREM'S BUILDINGS, CHANCERY LANE, E.C.**

CONJOINT BOARD EXAMINATION.

The following Special Courses of Study are arranged for Students preparing for the July Examination:—

- Chemistry ... .. J. E. MACKENZIE, Ph., D.Sc.
- Physics ... .. ALB. GRIFFITHS, D.Sc.
- Biology ... .. H. W. UNTHANK, B.A., B.Sc.
- Practical Pharmacy F. A. UPPHER SMITH, Pharmaceutical Chemist.

The Courses comprise Lectures and very full Laboratory Work.

Fees for Chemistry or Biology, 4s.  
Fees for Physics or Pharmacy, 2s.  
Fee for all Four Subjects, £6.

Full information on application to the PRINCIPAL.

**ST. OLAVE'S AND ST. SAVIOUR'S  
GRAMMAR SCHOOL FOUNDATION,  
SOUTHWARK.**

The Governors invite applications for the Post of HEAD MISTRESS for the new St. Saviour's and St. Olave's Grammar School for Girls, in course of erection in the New Kent Road, S.E. (to accommodate 300 pupils). Salary, fixed stipend, £100, allowance in lieu of residence, £50, and a capitation payment of £2 for each pupil to the number of 100, and £1 for each pupil above the number of 100.

Applications, with not more than three testimonials and three references, to be sent in on or before May 20th, 1902. Personal canvassing not allowed. For form of application and further particulars apply (by letter only) to the CLERK TO THE GOVERNORS, St. Olave's and St. Saviour's Grammar School, Tooley Street, S.E.

**JOINT AGENCY FOR WOMEN TEACHERS.**

(Under the management of a Committee appointed by the Teachers' Guild, College of Preceptors, Headmistresses' Association, Association of Assistant Mistresses, and Private Schools' Association.)

Address—74 GOWER STREET, LONDON, W.C.

Registrar—Miss AGNES G. COOPER.

This Agency has been established for the purpose of enabling Teachers to find work without unnecessary cost. All fees have therefore been calculated on the lowest basis to cover the working expenses.

Headmistresses of Public and Private Schools, and Parents requiring Teachers, or Teachers seeking appointments, are invited to apply to this Agency.

Many Graduates and Trained Teachers for Schools and Private Families; Visiting Teachers for Music, Art, and other special subjects; Foreign Teachers of various nationalities; Kindergarten and other Teachers are on the Register, and every endeavour is made to supply suitable candidates for every vacancy.

School Partnerships and Transfers are arranged.

Office hours—9.30 a.m. to 5.30 p.m. Hours for interviews are from 10.30 a.m. to 1 p.m., and 2 p.m. to 5 p.m.; Wednesdays to 1.30 p.m. only, when the Office is closed.

**JOINT AGENCY FOR ASSISTANT MASTERS.**

23 SOUTHAMPTON STREET, BLOOMSBURY SQUARE, LONDON, W.C.

Registrar—Rev. F. TAYLOR, M.A. Cantab.

Low Commissions, Liberal Discount.

Headmasters having vacancies on their staffs, and Assistant Masters seeking appointments, are asked to communicate with the REGISTRAR.

Office Hours—10 a.m. to 5 p.m., Saturdays, 10 a.m. to 1 p.m. Interviews generally between these hours or by special appointment.

**FREE.**

**PROFESSOR DENNEY AND  
MR. LYDDON-ROBERTS,**

Principals of the Normal Correspondence College,

have, through the courtesy of the College of Preceptors, issued the following

**FREE GUIDES.**

- 1. A.C.P. 64 pages.
  - 2. L.C.P. 76 "
  - 3. F.C.P. 75 "
- And have also published the following Guides.
- 4. SCHOLARSHIP. 80 pages.
  - 5. CERTIFICATE. 40 "

These Guides are supplied gratis to all who mention this paper and state they intend sitting for examination.

Those applying for L.C.P. or F.C.P. Guide must give date of passing A.C.P. or L.C.P. Those applying for a Certificate Guide should state year of passing the King's Scholarship and number on the list.

**NORMAL CORR. COLLEGE,**

47 MELFORD ROAD, EAST DULWICH, S.E., and  
110 AVONDALE SQUARE, LONDON, S.E.

**ROYAL HOLLOWAY COLLEGE  
FOR WOMEN.**

(UNIVERSITY OF LONDON.)

ENTRANCE SCHOLARSHIPS.—Ten Entrance Scholarships from £75 to £40, and several Bursaries of £30, tenable for three years at the College, will be awarded on the results of an Examination to be held from July 1st to 5th, 1902. Names must be entered before June 3rd. The College prepares Students for London Degrees and also for Oxford Honour Examinations. Inclusive fee, £90 a year. The Easter term begins on April 21st.

For forms of entry and further particulars apply to the SECRETARY, Royal Holloway College, Egham, Surrey.

**THE ANSTEY PHYSICAL TRAINING COLLEGE  
FOR WOMEN TEACHERS**

(LING'S SWEDISH SYSTEM).

There are more openings for Students trained at this College than can be filled.

Apply for Prospectus to the PRINCIPAL, The Leasowes, Halesowen.

**UNIVERSITY COLLEGE OF NORTH WALES, BANGOR.**

(A Constituent College of the University of Wales.)  
Principal—H. R. REICHEL, M.A.

The Session began on October 1st, 1901. The College Courses are arranged with reference to the degrees of the University of Wales and include most of the Subjects for the B.A. and B.Sc. degrees of the London University. Students may pursue their first year of medical study at the College. There are special departments for Agriculture and Electrical Engineering, a Day Training Department for men and women, and a Department for the Training of Teachers in Secondary Schools.

Sessional Fee for ordinary Arts Course, £11. 1s.; ditto for Intermediate Science or Medical Course, £15. 15s. The cost of living in lodgings in Bangor averages from £20 to £30 for the Session. The new Hall of Residence for Women Students in Upper Bangor—fee £31. 10s. for the session—is now open.

At the Entrance Scholarship Examination (held in September), more than twenty Scholarships and Exhibitions, ranging in value from £40 to £10, will be open for competition. One half the total amount offered is reserved for Welsh candidates.

For further information and copies of the various Prospectuses, apply to  
JOHN EDWARD LLOYD, M.A.,  
Secretary and Registrar.

**UNIVERSITY OF DUBLIN. TRINITY COLLEGE.**

The Board of Trinity College are prepared to receive applications from candidates for two Readerships in Indian Languages:

- (1) A READERSHIP IN BURMESE AND HINDUSTANI.
- (2) A READERSHIP IN TAMIL AND TELUGU.

The Salary of each will be £150 per annum, in addition to Fees from Students. The duties will be to lecture on three days in the week during each of the eighteen weeks of the University Arts Course, beginning in the first week of November, 1902, and also during six weeks in the months of August-September, beginning in 1903, and such other duties as the Board of Trinity College may direct.

Candidates must send copies of their testimonials, before May 15th, to the REGISTRAR, Trinity College, Dublin.

**UNIVERSITY OF WALES.**

**IMPORTANT NOTICE.**

Owing to the date of the Coronation, the Matriculation Examination of the University of Wales will be held on Monday, June 30th, 1902, and following days, instead of Monday, June 23rd, and following days, as originally fixed. Applications for Entry Forms must be made not later than Monday, May 26th, to IVOR JAMES, Registrar of the University, Brecon.  
March 19th, 1902.

**SCHOOL BOARD FOR LONDON.**

**THE Services of ASSISTANTS** qualified to teach the subjects set out in Schedule V. of the New Code of the Board of Education are required at the Board's Pupil-Teachers' Schools as set out below.

<i>School.</i>	<i>Sex of Assistant.</i>
FINSBURY, Offord Road, Barnsbury	Woman.
MILE END, Essex Street, Mile End Old Town, E.	Man.

Salary: Men, £150 per annum, rising by annual increments of £5 to £200 per annum; Women, £130 per annum, rising by annual increments of £5 to £165 per annum.

Applications to be made on Form 40 P.T., on which, with other information, copies only of three testimonials must be given. A copy of this form can be obtained from the Clerk of the Board. If a written application is made for one, it must be accompanied by a stamped and addressed envelope or wrapper.

Applications must be received by the CLERK of the BOARD, School Board Offices, Victoria Embankment, London, W.C., by or before the first post on Monday morning, April 7, 1902.

Applicants who applied for the recently-advertised vacancies for Assistants in the Board's Pupil-Teachers' Schools can have the Form 40 P.T. they then submitted placed before the Committee on informing the Clerk of the Board on or before April 7.

All communications on the subject of this notice should be marked outside "P.T. Schools."

Candidates from the country invited to attend the Committee will be allowed third-class return railway fare to London, and, if necessary, hotel expenses not exceeding 10s. a day for two days. If application for such payments is made, it must be accompanied by receipted vouchers; but if a candidate after being nominated refuses to take up the appointment, these expenses will not be allowed. Applicants who do not receive, on or before April 19, a summons to attend before the Committee on April 21 will understand that they have not been included in the list of candidates to be seen by the Committee, and will not be further communicated with.

**University Tutorial College.**

Principal: WILLIAM BRIGGS, LL.D., M.A., F.C.S.  
Vice-Principal: JOHN BRIGGS, M.A., F.Z.S.



**THE OFFICIAL PASS-LISTS OF London University**

credit UNIVERSITY TUTORIAL COLLEGE

WITH MANY TIMES MORE SUCCESSES AT

**MATRICULATION**

AND OTHER EXAMINATIONS

than any Institution which prepares orally for these Examinations.

On the last published list, Matriculation, January, 1902, University Tutorial College figures 31 times.

**PRACTICAL CLASSES IN PHYSICS, CHEMISTRY, and BIOLOGY, AND PRIVATE TUITION IN ANY SUBJECT, MAY BE TAKEN UP DURING THE EASTER VACATION.**

Full particulars may be had from THE VICE-PRINCIPAL, UNIVERSITY TUTORIAL COLLEGE, 32 Red Lion Square, Holborn, W.C.

**BURLINGTON CORRESPONDENCE COLLEGE.**

27 Chancery Lane, London.

Principal: Mr. J. CHARLESTON, B.A. (Honours, Oxon.; and Lond.).

**TUTORS.**

The Staff includes Graduates of London, Oxford, Cambridge, and Royal Universities, Science Medallists, and Specialists.

**PREPARATION BY CORRESPONDENCE FOR**

**MATRICULATION, B.A., B.Sc.**

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**L.L.A.**

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FOR TERMS, TESTIMONIALS, &c., Address—Mr. J. CHARLESTON, B.A., BURLINGTON CORRESPONDENCE COLLEGE, 27 CHANCERY LANE, LONDON.

**CARLYON COLLEGE.**

55 AND 56 CHANCERY LANE.

**LONDON UNIVERSITY EXAMINATIONS.**

LONDON MATRICULATION, INTER. ARTS and SCIENCE, B.A., and B.Sc. Classes (small) Day and Evening. Vacation Tuition and Classes.

Classes and Tuition for Legal and Medical Preliminaries, Accountants', Scholarship Examinations. Oxford and Cambridge, E.U.I., &c.

Papers Corrected for Schools. Private tuition for all Examinations. Prospectus and full details on application to R. C. B. KERIN, B.A. Lond., First of First Class Classical Honours, Editor of "Phaedo," "Pro Plancio," &c.

**SUCCESSSES.**

1892-1901.—London Matric., 84; Inter. Arts, Sc., and Prel. Sci., 105, 6 in Hons.; B.Sc., 1896-1899, 11; B.A., 1891-1901, 63, 11 in Hons.; many other Successes. Scholarships, R.U.I., Indian Civil, Oxford and Cambridge, &c.

**B.A. LONDON, 1899 - 1901, 28 successful. M.A., 3 (1898, 1899, 1901).**

**OXFORD LOCAL EXAMINATIONS.**

LONDON COMMITTEE (BOYS).

Forms of Entry for the Examinations in July next at the London (Boys) Centre can be obtained from the Secretary, E. LAYMAN, Esq., 1 Garden Court, Temple, E.C.

**HANDELS HOCHSCHULE, COMMERCIAL UNIVERSITY, COLOGNE, GERMANY.**

LECTURES commence APRIL 20th.

Special Courses in German for Foreign Students. For further particulars (Prospectus, &c.) apply to the Director, Professor Dr. SCHUMACHER, Cologne.

**CORRESPONDENCE TUITION,**

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CONTENTS.

	Page		Page
The Education Bill .....	169	The Teaching of Elementary Mathematics: Impending Re-	
Notes .....	170	forms. By Dr. J. J. Findlay. Paper read at the Evening	
Summary of the Month .....	172	Meeting of the College of Preceptors .....	184
The Order in Council relating to Registration—Questions in		Professional Preliminary Examination Pass List .....	187
Parliament .....	176	Reviews .....	188
Sir Richard Temple .....	177	An Owens College "Festschrift"; Huxley: a Popular Memoir;	
Meeting of the Council of the College of Preceptors .....	177	Geography and Travel; The Investigation of Gases.	
Prize Competitions .....	178	General Notices .....	190
Current Events .....	181	First Glances .....	191
Fixtures; Honorary Degrees; Vacancies and Appointments; Liter-		Mathematics .....	195
ary Items; General.			

The Educational Times.

*The Education Bill.* THE long-expected, and not a little dreaded, Education Bill was at last introduced into the House of Commons on March 24 by Mr. Balfour, Sir John Gorst being absent through regrettable illness. Mr. Balfour's statement, though in points vague, indicated clearly enough a series of far-reaching changes. As we go to press, the Bill itself is not available, but the text is not at all likely to be any less drastic than Mr. Balfour's exposition. Definite and final criticism must await an examination of the actual provisions.

Both primary and secondary education are dealt with in the measure, and this "with a view to their better co-ordination." Both, with technical education thrown in, are placed under a single authority—the rating authority of the district; that is to say, the County Council or the Borough Council. The arrangement, however, is not so simple as it looks, for the Council is to work through a Committee or Committees formed under a scheme to be approved by Whitehall, and a Committee is to be constituted in a composite fashion, the Council appointing at least a majority, while "another portion will be by nomination of other bodies of persons experienced in education and acquainted with the needs of the various kinds of schools in the area for which the Council acts." Wales is given the option of retaining her existing Secondary Authority, in case she should not wish to adopt the new Committees. What sort of scheme for a Committee will gain approval at Whitehall we have yet to learn.

There are two notable exceptions to the universality of the Bill, besides the option for Wales. The London School Board is respite till next Session. London was treated exceptionally in 1870; and this precedent is now followed. For London "exists under a different set of sanitary and police laws," says Mr. Balfour; "its legislation affecting constituent boroughs is different from the legislation affecting other boroughs in the kingdom"; the Bill "is quite big enough for the present Session"; and the case of London will gain "all the advantage which discussion of the present

measure will give." The other exception illustrates a legislative process that this Government has made tolerably familiar. "We propose," says Mr. Balfour, "to leave it to the Councils of the various districts to adopt the elementary portion of this Act if they please." This permissive element shows weakness, and promises to make confusion worse confounded. Sir Richard Jebb at once pronounced it the blot on the Bill. But, then, pleaded Mr. Balfour, "we have to carry with us the Local Authorities on whom the working of the Bill falls"; and there is the precedent of 1876 as to compulsory attendance by-laws with non-School Board areas. These exceptions indicate how far the scheme still falls short of comprehensiveness and finality.

"The County Councils and Borough Councils," Mr. Balfour tells us, "will have a 2d. rate to work upon" in secondary education. Mr. Balfour himself, however, admits his own conviction that it will "in many places" be insufficient. Well, if it be, the County Council can apply for a provisional order to get the limit raised. On the one hand, it will be asked why should the local people be hampered in any way in making such provision for local education as their intelligence and generosity may impel them to make. On the other hand there will be strong objections to an increased rate. Conflicts are more than probable; and the expensiveness of provisional orders is certain.

The new Local Authority, in taking over elementary education, will, of course, take over the voluntary schools as well as the Board schools. The Government frankly claims the support of the rates for the voluntary schools. There would be no grudging of the money provided the conditions of grant were generally acceptable. But already the war-cries are resounding because the voluntary school, wholly supported by public funds, will still remain denominational. It would, indeed, be an incalculable gain to the country and to education—and notably in the agricultural districts, half of which have never contributed a penny from the rates to the elementary education of the children—if the religious conflict could be definitively ended, and the course of education left free. But how can any such devoutly wished consummation be reasonably anticipated under this Bill? Why, we have it on the authority of Sir John Gorst himself not only that the people in the villages

“prefer the Church school with its Catechism and its clerical tyranny to a School Board”; but that “they would rather their children were taught anything than that they should have to pay a School Board rate.” Conscience or no conscience, will they be any more willing to pay a common Voluntary and School Board rate? Again, where the Bill is not adopted, the School Boards will remain apparently as they were, yet not so in fact; neither in day nor in night schools will they have power to offer instruction to any pupils beyond the age of fifteen, nor is there open to them any hope of development. Such matters will be warmly debated on both sides, to the peril of the Bill.

The Councils, as public elected bodies, would no doubt command popular confidence and labour to maintain it; but surely they have business enough on their hands to justify the gravest doubt whether they can possibly give to the great and growing subject of education the time and care it imperatively demands. It may further be doubted whether the ranging of education as one only of the many matters to be cared for by the Councils is likely to secure the best local talent and energy for service in educational work. As matters develop, such apprehensions may prove to be vain. But will the Bill go through? The elementary school portion, as we have seen, bristles with contentious points. Secondary education appears to be treated substantially as it was in the Bill of last year, and the provisions, unfortunately, will have to share the multiplied risks besetting the provisions for elementary education. Yet, after all, the Government is bound to make a great effort to retrieve the failures of the past.

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### NOTES.

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THE appointment of Mr. Pinches as the representative of the College of Preceptors on the Teachers' Registration Council will, we believe, give general satisfaction to the members of the College. His long and varied experience in the examination and inspection of secondary schools in all parts of the country peculiarly fits him to discharge the duties of the office, while his well known sympathy with the work of private-school teachers affords a guarantee that their just claims to consideration will not be overlooked. The criteria of efficiency of secondary schools will have to be considered by the Registration Council, and it will not be out of place to call attention to the paper on this subject read by Mr. Pinches at the Conference on the Report of the Royal Commission on Secondary Education six years ago, and printed in the *Educational Times* for February, 1896.

It would appear from the answers of Sir John Gorst to questions in Parliament, which will be found in another column, that the functions of the Teachers' Registration Council are of a somewhat more comprehensive character than seemed at first sight to be provided for in the Order in Council. For on the Council will devolve the task of determining the conditions on which schools may be recognized

for the purposes of registration of their head masters and mistresses, as well as of the teachers employed in them. It is implied that recognition involves efficiency; and efficiency is a relative term, whose meaning will depend on a variety of considerations. It is stated that, in any case where recognition is refused, appeal may be made to the Board of Education, who will decide the question by inspection of the school. It is, however, to be noted that, in the inspections that the Board has hitherto undertaken, it has refrained from pronouncing a definite opinion on the efficiency of the schools. In the case of the Supplemental Registers, the determination of the sufficiency of qualifying examinations is to be left to the registration authority—a task of no small difficulty having regard to the constitution of the Council; while, with regard to the general qualifications for admission to the Register which have been laid down by the Consultative Committee, it is evident that some revision is urgently called for if grave injustice is not to be done to numbers of deserving teachers. It will undoubtedly be the duty of the Registration Council to call attention to serious anomalies in these regulations, and to make representations to the Board of Education for their amendment at the earliest possible date.

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WE congratulate Owens College on the brilliant success of its Jubilee celebrations, and felicitate it on the splendid record of struggle and achievement that has won for it the admiration of the educational world. We do not doubt that such a lusty youth will advance to a vigorous manhood, and we wish the institution a career of continuous success. The endowments of the college, though ten times the original sum, have been outstripped by the needs generated by the college work and by the advance of educational ideas. The good understanding between the college and the municipality and neighbourhood will be opportunely fostered by the judicious counsels of the Prince of Wales. The question of development into a University is for home settlement. The fundamental point of all is the question of men—advisers of policy and teachers of capacity and breadth; and therein Owens has been, and is, fortunate. The celebrations may also be expected to work a general educational advantage; as the *Manchester Guardian* justly remarked, “anything that makes a more striking figure of a great educational institution is valuable, for the bane of education in England—University, secondary, and elementary—is sheer public inattention.”

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WE are glad to note that the humbler ranks of the profession have not been overlooked in the conferment of honorary degrees this month. The recognition of good work in the less obtrusive spheres is particularly encouraging to teachers in institutions below University rank. Victoria showed a creditable example in conferring the honorary M.A. on Miss Adamson and the honorary M.Sc. on Messrs. Jones, Reynolds, and Scotson. Miss Adamson's degree prompts a repetition of the inquiry: Why do Oxford and Cambridge lag behind? Why cannot they give degrees to women on the same terms as to men? A certificate, though testifying the same facts, is still, in this imperfect world, a very

different thing from a degree in practical potency. Edinburgh honours itself by conferring its honorary LL.D. on Miss Beale. She is, if we mistake not, the first lady to receive this degree on the score of educational merit.

THE benefactions of rich Americans to institutions of public usefulness should spur the rivalry of rich Englishmen. The New York correspondent of the *Daily Express* has been adding up the items of last year's generosity, and arrives at the comfortable total of £52,000,000. Even so he treats as negligible such trifles as gifts of less than £1,000 each, the ordinary denominational contributions for educational, benevolent, and religious purposes, State and municipal appropriations to public and sectarian institutions, and Congress grants for various measures of relief. Mrs. Leland Stanford consummated her long-planned endowment of Leland Stanford Junior University, San Francisco, by a contribution of £6,000,000—thrice the Scottish gift of Mr. Carnegie, and that, too, as a mere supplement to previous millions. Mr. Carnegie himself gave away last year some £6,500,000 to American places of learning and study, some £2,500,000 being devoted to libraries; and at the end of the year he had conditional offers of over a million more pending. Mr. J. D. Rockefeller gave the best of another million to his great University of Chicago, and yet another million has just been announced. Surely we have, if not one, yet, say, a score of philanthropists that might find the million required by University College, London—to begin with—and never miss it. Why should the national, and even the merely commercial, value of educational institutions be more vividly realized in America than in England? We fall behind at our peril. Fortunately, however, our well-to-do fellow-citizens seem to be gradually getting impressed with the importance of education. Elsewhere we record two noble gifts of the month.

WHETHER Mr. Carnegie might have adopted a better scheme for his Scottish Universities Trust is a question that might be long discussed before reaching a conclusive settlement. So far, on the first report of the trustees, the fee clause of the actual scheme seems to be working satisfactorily and with good promise. Under this clause £22,941 has been assigned to 2,441 students—between £9 and £10 apiece, and there is clear evidence that even this moderate individual assistance has in very many cases relieved a real strain. The number of matriculated students, however, does not yet appear to have been affected. Where there is an increase, it is but slight, and may be accounted for by ordinary causes of fluctuation. Why is this? One of the requirements of the Trust is “that the applicant must be qualified by preliminary examination, under the ordinances of the Scottish Universities Commission and the regulations of the Joint Board of Examiners, to attend the classes for which payment of fees has been claimed”—a very proper requirement. But, then, it implies a course of study that many parents of promising boys may not have been able to afford. This difficulty has long been foreseen, and there is a growing belief that Mr. Carnegie's benefaction will not come into full operation till

the barrier between primary school and University be broken down by setting free, or by adequately organizing and assisting, secondary education.

THERE is another clause, however, that will probably prove a still more effective educational force than the fee clause of the Trust deed. It has awakened the Scottish Universities to a comprehensive investigation of their “more urgent needs,” such as they would scarcely have tackled without some definite prospect of fulfilment. Edinburgh asks for a capital sum of £45,000, and a permanent annual grant of £9,000. Aberdeen wants some £21,000 a year, and a substantial capital sum (we will not labour to add up the items). St. Andrews appears to be content with £15,000, and £2,800 a year; but her modesty is compensated by the bold demand of Dundee for £66,100 (spread over seven years), and £2,650 annually. Glasgow—are there not rich men enough in the Second City of the Empire to make full provision for the University? If there is danger of pauperizing a student under the one clause, what of the danger of pauperizing a city under the other clause? The lump grants will mostly run into stone and lime, renovation or expansion being everywhere necessary. For the rest, there is a hungry demand for more Chairs, more laboratory equipment, more complete libraries, and so forth. All this is in the right direction, and if you bode a silk gown you may perchance get a sleeve of it.

THE growing responsibilities of the nation and the increasing competition of other countries are regarded by Mr. Hanbury, the Minister of Agriculture, not without uneasiness. We should be glad to believe that more Ministers are similarly uneasy, and especially those that are peculiarly charged with the interests of national education. “We cannot afford to leave a single child uneducated,” said Mr. Hanbury to a Preston audience (March 20). “We want all the talent we can summon to our aid. We must pave the way for talent and for merit. The day of patronage is past.” Why, here are headlines for copy-books. No doubt, then, Mr. Hanbury himself has been, and is, pressing on his fellow-Ministers practical measures of reform and amelioration. We have heard all these excellent opinions before now, and what we are concerned for is an educational organization that shall secure the objects so devoutly to be wished. Mr. Hanbury has but to cast his eye, however casually, over his own jurisdiction in order to discern a superabundance of arguments for action—and prompt and thorough-going action—on the part of the Government. He is reported to have “decried mere book knowledge,” and to have said “that our children must become . . . an inventive race, which could use its own brains to some purpose.” Well, book knowledge has its own virtue, and, as to the children's using their own brains, is this not a continual object of teachers so far as the existing system permits them to pursue it?

DR. ALBERT HEINIG, of Freiberg, considers “Commercial Education in Germany and England” in the February number of the *Chicago School Review*, and arrives at conclusions that have a strong present interest for us, however

obvious they appear. He agrees with our own Foreign Office Report (434, November, 1897) that "the wonderful increase of commercial schools is a result, and not one of the causes, of the trade successes of Germany." But he asks: "How has it been possible for Germany to increase the number of her commercial schools to far greater extent than England has done since the time when the schemes of the London Chamber of Commerce were published?" His answer is this:

In Germany a sound elementary and secondary education had laid a firm foundation to build upon. Every town went to work, according to its own local needs, and the Government watched, centralized, and aided all these endeavours in order to prevent overlapping and unnecessary expenditure.

Dr. Heinig tells us that "England is paying her penalty for having neglected education for a century." It would be easy enough to demur to such a sweeping statement, but it would be more prudent to give heed to the essential truth it embodies. There can be no doubt that "England can only hope to have lasting results for the sums spent on mercantile schools if she considers and organizes commercial education as resting on the firm basis of a systematically organized secondary education." And this necessarily implies the firm basis of a systematically organized elementary education.

LAST Session the First Lord of the Admiralty, repeating the unanimous opinion of admirals and captains fresh from the sea, affirmed that the existing system of naval education was as good as possible, and that, therefore, no alteration was contemplated. This Session, however, he invited criticism on the subject. Already criticism had been at work, and Mr. Julian Corbett had written a scathing denunciation of the present "Education in the Navy," which appeared in the *Monthly Review* for March. Mr. Corbett notes, what is so generally forgotten, that the virtues of the old system went out with masts and sails. He rakes the "Britannia" course fore and aft: "it is neither instruction nor education that a boy gets in the 'Britannia,' but rather a mere deadening of the appetite for what concerns his profession, and a voracious interest in various things that do not." The second stage—from sixteen to nineteen—on board ship, is also discredited: "to say it is a failure is almost to compliment it." And the final stage—at "what is dignified by the name of the Naval College at Greenwich," and at Portsmouth (where the young officer "is rushed through short courses of gunnery, torpedo, and pilotage," in six months)—is treated with like severity, not to say contempt. "Whatever the difficulties, one thing is certain," Mr. Corbett concludes: "the present system will not do." Lord Selborne had better consult the junior officers, "who are in direct touch with the youngsters, who have to get the work done by them, and who are responsible if it is done ignorantly—these are the men that know." Lord Charles Beresford's long-standing complaint that naval officers have practically no opportunity of learning their business in its wider and higher aspects completes a sufficiently comprehensive indictment. We cannot afford to cherish any illusions, educational or other, about our first line of defence.

It is a far cry to Demerara. Still, Demerara is British, and the brethren there deserve at least sympathy in difficulties greater than beset us even here. There is an

agitation in process: "a map of the colony is very much wanted in the schools"—for Standards V. and VI. of the Code, in which the geography of British Guiana is prescribed. Again, our plucky and earnest contemporary, the *Guide*, the monthly magazine of the British Guiana Teachers' Association, has been for the past eighteen months urging the Government to meet a pressing social want by "initiating the elder and advanced girls of all the primary schools in the city [Georgetown] in the elements of practical domestic economy." But it cannot get the necessary 200 or 300 dols. a year, though "a grant of 500! dols. has been regularly given by the Government towards horse-racing." Further, there are parents that "sometimes come to the school, not to inquire, but to fight the under-teachers on the evidence of their lying children alone." Once more: "The colony has as many as twelve industrial schools—*on paper and in posse*. But there are fewer boys in the whole number than there are in the reformatory." The People's Memorial Committee recently sent home representations on some such difficulties, but the reply (February 10) intimates that, "in Mr. Chamberlain's opinion, it is not an opportune time to increase the liabilities of the Colonial Government." One cannot but hope that this is a very exceptional example of the discharge of "Imperial" responsibility in administration. British Guiana cannot afford a map of the colony! What can be expected of the rising generation but that they will, in their turn, "fight the under-teachers," like their fathers before them?

### SUMMARY OF THE MONTH.

THE first Report of the Carnegie Trust for the Universities of Scotland shows that for the winter session 1901-2 the sum of £22,941. 16s. 6d. was paid by the Trust up till December 31, 1901, on behalf of 2,441 students, representing the fees of 7,610 classes. This comes to a little over £9 a head. The number of students and the class fees were as follows:—St. Andrews, 268 students, class fees, £2,452. 16s.; Glasgow, 828 students, class fees, £7,672. 13s. 6d.; Aberdeen, 473 students, class fees, £3,806. 1s. 6d.; Edinburgh, 872 students, class fees, £9,010. 5s. 6d. In two cases the fees paid have since been refunded; in one, by a father on learning that his son was a beneficiary; in the other, on gaining a Fellowship, by a student, who expressed the pleasure it "gave him to take advantage of the excellent provision of the Trust which gives applicants the opportunity of repayment." This prompt act of repayment has been acknowledged by Mr. Carnegie in very joyous and elevated terms, for has not the honest young man shown "the spirit of manly independence so dear to the Scots"? "The Committee, in accordance with the expressed desire of Mr. Carnegie, did not make question respecting the circumstances of applicants; but from information voluntarily offered by applicants themselves they have ample assurance that in a large number of cases the payment of class fees has proved a boon of the greatest value to deserving students; and many acknowledgments of the letter sent to the parents and guardians of applicants express gratitude for the timely assistance rendered by the Trust." So much for one section of the Trust. Meantime the Universities have been drawing up schemes exhibiting their "more urgent needs." These will now fall to be considered by the trustees.

THE classics are still to the fore beyond the Tweed. There has just been formed "The Classical Association of Scotland," with Prof. Ramsay, of Glasgow, for President, and Prof. Butcher, of Edinburgh, for Vice-President. Mr. Coutts, of Watson's College, Edinburgh, is Secretary. The Association makes a start with over a hundred members, including some of the foremost classics and classical teachers in the country. The objects of the Association are to bring together for practical conference all persons interested in classical study and education; to promote com-

munication and comparison of views between Universities and schools; to discuss subjects and methods of teaching and examination, and any other questions of interest for classical scholars. There will be two meetings annually, one in spring and one in autumn, held in the four University towns in rotation.

THE conferment of the honorary degree of LL.D. on Prince Henry of Prussia by Harvard University (March 6) gained special distinction from a passage in President Eliot's speech that deserves record:—

As University men we feel the immense weight of the obligation under which America rests to the technical schools and Universities of the German Fatherland. Our whole people have the most profound sympathy for the unification of Germany, and we gladly welcome this worthy representative of German greatness. We see in him, however, something more than the representative of a superb nationality and an Imperial ruler. Universities have long memories. Forty years ago the American Union was in deadly peril, and thousands of its young men were bleeding and dying for it. It is credibly reported that at a very critical moment the Queen of England said to her Prime Minister: "My lord, you must understand that I will sign no paper which means war with the United States." The grandson of that illustrious woman is sitting with us here.

Peace hath her victories no less renowned than war. The degree was conferred at a special session. Only on two previous occasions has Harvard held a special session to confer degrees, and then the recipients were both Presidents of the United States.

OWENS COLLEGE celebrated its jubilee on March 12. It has practically doubled its forces in the past twenty years. It has upwards of a hundred professors, lecturers, and demonstrators. The roll for the present session counts 1,035, not including 174 evening students, or the students from the Bankers' Institute for law lectures. In the Departments of Arts, Science, and Law there are 744 students, of whom 178 are women; and in the Medical Departments there are 335, of whom 6 are women. The Day Training College numbers 134—72 men and 62 women. A week before the celebrations the Jubilee fund was brought up to £100,000 by a special gift of £2,400 from Mr. J. H. Gartside, whose munificent foundation of commercial scholarships we mention elsewhere. About £20,000 of the sum had been contributed by Owens men, old and new. Mrs. Rylands, too, added a fresh benefaction—the fine organ now building in the Whitworth Hall, which has just been added to the institution. It may be justly claimed for Owens that it is "the largest, wealthiest, and best equipped college of its type outside London." Pity that John Owens could not look up and see the rich fruits of his wise and generous forethought.

THE PRINCE AND PRINCESS OF WALES were received at the College with the greatest enthusiasm. The Duke of Devonshire, President of the College, having opened the proceedings in the Whitworth Hall, Dr. Hopkinson, K.C., LL.D., the Principal, presented to the Royal visitors an address of welcome. The Prince replied at some length, paying a handsome tribute to the benefactors of the College, and strongly bespeaking for the College "a generous local and municipal support to enable it to keep abreast of the ever-growing demands of modern life, whether it be in the arts, in sciences, or other departments of a liberal education." Sir R. C. Jebb and Principal Rücker spoke as representatives of Literature and of Science, with great acceptance. Exhausted nature next demanded luncheon, which was dispensed under the presidency of Lord Mayor Hoy. On this occasion the Prince scored brilliantly by expressing his pleasure that Manchester—the youngest of British ports, and the sixth in rank—had "found her sea-legs." Finally, the Prince unveiled a statue of the late Queen in the west porch of the Manchester Cathedral—"T'owd Church"—"executed and presented," said the Prince, "by my dear aunt," Princess Louise, Duchess of Argyll. Next day (March 13), a long procession of representatives of Universities, colleges, and learned societies presented congratulations to Owens College, and many of them received honorary degrees at the hands of Earl Spencer, Chancellor of Victoria University. We give a short list elsewhere.

It was fitting, as Dr. Maclaren remarked, that "the ceremonies of the week should be enclosed in a circlet of religious observances." On the preceding Sunday evening (March 9) a special commemorative service was held in the Cathedral, and the Bishop of Manchester preached from Romans i. 20 a broad-minded sermon on the alleged conflict between science and religion. "While

not venturing to hope that all antagonism between the men of knowledge and the men of faith will be brought to an end at once," said Dr. Moorhouse, "I do believe that as the years go by religious men will perceive that all real advances in scientific knowledge are friendly, and not hostile, to religion." His frank and sensible concluding words were:

To you, then, who are teachers in Owens College I would say: Set yourselves to teach the truth in every department of human thought. Teach it clearly, fully, fearlessly, knowing that there is no enemy of truth but darkness, and that you are then most surely doing His will who is "the Light of the World" when you are seeking to dispel that darkness.

On the next Sunday evening (March 16) the Rev. Dr. Maclaren preached at a commemorative service in the Union Chapel, in Oxford Street, from Proverbs iv. 7: "Wisdom is the principal thing, therefore get wisdom; and, with all thy getting, get understanding." "Whatever may be the attitude of their representatives," he said, "there is unity in the aim of these two mighty powers—learning and religion." And "it is impossible to overestimate the benefit of having planted in the midst of a great centre of commercial life an institution the very existence of which is a perpetual witness that there are higher things in the world and truer wealth than all the success and riches that can be won in mills and warehouses." So also the Rev. Dr. Salomon, preaching at the Great Synagogue, Cheetham Hill, on Saturday (March 15), declared that "religion and science could now well work hand-in-hand." Judaism had always considered knowledge as the foundation of faith.

It has been officially announced, on behalf of Victoria University, that, in the event of disruption, students will be enabled to complete their courses and to present themselves for the corresponding degree examinations. With regard to the proposal for separate Universities, Lord Spencer, as Chancellor, has called upon each of the three constituent colleges of the University to nominate four members to the Committee appointed to consider the terms and conditions for the establishment of the three Universities.

THE relations of friendship and mutual respect between Liverpool and Manchester educationists were pleasantly illustrated at a dinner of the members of the Liverpool University College Association (March 15). Owens College was largely represented among the guests. Principal Dale, who occupied the Chair, proposed the toast of "Owens College." Having expressed regret for the absence of Dr. Hopkinson (through a family bereavement), he referred to the congratulations that had just come from all quarters to Owens College, and said, in the name of all his colleagues, that the college first associated with Owens College in the work of a University also joined in those congratulations, and wished for the institution growing fame, growing power, and increasing prosperity. He congratulated Owens College on the advancement of the past and on the promise of the future; but the most important service rendered by Owens College to the intellectual life of England was the nationalizing of the idea of the city University. In the political life of our country we had long recognized the importance of maintaining a vigorous life outside the capital of the Empire, and what was important in politics was no less important in science and letters. He was convinced they would not advance their educational system, or solve the problems that confronted them at this moment, by any policy of centralization; but they would make good what was lacking and meet their difficulties only by developing and by encouraging local patriotism, local enthusiasm, and local effort. What they had seen in France during the last few years might serve them by way of warning and by way of encouragement. In that country they had discovered the danger of draining the provinces of intellectual vitality, and of making the capital control, not lead. Now, attempts were being made to raise faculties to the rank of a University with a very large measure of local independence. That was the direction in which educational development in this country would certainly move. That was the goal which they must keep in sight. It must be remembered that for thirty years, at any rate, Manchester and Owens College had led the way in this great movement. When the time came for their parting, he trusted it would be done with mutual affection and with mutual regard. In the meantime, they should continue to act, as they had acted during the last twelve months, in the spirit of an announcement he had seen on certain premises, which read: "Business will be carried on as usual during alterations." When they had parted, he was convinced that the Universities of Lancashire, at any rate, would be able to act together in the fullest sympathy and fullest intelligence in

all questions that affected the intellectual interest of this part of the country. Prof. Wilkins, responding, said that it would be poor testimony to the spirit of harmony that had always existed between Liverpool and Manchester, if they did not regret, to a degree, the anticipation of the severance of those bonds which connected them. He did not say that the severance was not desirable in the interests of both institutions, but he hoped that, whatever provisions might be made, they would be able to co-operate in some parts of University work. In some subjects they could still work, side by side, with the same harmony and self-respect as in the past. Dr. Gamgee, acknowledging the toast of "Our Guests," said that he was astounded at the amount of scientific work which had been done by past and present professors of University College, and he felt that that institution merited what was asked for, and he hoped they would obtain it. He considered the multiplication of Universities was an unmixed good. In Germany one could not fail to recognize that its intellectual position, its advancement in science and in industry depended upon its Universities. British people, however, were inclined to be optimistic, and did not sufficiently recognize the true value of knowledge. Certain of their industries had left them, because no scientific men had devoted themselves to the study of those industries. Germany's Universities were centres of learning and research. He believed the greatest function of such institutions was research.

A VALUABLE endowment for promoting the higher and more effective study of commerce and industry has been established in connexion with the Owens College. Mr. J. H. Gartside, of Hollingsworth, Cheshire, and Overstone Park, Northampton, has generously given the sum of £10,000, which has been applied in the purchase of an annuity of £1,163 for ten years, payable to the college, to be used for the provision of scholarships, which are to be known as "the Gartside Scholarships of Commerce and Industries." The scholarships are intended to induce young men that have already received a good education to devote a year at least in Owens College to the special study of subjects bearing on commerce and industry, and then to go abroad for the study of some particular subject, either in Germany or in the United States or some other approved country. The electors to the scholarships—with whom such approval will rest—will in the first instance be the founder of the scholarships, together with two electors appointed by the Owens College and one by the Manchester Chamber of Commerce. The emoluments of the scholar while in England will be about £80 a year; but when he goes abroad a larger sum will be given, which in the case of scholars travelling in the United States will probably be about £250 per annum. The scholars are to furnish reports of their investigations in the foreign countries they visit. These scholarships are intended by Mr. Gartside to be an incentive and assistance to those who contemplate a careful study of commercial and industrial methods.

THE *British Medical Journal* states that the sum of £25,000 has been given by Mr. William Johnston, shipowner, of Liverpool, for furthering the University movement in that city. The money will be devoted, in accordance with the donor's wishes, to promote research in pathology and physiology. The £25,000 is divided as follows:—£10,000 is allocated to found a Chair of Chemical Biology; £6,000, at 5 per cent. interest, to endow permanently three Research Fellowships of £100 a year each; and the remaining £9,000 is to be spent in building a laboratory to accommodate the Tropical School, the Professor of Chemical Biology, and experimental medicine, comparative pathology, and serum research departments. Of the three research fellowships, one is to be held by a medical graduate of a colonial University, a second by a graduate of medicine in the United States, and a third by a research student in gynaecology.

PROF. SONNENSCHNIGER discoursed to the "Symposium" of Non-conformist ministers and laity at Birmingham (March 17) on "City Universities: their Functions in the Twentieth Century." He magnified the impulse communicated by his own University of Birmingham, ascribing to it the agitation now in process for independent Universities in Liverpool and Manchester. What was it that Liverpool was fighting for, especially, and perhaps in a less degree Manchester, at the present time? It was just what Birmingham had fought for in the nineties—particularly between 1898 and 1900—the establishment of a city University in the place of a federal University. Having described the constitution of the city Universities, he urged that a debt is owing to the Victoria University as being the first organization to

claim with success for local colleges in England the right of granting degrees. He mentioned an improvement in the methods of conducting examinations as an instance of the sort of work the new city Universities would have to do, and he explained how in Birmingham in regard to matriculation the new principle had been adopted, the essence of which was that they should not expect all candidates to show precisely the same qualification. It was not necessary for the University that they should. They therefore laid down the principle that there must be some degree of differentiation in the requirements imposed upon a candidate according to the faculty in which he was going to study. He thought the greatest work before city Universities was the reinstatement of the idea of the University as a professional school. Whereas the old Universities reckoned with only three or four professions—the learned professions were medicine, theology, and law—our new Universities would have to reckon with a very large number—the professions of the chemist, the metallurgist, the miner, the brewer, and the man of commerce. In conclusion, he referred not only to Birmingham, but to the whole country, in mentioning as one very great difficulty that of getting the country to wake up to the necessity for this higher kind of education. But was there, he asked, a real danger threatening us? He did not think there was, but we could not pass by the opinion represented in many quarters as to the lowering of degrees. There were, he held, two forces which must be brought to bear upon the tendency to lowering degrees. "First," urged the Professor, "make your new Universities as independent as possible of students and of fees, so that they may not be exposed to the temptation of offering the attraction of an easy degree, merely for the purpose of drawing to the Universities by the paying of a certain number of fees; and, secondly, cultivate a jealous sense of honour and self-respect among the professors by giving them a status and a position which they can be proud of, and which will lead to their regarding any degradation as a personal slur upon yourselves." With these things in view he thought city Universities had a very fair prospect opening up before them.

CANON LYTTELTON, the Head Master of Haileybury, lectured at Birmingham University (March 17) on "The Training of Secondary Teachers." He dealt with the scope of the training for secondary teachers in reference to the new provisions for registration. He discussed first what the training of teachers is expected to do. Theoretical training, he said, included something besides psychology—the history of education, for instance. It was his opinion that the benefits of a prolonged study of psychology might be easily exaggerated, but a certain attitude of mind was likely to be induced by a fair acquaintance with the science, while direct benefit might be looked for from the study of the history of education more by way of enriching the teacher with a noble enthusiasm than of showing him how to get over difficulties. As to the practical side, he favoured a system of apprenticeships whereby young men might for a period enter boarding schools and, side by side with their theoretical studies, obtain some amount not only of practical work, but of experience of the life of such a school. Such a system was open to any arrangement that a great institution like the Birmingham University might make. There should be a master of method working in the University who would have time to give to the apprentices working in the schools.

THE scheme for providing bursaries at Birmingham University for the children of artisans is making progress. The exact financial result of the exhibition organized last year by the trade unionists of the city is not yet known, and some promised contributions have yet to come in, but the total sum realized will be between £3,250 and £3,500, and the committee charged with the responsibility of arranging the bursaries has ascertained that the income will be sufficient to provide two of the value of £45 per annum. Some prominent members of the committee would like to see an effort made to increase not only the amount of the bursaries, but also their number, and with this object they have suggested the desirability of holding another exhibition after the lapse of a reasonable time—say three years. In the meantime the conditions of holding bursaries have been drawn up and submitted to the authorities of the University, and a curious difficulty has arisen. The promoters of the fund keenly desire to tie its benefits to the children of the working classes so securely that there shall be no danger of misapplication in the future. They are actuated by the feeling that in the case of the grammar schools they have been robbed of their birthright. They argue that the schools were created for their benefit, and that in the



years that have elapsed since the days of Edward VI. their privileges have been usurped by the middle classes, who can well afford to pay for the education of their children. So they are determined to secure that nothing of the kind shall happen to the bursary fund. In the agreement they therefore proposed that in the future, in the event of the scholarships being for any reason out of date, the fund should revert to the representatives of the working classes, who should have power to apply it otherwise. The authorities of the University decline to entertain such a condition, because it would introduce an element of uncertainty which would be inconvenient and altogether foreign to the conditions that underlie other bequests, &c. Further, they point out that the Government has power to deal with funds that have ceased to serve their original purpose. Probably it will be found possible to devise a clause that will satisfy the legitimate desires of the promoters.

THE South Wales University College authorities are considering the proposal to give University rank to the Technical College at Swansea. Principal Trevor Owen, of the Swansea Technical College, who has been interviewed on the question (March 14), says it is the intention of the governors to develop the College to its fullest possibilities, with a view to its taking its part in the University work of the Principality and being admitted to the privileges and the degrees granted by the University of Wales. Affiliation with the Cardiff University College was the only avenue to that end. The cause of education would be greatly strengthened by such an affiliation, and it would bring educationists in Swansea into more direct touch with the University of Wales. The charter only admitted of three resident Universities, but it was possible to establish as many branch University Colleges as might be thought necessary, and in both towns there was ample room for branch University Colleges. Swansea would be placed on the same footing as Cardiff, and students could reside at Swansea for nine months, instead of at Cardiff, for the purpose of qualifying for a degree.

In Wales the educational problem is much complicated by the existence of a separate organization under the Intermediate Education (Wales) Act, controlling the whole system of secondary education. The local and county governing bodies under this Act have done and are doing excellent work, and the proposal to put education under control of County and Borough Councils is strenuously opposed. Mr. W. J. Heppell, the chairman of the Aberdare School Board, lecturing in that town on March 17, submitted a scheme that is creating much interest. His scheme provides for the abolition of all existing Welsh educational authorities (excepting the University), and for the election, by popular vote, of an Educational Authority in each of the fifty-two Poor Law unions of Wales, with power to delegate any of its powers, except that of raising money, to committees of local managers. Voluntary school managers may place their schools under the Local Authority on terms to be mutually agreed upon, receive assistance from rates in the same way as Board schools, and retain the right to give denominational teaching to such pupils as desire it before the time for secular teaching. Each Local Authority shall appoint one delegate to a Central Council, and pay to that Council an agreed percentage of its income, the Council to provide peripatetic teachers in cookery, laundry work, woodwork, dairy work, engineering, mining, &c. In this way wealthy districts would assist poorer districts, and general efficiency be promoted. The Central Council would provide and maintain training colleges. The scheme further provides for the payment of Government grants to the Central Council, and the creation of a Government Education Department for Wales on the same lines as the Department at present existing for Scotland.

THE Commercial High School in Cologne, though only at the end of its second term, has developed rapidly. In the first term it had 120 regular students and 629 visitors. In the second term the number of matriculated students rose from 68 to 119; there were 17 visitors from the Commercial Teachers' Seminary, and 45 *Hospitanten*—altogether 882 persons attended the lectures. Besides professors of the Bonn University and members of the Judicature and legal deputies in Cologne, Prof. Dr. Hassert, of Tübingen University, Prof. Dr. Schröer, of Freiburg University, and Prof. Dr. Eckert, of Berlin University, have been among the lecturers. The legacy of 300,000 marks bequeathed by the late Frau Geheimrath von Mevissen will enable the High School to extend its operations still further during the coming summer.

## UNIVERSITIES.

(From our Correspondents.)

**Oxford.** SINCE term ended Oxford has been very empty, as the long Easter vacation has proved too great a temptation to college tutors, who are by now dispersed all over Europe, one or two being adventurous enough to make for Egypt. Perhaps also the fact that there has been a good deal of sickness at Oxford accelerated their departure; influenza ran riot in one or two colleges, especially New College, while Magdalen are not having their usual Easter services owing to mumps having decimated, or rather bisected, the choir.

The term ended with various meetings political and otherwise: among the latter the Toybee Hall meeting at Balliol deserves special mention for its success, while the orators were in excellent form. Mr. Asquith, Canon Barnett, and Mr. Masterman—well known in the Cambridge Union—were the chief speakers. Then we had the meeting of the United Empire League, with Lord Avebury as its mouthpiece.

Several prominent men have lately resigned their posts, two in order to secure more time for independent work, one to seek fresh fields. The first two are Prof. Tylor, who is now, after nineteen years, ceasing to be Keeper of the Museum, while continuing to be Professor of Anthropology, his special branch of scientific study; and Mr. Arthur Sidgwick, who is ceasing from his labours as a tutor at Corpus Christi. The third is the Rev. C. R. Carter, who is becoming head of a large private school. As an undergraduate Mr. Carter was one of those who are rightly held up to us as proofs that it is possible to combine "music" and "gymnastic"; for, besides taking Honours both in Classics and in Mathematics, he played Rugby football for the University and rowed in the Eight. Both at Wellington College and also at Magdalen, where he succeeded the present Bishop of Stepney as "Dean of Divinity," Mr. Carter has made a great mark and many friends, and his place will be hard to fill.

Another historian has met with a reward, as Mr. Armstrong, of Queen's, has been appointed to the newly established, or rather we should say resuscitated, "Lectureship in Foreign History." Mr. Armstrong is a hard-working member of what is often called the "History Ring" in Oxford by those who envy its unity and organization, and has also done much to encourage women in participating in the advantage of a University education.

Talking of the "History Ring" reminds us that in the new "History of England," which is, we presume, to take its place as the standard work on the subject, several prominent members of the inner circle will be represented—Mr. A. L. Smith, Mr. Oman, and Mr. Fisher. The Warden of Merton has also been prevailed upon to take up the pen and deal with the earlier decades of the nineteenth century.

The Union has done well in electing as its new President Mr. Macfadyen, of Wadham, who has had the distinction of serving in South Africa and the misfortune of having been very badly wounded. He belongs, we are informed, to the Liberal Imperialist band.

In matters sporting we have, as all the world knows, once more won the Sports against Cambridge, and been badly beaten—more badly than even our most gloomy prophets expected—in the Boat Race.

**Cambridge.** THE continued ill-health of the Regius Professor of History, Lord Acton, has rendered necessary the appointment of a deputy, and Mr. S. M. Leathes has been nominated by the General Board of Studies for the vacant post. A curious point in the University regulations is herein emphasized—namely, that the appointment of deputies to professors is never made by the same body that elects to the higher post; yet the lower appointments are invariably made with judgment and discretion.

The Syndicate to consider the advisability of changes in the poll examinations has now been appointed. Some little difficulty has been met with in procuring representative members, and there is practically no doubt that the report that is to be produced in the remote future will be in the nature of a compromise, and will receive an emphatic and well deserved *non-placet*.

Another question, however, is rapidly coming into prominence and will, before long, emerge into the region of practical politics. It has been repeatedly urged in these notes that the admission of men with practically no educational attainments whatever is good neither for themselves nor for the University. On this point

the practice of certain colleges conflicts with the opinion of the public. The practical outcome of it all promises to be that, by a very simple alteration of the regulations, the Little-Go will become a University entrance examination. This result can be attained almost by a stroke of the pen. At present no one can be entered for the examination unless he is an accepted candidate for some college. Now, if this regulation be abrogated, and the Little-Go is open to all who have paid a fee to the University, an unnecessary examination will be abolished—namely, that for entrance at the various colleges—while it will be quite certain that all would-be entrants for a college have reached the minimum standard of efficiency as prescribed in the Little-Go. The University can procure the same result in another way—by refusing to allow a man's terms till he has passed the whole of the Little-Go. By utilizing the machinery of the Local Examination Syndicate it would be perfectly possible to bring the Cambridge examination system—at any rate, so far as the elementary examinations are concerned—home to the very doors of the candidates themselves.

Only those conversant with University life and methods can know of the complexity of the rules and regulations which beset candidates and examiners alike at Cambridge. The only remedy for the existing state of chaos is to turn over all the arrangements for examinations to some authority, such as the Local Examination Syndicate, with an efficient permanent staff. In this way would be secured continuity of standard and control over examiners, and the difficulties that often occur in this respect would be obviated.

Negotiations are on foot for the purchase by the University of six more acres of land from Downing College; the Board of Agriculture have fixed the price at a sum that would bring in a rent charge of £120 an acre. It is hoped that the University will not let the opportunity slip, as there are no other sites available for the erection of the various University buildings that are absolutely necessary if the present rate of growth in certain departments is preserved. The terms of the purchase are so arranged as to make it very easy for the University, and hitherto no decided opposition has been manifested.

The proposal that the University should recognize the work of the Appointments Association by a small pecuniary contribution was *non-placeted* by Prof. Lewis, who contended that the Scholastic Agency was suffering from unfair competition; the large majority in favour of the grace shows, however, that people in Cambridge believe that there is room for both institutions, and that both do good work. Those who have been brought into business relations with the Scholastic Agency never fail to be impressed by the courtesy and attention shown them by the secretary, Mr. Stewart, and his able assistant, Mr. Trinder, the latter being chiefly responsible for the excellent position in which the Agency now finds itself.

The term has passed without the dreaded outbreak of small-pox among University men. The cases in the gaol were due to the gross mismanagement of the authorities in London, who utilize the Cambridge gaol for all and sundry prisoners from all parts of the country. The original smallpox case in Cambridge was that of a prisoner who contracted the infection in Maidstone and was sent on here to serve his time. To add insult to injury, the authorities send criminals to Cambridge and order their discharge at the door of the gaol; the Cambridge authorities very wisely have them taken to London and let them loose there.

The result of the Boat Race was in no way a surprise to such as had observed the doings of both boats—probably no two better crews have ever rowed in the race. The greatest credit is due to the coaches, Mr. J. E. Payne and Mr. Dudley Ward, who with infinite pains have endeavoured to do the best with the existing material rather than to make constant changes in the *personnel* of the crew, a policy that in some years has been far too prevalent.

The result of the Sports was disappointing to partisans of Cambridge, but there is a consolation in the reflection that Cockshott's defeat by a yard and a half in the mile was the deciding event, and that no better race has ever been run by University representatives.

Personal items of the month:—Isaac Newton Student, T. H. Havelock, St. John's; Balfour Student, J. S. Budgett, Trinity; Allen Scholar, F. N. Hales, Trinity; Bell Scholars, C. Ransford, Emmanuel, and C. F. Russell, Pembroke; Chancellor's Medal, English Verse, G. L. Strachey, Trinity; Porson Prize, J. S. Sheppard, King's; Powis Medal, H. D. Wakely; Smith's Prizes, T. H. Havelock, St. John's, and J. E. Wright, Trinity.

## THE ORDER IN COUNCIL RELATING TO REGISTRATION.

### QUESTIONS IN PARLIAMENT.

FEBRUARY 24, 1902.

Colonel LOCKWOOD asked the Vice-President of the Committee of Council on Education whether, with regard to the Order in Council for regulating the Registration of Teachers, it is the intention of the Board of Education to prescribe the conditions on which a school can become a recognized school for the purposes specified in Sections 3 and 4 of the Schedule to the Order; whether these conditions will be made to cover the case of schools conducted for private profit; whether it is the intention of the Board of Education to publish a list of recognized schools; and whether the term "elementary school" used in the Schedule is to be interpreted as relating exclusively to a public elementary school as defined in the Education Act, 1870; and, if not, what is the significance of the term?

Sir J. GORST: No; it is intended that such schools shall be recognized as are, in the opinion of the Board of Education, efficient. Schools conducted for private profit would, if efficient, be recognized. The publication of a list of recognized schools is a matter that shall be considered. An elementary school is defined by law to be "a school, or department of a school, at which elementary education is the principal part of the education there given, and does not include any school, or department of a school, at which the ordinary payments, in respect of the instruction, from each scholar, exceed ninepence a week."

Mr. BARTLEY: May I ask whether any statement will be issued on the subject of what schools are to be recognized as soon as this conditional order becomes established?

Sir J. GORST: I think not. The Board of Education have very little experience at present in regard to secondary schools. It would be mere guess-work to prescribe the conditions beforehand, or, till some experience has been gained, to attempt to give a list.

Colonel LOCKWOOD asked the Vice-President of the Committee of Council on Education whether experience as a private tutor will be held by the Board of Education as coming within the meaning of the expression "experience in teaching," as used in the Schedule [4(2) (ii.)] to the Order; also whether it is intended that, while the teachers in Column A are wholly exempt from payment of registration fees, the whole of the expenses of registration shall be borne by such teachers only as are placed in Column B, or on the Supplemental Registers. If not, will a Treasury grant be made to the Registration Council on behalf of the teachers registered in Column A? Should the income derived from registration fees fall short of the expenses of registration, who is to be responsible for meeting the deficit?

Sir J. GORST: The experience in teaching must be such as is satisfactory to the Registration Authority. The question in Paragraph 2 is answered by Sections 10 and 11 of the Schedule. The answer to the third paragraph is in the negative. The registration fees in the first year will be more than sufficient. The fees will be so regulated afterwards as to cover the cost.

FEBRUARY 27, 1902.

Mr. MOONEY asked the Vice-President of the Committee of Council on Education whether he is aware that, although the Board of Education, when administering the Science and Art Vote for Ireland, granted the same privileges to Associates of the Royal College of Science, Dublin, as to Associates of the Royal College of Science, London, in the Draft Order in Council for providing the manner in which a Register of Teachers shall be formed and kept, the Board of Education has omitted from Appendix A, page 10, the Associateship of the Royal College of Science, Dublin, while including the Associateship of the Royal College of Science, London; and whether such an omission is a mere inadvertence, and, if so, will he take steps to have it at once corrected?

Sir J. GORST: The regulations contained in the Order in Council were drawn up by the Consultative Committee. I will call their attention to the omission.

Dr. MACNAMARA asked the Vice-President of the Committee of Council on Education whether a certificated teacher, having been trained in a training college for elementary-school teachers, and having worked exclusively in elementary schools, can, on payment, have any University qualifications he may possess entered in Column B of the Teachers' Register; and, if not, will the Vice-President consider the desirableness of issuing an amending Order in Council providing that such entry may be made?

Sir J. GORST: No qualifications are inserted in Column B, but names only. A certificated teacher can have his name inserted in Column B if he fulfils the same conditions and pays the same fee as other persons whose names are inserted therein.

FEBRUARY 28, 1902.

Mr. BARTLEY asked the Vice-President of the Committee of Council on Education (1) with reference to the term "efficient," as used by him in relation to the term "recognized school," as used in Sections 3

and 4 of the Schedule to the Order in Council for regulating the Registration of Teachers, whether he can say in what way the Board of Education intends to determine whether a school is efficient; (2) whether he can state what steps must be taken by the authorities of a school in order that the school may be recognized as efficient.

Sir J. GORST said that, if the Registration Council declined to recognize a school for the purposes of Sections 3 and 4 of the Order in Council, the authorities of the school might appeal to the Board of Education, and the efficiency of the school might be established by inspection under the Board of Education Act, 1899.

Mr. BARTLEY asked the Vice-President of the Committee of Council on Education whether, in view of the fact that the number of persons who are entitled, as being recognized by the Board of Education as certificated teachers under the Code of Regulations for Elementary Day Schools, to be placed on the Register of Teachers without payment of any registration fee exceeds sixty-four thousand, and that registration for other teachers is not compulsory, he will state who is to be responsible for meeting a deficit in the event of the income derived from registration fees falling short of the expenses of registration.

Sir J. GORST: It is not considered possible that the registration fees will fall short of the expenses of registration during the first three years, as the number of cases of teachers seeking registration will be abnormally great in that period; but during that period the Board of Education will be responsible. After that period the fees will be fixed at such an amount as to secure that the receipts will not fall below the expenditure.

Mr. BARTLEY: Will the right hon. gentleman say whether, if there is a deficiency, the Board of Education will pay?

Sir J. GORST: I cannot contemplate the possibility of there being a deficiency.

Mr. BARTLEY asked the Vice-President of the Committee of Council on Education whether the term "head master or head mistress," as used in Section 4 of the Schedule to the Order in Council for regulating the Registration of Teachers, is to be understood as applicable to the principal of a school conducted for private profit.

Sir J. GORST: The answer to this question is in the affirmative.

Mr. BARTLEY asked the Vice-President of the Committee of Council on Education, in respect of the term "satisfactory," as used by him in reference to the term "experience in teaching," as used in the Schedule 4 (2) (ii.) to the Order in Council for regulating the Registration of Teachers, whether he will state what experience will be considered satisfactory to the Registration Authority.

Sir J. GORST: No, Sir. This will be a question for the Registration Authorities.

**SIR RICHARD TEMPLE.**

WE regret to have to record the death, on March 15, in his seventy-seventh year, of Sir Richard Temple, G.C.S.I., C.I.E., who had been identified with educational movements, both in and out of Parliament, for many years past, and especially with the registration of teachers, having brought in the Bill promoted by the College of Preceptors for this purpose in the year 1890. He was educated at Rugby and Haileybury, and began his public career in 1846 by entering the Indian Civil Service, in which he continued for thirty-four years, rising rapidly from one important post to another till he was appointed Governor of Bombay in 1875. His services in connexion with the famines in 1874 and 1877 were invaluable, and his capacity for hard and continuous work was extraordinary, even when measured by the standard of Indian administrators. Sir Richard returned to England in 1880, and entered Parliament as member for the Evesham Division of Worcestershire in 1885, about which time he was also elected a member of the London School Board, and filled the post of Chairman of the Finance Committee, for which his Indian experience specially qualified him. His work in Parliament and on the School Board was what might be expected from such a man with such a record, and, though he could not be called a successful speaker, his opinions carried weight, and no member was more constant in his attendance at debate and division. In the interval between his return from India and his entry into Parliament he wrote several books, the material for which was derived mainly from his personal experiences, and his talent for water-colour drawing (many specimens of which are to be found in his "Palestine Illustrated") provided recreation for his few leisure hours. Those who had the privilege of being brought into contact with Sir Richard Temple in matters of public business were able to appreciate his influence in promoting any movement that he took up, his persistent energy, his vigilance, his clearness of view, and instant perception of material points.

**MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.**

A MEETING of the Council was held at the College, Bloomsbury Square, on March 15. Present: The Rev. T. W. Sharpe, President, in the Chair; Mr. Barlet, Rev. J. O. Bevan, Rev. A. W. Boulden, Mr. Brown, Mr. Charles, Mr. Chettle, Miss Day, Mr. Eve, Miss Jebb, Rev. R. Lee, Sir Philip Magnus, Mr. Millar Inglis, Mr. Pinches, Dr. R. P. Scott, and Dr. Wormell.

The minutes of the last meeting were read and confirmed.

The Secretary reported the result of the steps that had been taken to elicit information from the Government on certain ambiguous expressions in the Order of Council relating to the Registration of Teachers.

The Diploma of Licentiate was granted to Miss E. J. Lock, who had passed the required examination.

The following resolution was unanimously adopted:—"That the Council desire to convey to the Very Rev. the Dean of Wells their hearty thanks for the valuable services rendered by him to the College as their President for more than a quarter of a century, and to express their hope that as a life-member of the Council he will continue undiminished that interest in the affairs of the College which they have so heartily appreciated in the past."

The Report of the Examination Committee was adopted. Mr. J. W. Longdon, M.A., was appointed one of the Examiners in French, and Mr. F. Ramirez one of the Examiners in Spanish; and Mr. F. B. Kirkman, B.A., was added to the list of Assistant Examiners.

The Report of the Literary Committee was adopted, and Prof. A. F. Murison, M.A., LL.D., was appointed Editor of the *Educational Times*.

The Report of the Special Committee on the Order in Council relating to the Registration of Teachers was adopted. The Report comprised a memorial to the Board of Education giving reasons why the Associateship of the College should be included in the examinations qualifying for admission to the Register specified in Appendix B to the Schedule to the Order.

Mr. E. E. Pinches was appointed the representative of the College on the Teachers' Registration Council.

Mr. W. W. Kelland, M.A., Principal of Oakfield School, Crouch End, was elected a member of the Council, in place of the late Mr. Lewis Sergeant.

The following books had been presented to the Library since the last meeting of the Council:—

- By the AUTHOR.—Leonard's Practical Science.
- By the GENERAL MEDICAL COUNCIL.—Vol. XXXVIII. of the Minutes of the General Medical Council.
- By the SMITHSONIAN INSTITUTION.—Annual Report of the Smithsonian Institution, 1900.
- By BLACKIE & SON.—Clarke's Hugo's Waterloo; Hartog's Gautier's Le Pavillon sur l'Eau; Le Francois' Bruyts-Palapat's L'Avocat Patelin.
- By C. J. CLAY & SONS.—Edwards's Xenophon's Anabasis, Book I.; Plather's Phœdrus' Fables, Books I. and II.; Lawson's Homer's Iliad, Books IX. and X.; Quiggin's von Sybel's Prinz Eugen von Savoyen; Shuckburgh's Caesar's Gallic War, Book I.; Summers's Ovid's Metamorphoses, Book VIII.
- By W. B. CLIVE.—University Correspondent, Vol. XI., 1901; Matriculation Directory, No. XXXI.; Stewart's Text-Book of Magnetism and Electricity; Workman's Tutorial Arithmetic.
- By GINN & CO.—Tompkins's Philosophy of School Management, and Philosophy of Teaching.
- By A. M. HOLDEN.—De Cusance's First French Book; J. M. D. Meiklejohn's Short History of England; J. M. D. and M. J. C. Meiklejohn's School History of England; M. J. C. Meiklejohn's Asia.
- By MACMILLAN & CO.—Bayfield's Sophocles' Antigone; D'Alissas' Les Histoires de Tante; Geikie's Geology; Perkin and Lean's Introduction to Chemistry and Physics, Vols. I. and II.; Scott's Kenilworth; Scott's Quentin Durward; Vaughan's Dumas' Napoléon, and Word and Phrase Book to the same.
- By RELEE BROS.—Advance Dictation Sentences and Spelling; Carter's Rules of Latin Syntax, and History of England, Part II.; Harris's One-Hour Exercises in English Grammar; Knight's Second Arithmetic; Matthews's Sound and Sentence Practice for Beginners in French, Part III.
- By RIVINGTONS.—Stewart's Book of Exodus.
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- By A. & C. BLACK.—Davies' Scott's Kenilworth; Schmeil's Text Book of Zoology, Parts I., II., and III.; Scott's Structural Botany, Parts I. and II.; Taylor's Synthetical Atlas of England and Wales.
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## PRIZE COMPETITIONS.

### PROFESSOR CHURCH'S PRIZE.

THE Prize offered by Prof. Church in our February number has been won by Miss Alice Ruddle, Shebbear College, North Devon, for the following translation of a passage from Cæsar:—

Cicero, on all previous days, had kept his soldiers in camp with the utmost diligence, according to Cæsar's orders, and had not permitted even a camp-follower<sup>1</sup> to pass outside the fortification. On the seventh day, however, he feared that Cæsar would hardly keep his promise as to the number of days, hearing that the latter had gone on further, and no report of his return had reached him. Moreover, he was influenced by the cries of those who said that his patience<sup>2</sup> amounted almost to a blockade if he would not even allow them to go outside the fortification. Expecting no casualty of the kind which actually occurred, by which<sup>3</sup> any disaster could happen within a range of three miles from the camp, as nine legions and a large body of cavalry were in the field against an enemy who were scattered and well-nigh annihilated, he sent five cohorts to forage in the nearest cornfields, between which and the camp a single hill intervened.

Prof. Church appends the following notes:—

<sup>1</sup> *Calo*, a "soldier's servant," rather than a "camp-follower."

<sup>2</sup> "Patience" scarcely English—"defensive attitude."

<sup>3</sup> "By which." This is awkward. "Expecting no such chance, as that, with nine legions, a disaster should happen within a distance of three miles from the camp." A fair translation—English, if not of the best kind.

[Mentioned with commendation: Miss Daisy Selkirk Charles, privately educated.]

### ANOTHER PRIZE.

A Prize of 10s. is offered for the best prose paraphrase of the following verses:—

#### THE SPLENDID SPUR.

Not on the necks of prince or hound,  
Nor on a woman's finger twined,  
May gold from the deriding ground  
Keep sacred that we sacred bind;  
Only the heel  
Of splendid steel  
Shall stand secure on sliding fate  
When golden navies weep their freight.

The scarlet hat, the laurel'd stave  
Are measures, not the springs, of worth;  
In a wife's cap, as in a grave,  
Man's airy notions mix with earth.  
Seek other spur  
Bravely to stir

The dust in this loud world, and tread  
Alp-high among the whispering dead.

TRUST IN THYSELF—then spur amain:  
So shall Charybdis wear a grace,  
Grim Ætna laugh, the Lybian plain  
Take roses to her shrivelled face.  
This orb—this round  
Of sight and sound—  
Count it the lists that God hath built  
For haughty hearts to ride a-tilt.

Candidates must send with their paraphrase a certificate from their head master or head mistress, or, if not attending a school, from some person in a responsible position, that the paraphrase has been done without any help from any one else, and that they are seventeen years of age.

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## CURRENT EVENTS.

THE next evening meeting of the members of Fixtures. the College of Preceptors will take place on April 23, when Mr. J. L. Paton, M.A., Head Master of University College School, will read a paper on "The Feelings as a Factor in School Education."

DR. SULLY'S course of lectures on "Intellectual Education" will be resumed on April 24.

THE Board of Education announces that the Day Science and Art Examinations fixed to be held during the week ending June 28 will be held during the week ending July 5 instead.

It is proposed to hold a Conference at Warwick Castle on May 1 to discuss matters relating to agriculture and rural industries, and enable "those who need teachers or trained workers to meet those who are fully trained and capable of teaching others." Lady Warwick, Warwick Castle, or the Warden, Lady Warwick Hostel, Reading, will furnish particulars.

THE Gresham Lectures will be read to the public gratuitously on the following days, at 6 p.m., in the Theatre of Gresham College, Basinghall Street:—Physic (Dr. H. Symes Thompson), April 8, 9, 10, 11; Law (Mr. G. H. Blakesley), April 15, 16, 17, and 18; Divinity (Rev. H. E. J. Bevan), April 29 and 30, May 1 and 2; Astronomy (Rev. E. Ledger), May 5, 6, 7, and 9; Geometry (Mr. W. H. Wagstaff), May 13, 14, 15, and 16; Rhetoric (Mr. J. E. Nixon), May 20, 21, 22, and 23. The Music lectures, by Sir Frederick Bridge, will be delivered on April 22, 23, 24, and 25—the first at Gresham College and the other three at the City of London School.

THE following are the lecture arrangements at the Royal Institution after Easter:—Dr. Allan Macfadyen, three lectures on "Recent Methods and Results in Biological Inquiry"; Prof. F. York Powell, three on "English Kings and Kingship"; Prof. Karl Pearson, three on "The Laws of Heredity, with special reference to Man" (the Tyndall Lectures); Prof. Dewar, three on "The Oxygen Group of Elements"; Dr. A. Smith Woodward, three on "Recent Geological Discoveries"; Mr. M. H. Spielman, three on "Contemporary British Sculpture"; Mr. W. H. Cummings, three on "British National Song" (with musical illustrations); Prof. Walter Raleigh, three on "Poets and Poetry"; and Prof. Brander Matthews, three on "The Development of the English Drama": (1) "The Art of the Dramatist," (2) "The Drama of the Middle Ages," (3) "The Drama under Elizabeth." The Friday evening meetings will commence on April 11, when Prof. Dewar will deliver a discourse on "Problems of the Atmosphere." Succeeding Friday evening discourses will be delivered by Sir John H. A. Macdonald, Dr. J. Mackenzie Davidson, Sir Robert Ball, Sir Benjamin Baker, Prof. A. E. Tutton, and other gentlemen.

A UNIVERSITY Extension Summer Meeting will be held at Cambridge from August 1 to August 26. The general sub-

ject of the lectures will be "Some Aspects of Life and Thought in Europe and America in the Nineteenth Century." The Vice-Chancellor (Dr. A. W. Ward) will, if his health permits, deliver the inaugural address, which will form a general introduction to the History Section. The lectures will group themselves under the following heads:—(1) history; (2) art, literature, and music; (3) physical and natural science; (4) economics; (5) education. There will also be lectures on theological subjects.

THE special feature of the Cambridge meeting will be the Historical Section. Foreign professors of history will lecture on certain aspects of the political history of their own countries in the nineteenth century, and will present biographical studies of some of the great foreign statesmen of the period. Other lectures in history and economics will offer help towards the solution of present-day problems. Among the lecturers will be the Master of Trinity, Sir Mountstuart Grant Duff, the Hon. Canon Lyttelton, the Dean of Ely, Profs. Westlake and Vinogradoff, Messrs. A. Gilbert, R.A., Alfred East, A.R.A., G. W. E. Russell, W. N. Shaw, F.R.S., Arthur Sidgwick, Sidney Lee, and Bolton King. Prof. Sir Richard Jebb has undertaken to preside at an Educational Conference. Full information may be obtained from Mr. R. D. Roberts, M.A., Syndicate Buildings, Cambridge.

HONORARY degrees have been falling in showers up and down the country. The Victoria University, under the exaltation of feeling induced by the Owens College Jubilee, has been especially generous. The following are the new additions to the Doctorate division of its roll of fame:—

LL.D.:—Sir William R. Anson, Bart., M.P., Warden of All Souls', Oxford; Sir John T. Hibbert, K.C.B., Chairman of the Lancashire Council; the Right Hon. James Hoy, Lord Mayor of Manchester; Mr. Justice Kennedy (formerly Lecturer in Law at Owens College); the Rev. Dr. E. C. Maclure, Dean of Manchester; Mr. Alfred Neild, of Manchester; Principal T. F. Roberts, Vice-Chancellor of the University of Wales; Sir Albert K. Rollit, M.P.; Lord Strathcona and Mount Royal; Mr. R. T. Wright, Secretary of the Pitt Press, Cambridge.

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D.Sc.:—Sir Thomas Barlow, Bart., Physician to the King; Sir John S. Burdon-Sanderson, Bart., Regius Professor of Medicine, Oxford; Sir William S. Church, Bart., President of the Royal College of Physicians; Mr. H. G. Howse, President of the Royal College of Surgeons; Prof. A. R. Simpson, Edinburgh University; Prof. H. Becquerel, University of Paris; Prof. R. Chodat, of Geneva; Principal G. Carey Foster, LL.D., of University College, London; Dr. J. W. L. Glaisher, President of the Royal Astronomical Society; Principal E. H. Griffiths, of University College, Cardiff; Principal W. M. Hicks, of University College, Sheffield; Dr. E. W. Hobson, President of the London Mathematical Society; Prof. G. B. Howes, President of the Zoological Society; Prof. W. Jack, LL.D., Glasgow University; Principal O. J. Lodge, Birmingham University; Prof. Nernst, Göttingen University; Prof. J. H. Poynting, Birmingham University; Prof. W. A. Tilden, Royal College of Science, London; Prof. Voigt, Göttingen University; Prof. H. Marshall Ward, Cambridge University.

Mus.D.:—Mr. Adolph Brodsky and Dr. Hans Richter.

THE honorary M.A. was conferred on Miss Annie Adamson, Manchester High School for Girls; and M.Sc. on Mr. Francis Jones, Manchester Grammar School; Mr. J. H. Reynolds, Principal of the Municipal School of Technology, Manchester; and Mr. James Scotson, Central Higher Grade School, Manchester.

THE Senatus of the University of Edinburgh have resolved to confer the honorary degree of LL.D. on Mr.

H. H. Asquith, K.C., M.P.; Miss Dorothea Beale, Principal of Cheltenham Ladies' College; Prof. John Cleland, M.D., Glasgow; Prof. Samuel Dill, Queen's College, Belfast; Mr. Austin Dobson; Prof. James Alfred Ewing, Cambridge; Principal Rücker, London University; Mr. J. G. Schurman, President of Cornell University; and Sir John Batty Tuke, M.P., Edinburgh.

THE Senatus of the University of Aberdeen have included two deserving Southrons in their honorary degree list. They are to confer D.D. on the Rev. Henry Bennett, M.A., of Hackney College; and LL.D. on Prof. Joseph Wright, M.A., Ph.D., of Oxford University.

GLASGOW, exhausted by the great effort of last year, promises an undistinguished list, mainly local. Prof. Paul Brouardel, of the University of Paris, and Prof. Wallace M. Lindsay, M.A., of St. Andrews, are the most notable of the LL.D.'s.

THE University of Wales proposes to confer honorary degrees on the occasion of the installation of the Prince of Wales as Chancellor. The Prince will be adorned with yet another LL.D., and the Princess will be created a Doctor of Music. There is not a Chancellor of a University in the United Kingdom that need go without LL.D. if he but choose to attend and add brilliancy to the assemblage. D.Sc. is destined to Lord Kelvin, Lord Lister, and Mr. Alfred Russel Wallace, LL.D.; and D.Litt. to Mr. George Meredith, Principal Rhys, Sir R. C. Jebb, M.P., LL.D., Dr. Edward Caird, and Dr. J. A. H. Murray, the lexicographer.

VACANCIES and APPOINTMENTS. IN accordance with the Order in Council for the Registration of Teachers, the following representatives of the teachers' associations have been appointed members of the Teachers' Registration Council:—Mr. A. T. Pollard, by the Head Masters' Conference; Dr. R. P. Scott, by the Incorporated Association of Head Masters; Mrs. Woodhouse, by the Head Mistresses' Association; Mr. E. E. Pinches, by the College of Preceptors; Mr. Francis Storr, by the Teachers' Guild; Mr. G. Sharples, by the National Union of Teachers.

MR. LESLIE STEPHEN, M.A., D.Litt., Honorary Fellow of Trinity Hall, has been appointed Ford Lecturer in English History at Cambridge for the ensuing academical year.

MR. R. A. S. REDMAYNE, F.G.S., Member of the Institute of Mining Engineers, has been appointed to the new Professorship of Mining in the University of Birmingham. Prof. Redmayne studied in the Durham College of Science at Newcastle-on-Tyne, gained mining experience at Sir Lindsay Wood's Hetton Collieries, Durham, and went out to South Africa for two years to report on colliery matters for the Natal Government and on gold mines in Natal and the Transvaal. Since 1893 he has been resident manager of the Seaton Delaval Collieries (Northumberland). He is joint author (with Mr. Bulman) of a standard treatise on "Colliery Working and Management."

MR. THOMAS TURNER, B.Sc. (Birm.), F.I.C., A.R.S.M., has been appointed to the new Professorship of Metallurgy in the University of Birmingham. Prof. Turner was a Demonstrator of Chemistry and Lecturer in Metallurgy, under Dr. Tilden, at Mason College, from 1883 to 1894, and since 1894 has been Director of Technical Instruction to the Staffordshire County Council. He is the author of "The Metallurgy of Iron," the discoverer of the influence of silicon and other elements on the qualities of iron and steel, the inventor of a process for extracting the acids out



of waste galvanizing pickle, and the writer of a very large number of original papers, as well as an experienced organizer and teacher.

\* \* \*

MISS EDITH AITKEN, late scholar of Girton College, Cambridge, has been appointed Head Mistress of the High School for Girls shortly to be opened in Pretoria. She took a First Class in both parts of the Natural Science Tripos, and has for some years directed the science teaching of the North London Collegiate School for Girls.

\* \* \*

MR. ISRAEL ABRAHAMS, M.A., has been appointed Reader in Talmudic and Rabbinic Literature at Cambridge. He succeeds Dr. S. Schechter, who has accepted the post of Director of the Jewish Religious Seminary in New York. Mr. Abrahams has long been Senior Tutor of the Hebrew Seminary in London, and is joint-editor of the *Jewish Quarterly Review*, and author of "Jewish Life in the Middle Ages," and other works.

\* \* \*

MR. W. M. THOMPSON, of the Grammar School, Hampton-on-Thames, has been appointed Head Master of King Edward VI. School, Saffron Walden.

\* \* \*

REV. E. J. B. HOUGHTON, M.A., Head Master of King Edward's School, Stratford-on-Avon, has been appointed Head Master of St. Edmund's School, Canterbury.

\* \* \*

REV. J. E. KENT, B.A., assistant master at Lincoln Grammar School, has been appointed Head Master of the Boys' School, Bolton Church Institute.

\* \* \*

REV. W. A. RENWICK, B.A., second master at Grantham School, has been appointed Head Master of S. Michael's College, Tenbury.

—•••—

Literary Items. MR. YOXALL'S novel, entitled "The Girl from St. Agneta's," has just been published by Messrs. Ralph, Holland, & Co. It is a story of life in a training college, in a London Board school, and a village school. It is a "novel with a purpose," inasmuch as it illustrates the need for protecting teachers against arbitrary dismissal.

\* \* \*

WE are glad to learn that arrangements have been made to accelerate the production of the remaining portion of the great "Oxford English Dictionary." The whole work will consist of ten volumes (the last to contain certain addenda). The sixth volume is now in course of publication, the instalment of L, M, N being due to-day (April 1). Title-pages have been prepared for those that wish to have the Dictionary bound in half volumes, and in future the work may be obtained in this form.

\* \* \*

AN important new "History of England," primarily political, which aims at giving the results of the latest research in readable form, is to be published by Messrs. Longmans. The Rev. William Hunt and Mr. R. Poole will be responsible for securing unity of treatment between the following sections and authors: Vol. I., to 1066, by Mr. Hodgkin; Vol. II., to 1216, by Prof. G. B. Adams; Vol. III., to 1377, by Prof. Tout; Vol. IV., to 1485, by Prof. Oman; Vol. V., to 1547, by Mr. H. A. L. Fisher; Vol. VI., to 1603, by Mr. A. L. Smith; Vol. VII., to 1660, by Prof. F. C. Montague; Vol. VIII., to 1702, by Prof. Richard Lodge; Vol. IX., to 1760, by Mr. I. S. Leadam; Vol. X., to 1801, by the Rev. William Hunt; Vol. XI., to 1837, by the Warden of Merton; and Vol. XII., to 1901, by Mr. G. W. Prothero.

THE National Union of Teachers is holding its General. Thirty-third Annual Conference this Easter at Bristol. Mr. Allen Croft is the new President.

\* \* \*

THE Managing Committee of the National Physical Laboratory at Teddington, just opened (March 17), state that "it will be very difficult for them to maintain and administer it for the amount annually allowed by the Treasury." The initial cost has been about £19,000; the annual grant is £4,000. Congress allowed £60,000 for the establishment of the United States National Laboratory, and £9,000 annual grant. The Physikalisch-Technische Reichsanstalt cost £201,625, and the annual expenditure is over £16,000.

\* \* \*

THE Midland Education League considers that no proposals for "the co-ordination and improvement of education" will be satisfactory unless three things be provided: (1) local control by an Education Authority composed of directly elected representatives of the people; (2) the inclusion of both primary and secondary education under one and the same Local Authority; and (3) adequate powers of the Local Authority over all such schools within its area as are supported by public money.

\* \* \*

SOME benighted "correspondent" of the *Medical Press* bewails the University of Dublin. Why? "Weary of being the constant and faithful mother of learning in Ireland, she desires to conquer fresh fields, and to become the step-mother of blue-stockings." It would take a keen eye to detect her "weariness"; and why "step"-mother? We resist the obvious pun; but why should an *alma mater* not have girls as well as boys?

\* \* \*

THE Bangor City Council, by an overwhelming majority, has resolved to acquire a site for the North Wales University College. The gift will cost the town some £15,000. But the money will be profitably laid out; it will keep the college at Bangor.

\* \* \*

THE reports of the gentlemen deputed to inspect the University Colleges last year on behalf of the Government have been received by the Chancellor of the Exchequer, who is to refer them to a Committee, as was done in 1897, and, it so happens, to the same Committee. The members, however, will not meet till May; but this, says Sir Michael Hicks-Beach, "will cause no delay in the actual distribution of the grants."

\* \* \*

SOME friends of the late Mr. Walter Wren, M.A., have offered to Christ's College, Cambridge, of which Mr. Wren was a scholar, a handsome sum of money to associate his name with his old college and with the examination for the India and Home Civil Services. The offer has been accepted by the Master and Fellows. The interest will be given annually to such member of the college as, having resided in it at least two years, shall be placed highest in the list of successful candidates in the examination aforesaid.

\* \* \*

THERE seems to be a special talent for languages (says the *Tatler*) in the family of the Earl of Onslow—"Lord Festina Lente," as the wags call him in recognition of the punning motto of the house. A couple of years ago his eldest daughter, Lady Gwendolen, was first in foreign languages out of seven thousand who competed at the examination of the College of Preceptors; and now her younger sister, Lady Dorothy, has won a similar distinction out of five thousand candidates at the recent examination.

### THE TEACHING OF ELEMENTARY MATHEMATICS : IMPENDING REFORMS.

On Wednesday evening, March 19, Mr. H. W. EVE took the Chair at the monthly evening meeting of members of the College of Preceptors, when Dr. J. J. FINDLAY, M.A., read the following paper :—

1. My purpose is an eminently practical one. I intend to give an account of the ground which I have myself traversed in studying the views of Prof. Perry and his friends,\* telling you exactly where I have got to, and suggesting lines on which I and other school teachers may continue our investigations.

First of all, a note as to the origin of the present agitation. It commenced with articles by Prof. Perry in *Nature* about two years ago, and it is my impression that the editors of that journal (closely associated with an enterprising magazine called the *School World*, issued from the same publishing house) recognized that the time was ripe for stirring up both the scientific world and the teaching world on this subject.

The time was found to be ripe, let me say, for an *agitation*—not to promulgate new truths, but to insist upon old ones. Let this be the first matter on which we may agree. The Committee of the British Association will make a great mistake if it spends much time on the substance of these proposals as if there were something novel about them. They have long been familiar, in their main outlines, to the many teachers, “thoughtful teachers,” who think for themselves. Prof. Perry himself tells us that he has been prophesying in vain since 1880, and the columns of the *Educational Times* and the *Journal of Education* contain repeated sketches of reform, worked out in great detail, on the very lines now put forward. Possibly there is some novelty in the proposals to employ the calculus at an early age; but this is not important at present, for it is clear that such employment can only be allowed to pupils who have been rightly trained in more elementary mathematics.

At the present moment, then, we stand just here: An agitation, most ably led by Prof. Perry, has succeeded in the preliminary work of rousing public attention and in procuring the appointment of an influential Committee. In fact, the teaching of reformed mathematics now stands exactly where the teaching of reformed science stood after the British Association meeting of 1889.

But there the parallel ends; for chemistry and physics was then a new subject in our schools. There was no organized experience in the teaching profession to criticize the proposals of professors of science; but there was a strong public opinion urging the importance of these studies, and this was backed up by generous financial grants from South Kensington and from County Authorities as a result of the Technical Instruction Act passed just at that time. The result was that a signal success was gained, and, in spite of extremist views, an undoubted benefit has been conferred on pupils in secondary schools.

Having achieved one victory, it may appear easy for the British Association to march forward to a second. The teachers of science demand that mathematics shall be reformed, because they find that they cannot proceed further in the improvement of science (*i.e.*, of physics) unless mathematics is treated on sounder lines; and they look to the British Association for help. But the situation here will be found to be very different from that of science in the nineties; it will correspond much more to the situation presented by modern language teaching, which has been subject to a slow—terribly slow—process of reform for many years—a reform which meets with all kinds of difficulties at every step. I do not wish to dwell in a pessimistic spirit upon difficulties: I take it we are in sympathy with reform, or we should not come here to discuss reform. So far as these difficulties spring from the inertia, from the reactionary spirit, found in all Universities and schools, we shall have to meet them with patience and courage. But one special difficulty needs to be borne in mind, for it was nothing like so prominent in the case of chemistry and physics—it lies in the fact that mathematics begins with the beginnings of school life—reform must start with the infant school and the kindergarten, or it will never have a sound basis. Prof. Perry's suggestions start with decimals; but what of all the years spent on mathematics before decimals are begun?

And closely associated with this difficulty is the fact that,

whereas in the case of science the teachers (for good or evil) are mainly specialists, devoting their attention almost exclusively to these two branches, the teachers of mathematics (in its really elementary stages) are by no means exclusively concerned with mathematics.

To sum up: the principles, as well as many of the details, of this reform are not novel; they are already accepted by multitudes of well-wishers. But the carrying out of these principles will involve labour far beyond what is contemplated by many who are now agitating for reform.

2. How then is this reform to be undertaken? In the analogous case of science, the British Association produced a syllabus, and there its labours ended. Now we can conceive of this plan being imitated in the case of arithmetic and algebra, although I have my doubts when I notice how very remote most of the members of the Committee are from actual contact with young pupils. But will they venture to do the same in respect of geometry? And it is geometry that suffers most from the attacks of reformers.

But, if they succeed in producing a syllabus, and in recommending this to the notice of examining bodies, what will be the result? The examining bodies will reply, most justly, that they are bound to examine candidates on what the candidates have studied, not on what the British Association thinks they should have studied. And no amount of lecturing and talking will enable the thousands of teachers on the staffs of schools to combine in the adoption of new methods; until they do, the examining bodies will not alter *their* plans.

Let us emphasize the importance of this “combination” as a leading factor of the situation. Prof. Perry is accustomed to draft his own syllabus and to act independently of colleagues. He is very fortunate, and it is delightful to find him introducing into his published scheme (*vide* “Board of Education Directory,” page 33) a paragraph declaring that each teacher should plan his own course, and be his own examiner. (The Board of Education may permit such language to be printed in its “Directory,” but many years will pass before it will enforce that doctrine upon those who control the teaching of mathematics.) But in most schools, where a number of teachers are associated in the teaching of mathematics, these must all agree upon a common plan of action; and for this purpose they must all study the situation in order to realize the principles at issue. If one solitary teacher on a staff tries to “reform” his teaching in antagonism to his colleagues, the result will be confusion and disaster.

Hence, surely, it follows that the immediate problem is to devise means whereby the great mass of teachers may be made acquainted with these principles and may witness successful achievement in teaching conducted on reformed methods. It is true that the agitation has done a little in this direction, but surely it has done but little. We are, indeed, assured by Prof. Perry that his pupils have profited by his methods, and we are inclined to believe him. But we teachers, as a body of professional men, cannot take these matters on trust; we must witness the elaborate working out of these principles in classes similar to those which we teach day by day. And we must study the whole subject more thoroughly. I do not think Prof. Perry and his friends quite realize how fragmentary and disjointed their own suggestions are, and what a great gulf separates their work with adults and artisans from that conducted by teachers of boys and girls in school classes.

Experience here may help us to a remedy. Reforms both in modern languages and in science teaching have been greatly aided by teachers' holiday courses, in which experiences can be interchanged and reports presented on work done by practical teachers. Further, a great opportunity is presented by the development of training colleges; the Order of the Privy Council establishing a Register will bring the great body of future teachers under the influence of educational principles; and those who care for reform in mathematics ought to see to it that this subject is brought home to the intelligence of every student teacher.

One more hint as to the lines on which reform can be approached. The British Association Committee are to deal with *elementary* mathematics; but this term covers an immense field of study, commencing at the age of four. Now, is this Committee going to deal chiefly with older pupils in secondary schools and discuss the calculus and logarithms, or is it going to begin at the beginning? The latter is the more scientific, as well as the more practical, plan. For, in the later stages, you are at once met by the difficulty of external examinations; whereas in the years between four and fourteen that stumbling-block may

\* Reference is made throughout to *British Association Meeting at Glasgow: Discussion on Mathematics*, edited by John Perry (Macmillan, 1901).

be left out of account. Here is the real field for experiment and reform. Work from the bottom upwards, and difficulties, both from examinations and otherwise, will disappear as you proceed. (I speak here from personal experience in dealing both with the mathematics and the modern languages of a large school.)

As far as examinations are concerned, I have one suggestion, founded also on happy experience. It is useless, it is unjust, for this or any other Committee to try and induce examining bodies to draft new styles of syllabus or examination-paper before the schools are ripe for change; but they can, and should, encourage "freedom and variety." There are only two examining bodies in Great Britain, to the best of my knowledge, which permit this freedom\*—the Oxford and Cambridge Joint Board and the Central Welsh Board. These permit a school to send up its own syllabus and to have a paper of questions set thereon, instead of being obliged to take the general papers set to other schools. This plan is a little more costly, but the cost can be met in a variety of ways, and, in my opinion, it offers the one road by which, in the higher forms of schools, these doctrines can get fair play. One school, to my knowledge, has, under this system, abolished Euclid entirely, and presents its pupils year by year for Junior and Senior Certificates on a syllabus of plane geometry devised by the staff.

One final hint before I conclude this part of my subject. The examiner is one of the masters to whom we pay respect, but the inspector is another; and the inspector can do much to help this reform. He has no right to dictate to schools, or to force his views upon professional men; but he may ask questions. And it would be a most timely act for inspectors during the next few years to interrogate the schools as to what the views of teachers are as to these reforms, and to what extent it has been found practicable to modify the syllabus of the school. An inquiry of this kind undertaken by the Central Welsh Board has had a most beneficial effect upon modern language teaching, simply by showing the schools that the authorities are in sympathy with progress, and are willing to recognize honest effort towards reform.

3. And now, ladies and gentlemen, you will be wondering whether I am coming at all to the actual subject under discussion, or, indeed, whether I know anything about it. I must confess that I am not a mathematician by profession, and that I have forgotten much that I learned since I was a mathematical scholar at the University, but I trust that I have retained enough to be able to speak with some confidence as to the conditions under which mathematics can be apprehended by pupils at school. And as I have been teaching mathematics off and on for nearly twenty years, and have studied the theory of the business with some industry, I feel no shame in handling this topic in the presence of those whose mathematical knowledge reaches far beyond that to which I or any ordinary teacher can pretend. Furthermore, I am at the present moment teaching little boys, on experimental lines, to try and see how far these reforms can be put into practice, and before I conclude I propose to describe that work so far as it has gone. But, first, I desire to make some observations of a more general nature. I wish to point out how all that is valuable in these proposals for reform depends upon *certain general principles of teaching*. This, I submit, is a scientific way of approaching the matter. We are not concerned with some new patent process, to be labelled the Perry Method. Heaven forbid! I am sure that Prof. Perry himself would be the last to desire that. We have surely had enough in our calling of specific methods labelled with the names of their inventors. There is the Herbartian Method, the Gouin Method, and even in science some teachers (in spite, I trust, of Professor Armstrong) advertise themselves as exponents of "the Armstrong Method," which other teachers, in their ignorance, confound with a novel device in corporal punishment! No, the only firm foundation for these reforms are general principles relating to the way in which mathematics reach the pupil's mind. A few moments will suffice to indicate them.

(a) Mathematical knowledge, like all other knowledge, has its foundation in the senses; abstract thought must be based on concrete experience, and in the immature mind must constantly revert to concrete experience as an aid to abstraction.

(b) The aim of mathematics teaching is not regarded by these reformers as satisfied by "discipline," or training of so-called

\* They permit it because they can afford to do so. I have no reason to believe that other examining bodies are less inclined to aid the cause of freedom.

faculties, but is directly intended to the use of mathematics "as a part of the pupil's mental machinery" ("Directory," page 33, and introduction to "Castle's Practical Mathematics," Macmillan, 1901. Mr. Castle is a pupil of Prof. Perry).

(c) *Correlation*.—This whole movement is the outcome of the desire to rank mathematics in its place as the handmaid of science. Not, be it observed, as a tool for engineers, but in close correlation with the needs of the science syllabus right through the school. And, in another aspect, it emphasizes the necessity of bringing the various parts of elementary mathematics into correlation with each other.

(d) *Self-activity*.—By "using" squared paper, by measuring, by plotting curves, &c.

(e) *Intuition*.—Many mathematical truths can be apprehended and rationally employed long before they can be reduced to formal expression in a system of philosophic thought.

These are the characteristic general ideas underlying the reform, and the novelty of them, so far as they are novel, is in their rediscovery by the mathematicians and physicists for the special needs of mathematics. But, surely, this exhibits a terrible waste of energy! These principles have long been taught and applied by teachers. The first is simply our old friend *Anschauung* (sense-observation), and is due to Pestalozzi. The second, as to aim of mathematics teaching, brings up the attack on the faculty psychology which Herbart commenced in Germany and which James Ward, at Cambridge, has so ably seconded.

The third and fourth are the stock-in-trade at this moment of every lecturer on education, and have been preached, as well as practised, in every country where teaching is a matter of scientific meditation. And the only difficulty before us is to determine ways and means by which these saving principles can be applied to school mathematics.

And here I venture to reproach the mathematicians a little. What have you done, especially those of you who influence the Universities, on behalf of these principles and of those who have striven to teach them? You have done nothing at all! Nay, your activity has been mischievous. By your contempt for the theory of education and its exposition in training colleges, by your indifference, if not hostility, to that movement, you have led successive generations of schoolmasters, coming out of your Universities into our schools, to despise these principles and to sneer at the very name of theory when applied to the art of teaching. Many of those who are now crying out for reform are, or have been, tutors at Cambridge. The Chairman of this British Association Committee is himself a distinguished Cambridge mathematician. But what have you gentlemen done, as regards the training of teachers, to help, for example, the movement conducted by my friend Dr. Fletcher, during recent years, to instil these very principles into the minds of Cambridge men about to become schoolmasters?

And now, when the discovery is made that students of mathematics at our schools are ill trained, you are turning round upon our schools and upon the schoolmasters, and declaring that they have done their work badly, and that they must reform! The sufferings of the Israelites when they lacked straw wherewith to make their bricks were light, indeed, compared with those of the teacher who, after mislearning mathematics, and learning little besides, at his University, is maligned in later years by the very men who denied him the light. Teachers are, however, a long-suffering tribe, like Issachar, "the strong ass crouching between two burdens." If it were not so, I think we might find here the materials for a very pretty quarrel, were we so inclined. But there is no need to quarrel, since the victory is already won for the study of education. The Order in Privy Council establishing a Register will do more for the promotion of these fundamental principles than could be achieved by the private efforts of mathematicians in a century. And I should not have ventured to speak in this irreverent way of professors and tutors, if I were not sure that they themselves are prepared to welcome the new day which is dawning, not only for those who teach mathematics, but for all who seek to place the art of teaching on a scientific basis of theory.

4. Finally, so far as time will permit, I wish to offer an illustration as to how I think it possible for teachers in practice, like myself, to make a beginning of reform in our own schools. The start must obviously be made with the youngest Form; for these can be expected to grow up with the desired mathematical habits, and, even if they leave us soon, they will have learned something of value.

I will simply describe what I have commenced this term with a class, as I think it is not only most helpful, but most in accord with the scientific spirit, to record one's own experiments, precisely as the chemist or the medical man is accustomed to do when he presents a record of experiments to a company of his professional brethren. I am taking a class, since Christmas, in what is known as the First Year's Course under Clause LXXIII. of the "Directory"; hence their average age is twelve years or so. Such pupils might easily do similar work at an earlier age, and will do so when these reforms are an accomplished fact, but at present, since the ground has not been covered, it must now be begun at the beginning.

In the syllabus, it is described as Elementary Physical Measurements in the Science Section, and First Notions of Geometry in the Mathematics Section. *These two are interlaced into one course of study, associated also with Arithmetic and Drawing. The pupils do not know whether they are "doing" Science or Mathematics.*

The following are the principal topics, taken from my Notes of the Lessons:—

Section I. *The Line*.—Straight, curved, leading to apperception of regular curved lines, circle, ellipse, &c.

*Experiment*.—Ratio of circumference to diameter, done as physical measurement with proper apparatus—result, a formula. *Here algebra also may commence in symbolic expression.* Exercises in ratio and in substitution on this formula.

Section II. *Angles*.—Curvilinear angles are observed, but left on one side. The definition is dwelt upon; an angle is a difference between two directions. Parallel lines. Unit of measurement—the straight angle.

*Practical Experiment*.—Ratio of angle to arc, and making a protractor.

*The Right Angle*.—Use of compasses in various constructions of 90°, 60°, 45°, 30°, &c. (Commencement of a course of geometrical drawing, leading to geometrical designing, with use of compasses, T-square, set squares.)

*Arithmetic*.—Arising out of factors of 180, and further work in ratio.

Section III. *Areas*.—(1) Kinds of areas, classified according to their boundaries as regular and irregular, rectilinear and curvilinear figures. Triangles, quadrilaterals, polygons. Here is an appropriate place for the commencement of a course of conventional designing. (2) Comparison of shapes of areas, similar figures, photographs, plans, &c.

*Practical Experiment*.—To discover whether equiangular triangles are similar, leading to arithmetical work in proportion and equality of ratios.

*Properties of the Triangle*.—Ascertained by measurement. Application of law of similar triangles to simple exercises in surveying out of doors (*vide, e.g.*, Paul Bert's "Experimental Geometry"), leading again to arithmetical exercises.

Section IV. *Measurement of Area*.—Selection of a unit; the square; measurement of rectilinear areas (1) by use of squared paper, (2) by multiplication, (3) by weighing cardboard models; measurement of curvilinear areas, leading, for example, to  $\pi r^2$  and further use of algebraic symbols.

From this point squared paper will become a familiar tool.

The method by which this material is being handled may be described as the developing method, *i.e.*, the pupils have been allowed an abundance of concrete examples on the blackboard, and with paper and cardboard. From these they have made comparisons, and arrived at concepts. The teacher then supplies the technical terms, and the results are expressed in appropriate language, and written carefully in a note-book.

Now this is as far as I have reached during these few weeks, and I hesitate to prophesy what I intend to do hereafter, because I desire to emphasize the importance of working out in school practice the details of a syllabus before venturing to dogmatize as to what teachers can accomplish. Syllabuses drafted by committees and examining boards are not worth the paper they are printed upon, unless they are the direct outcome of detailed work. This, surely, is the only sound course of procedure; and scientific men, accustomed to patient research in the laboratory, ought surely to approve the same practical mode of solving problems in teaching. But it is remarkable to observe how eminent men of science, accustomed in their own branch of study to accept the restraints of the inductive principle, feel at liberty to dogmatize with the utmost freedom, and to lay down the law for others with the utmost assurance, when they come to discuss the processes of school teaching.

I may conclude by indicating what I shall aim to do next year

when this syllabus comes to be rewritten. (1) It will be possible to alter materially the subject-matter of arithmetic. Many examples relating to money may be banished from this first year's Course, and be taken up, if required, in later years. (2) In place thereof an abundance of exercises in ratio, proportion, and percentage can be introduced, employing exclusively the metric system (which has been already learned, in connexion with decimals, in a lower form) and treating of the measurements of area, as well as of simple experimental work in physics proper. (3) Algebra will commence in close connection with mensuration, and, although it must develop on its own lines, it will constantly find points of contact with geometry. (4) Thus the whole of the mathematics for this year can be handled as one "subject" instead of three, and the class will lay the foundation of that intimate relation between number and form which is one of the keystones of this "reform" movement. (5) Conventional designing and the use of instruments in elementary geometrical drawing can be taken up at the same time in the art lessons for this year.

Beyond that "First Year" I can only imagine what may be possible. Theoretical geometry will make headway; algebra may be advanced so far as to open an easy approach to logarithms, and abundant use of arithmetic may be found in an elementary syllabus of physics proper. Thereafter, the "Third Year" would make possible the mastery of much of what Prof. Perry has described in his syllabus of practical mathematics (elementary stage), including the beginnings of trigonometry; but I should be most unwilling to admit that the differential calculus could be introduced until I had myself witnessed such work with a school class.

5. I must apologize for the personal character of this address, but, if you accept my point of view, you will pardon that. I expressly desire to force those who deal with this subject to treat it in what I have ventured to call the scientific spirit, giving out the record of their own work, with all possible detail, and drawing a sharp line between that and the mere expression of criticism and advice. It was my hope to have had another two months of work at this subject before presenting it to you; but our Secretary desired me to come in March, so I have put together my materials as well as I was able. One further conclusion with reference to the time-table, and I have done. This work has convinced me of the difficulty of keeping separate the mathematics and the science work of little boys. The Board of Education requires you to draft a time-table showing a series of precise lesson periods allotted to mathematics and science as distinct subjects. If Prof. Perry's syllabus, which is printed by royal command in one part of the Directory, be carried out, the requirements as to time-table in another part must be modified. The science (so-called) and the mathematics in the work I have described become so closely linked that it is impossible to run them apart. The same teacher must handle both, and he must take his syllabus straight on, regardless as to whether the business of the moment is labelled Science or Mathematics in the time-table. I do not think this will prove a serious difficulty, for His Majesty's inspectors are, I gather, in thorough sympathy with the spirit of this reform; but I dwell upon it because it shows how absolutely necessary it is to maintain elasticity in all our relations with administrative authorities. We welcome their control so long as their vigilance is directed towards checking laxity or disloyalty; but there is a danger, especially now that the Board of Education is beginning to wield so potent an influence over secondary schools, lest they should stifle the very movements which they desire to promote. In the present instance I believe that regulations relating to time-tables, copied from the old methods of Whitehall, indicate a possible source of danger, which should be foreseen by those who have a voice in such matters.

Thus, to summarize what I have put before you, this reform movement embraces (i.) the study and application of a number of fundamental pedagogic principles which must become part of the mental equipment of the great body of teachers in schools before they can be applied to the desired reform in mathematics; (ii.) the only safe mode of testing these principles is to conduct detailed and prolonged experiments with classes of pupils; (iii.) the final hope of success is bound up with the attitude and action of those who control our work from the outside—the Universities, the various examining boards, and the officers of the Central Authority.

The Rev. J. O. BEVAN remarked that the lecturer's experiences were very interesting, and that it was only by such experiments that

teachers could prevent their methods from becoming stereotyped. The old notion that every single branch of knowledge must be treated as if it were independent of every other had long been given up, and there was no reason why reform in the teaching of mathematics should not be effected by a fuller recognition of the correlation of the several branches. Thus, algebra and arithmetic could be taught together, as arithmetic might be regarded as a particular case of algebra. The advantages of teaching algebra with Euclid and with trigonometry were obvious. In dealing, for example, with the second book of Euclid alternative algebraical proofs might be used, and the fourth book might be adequately illustrated by trigonometry. Teachers would also find it helpful to enlarge the number of axioms and definitions and to treat some of the propositions as riders. As further reforms he would advise the earlier use of logarithms, and even the use of the calculus in senior forms. The object aimed at by the British Association Committee did not seem to be the same as that with which teachers in schools were concerned; for, while the latter had regard chiefly to the development of the faculties of the mind, Prof. Perry's scheme appeared to be designed for the purpose of smoothing the path of those who had to deal with engineering problems.

Dr. FLETCHER said that the lecturer had rightly pointed out that the principles underlying the reforms under discussion were not new, and had long been recognized by educators. Valuable service to the cause of reform was rendered by experiments like those described by Dr. Findlay, and he hoped that educational journals in England would assist in developing new methods by publishing the experiences of practical teachers, as the German papers did. Much of the difficulty experienced by young children in the study of mathematics arose from the abstract nature of the subject-matter, and this would largely disappear if the subject were taught at the beginning in connexion with physical science. Pupils would find their work more interesting and profitable if they were encouraged to find out things for themselves, instead of being obliged to take for granted whatever the teacher told them. It was not desirable to lay too much stress on the utilitarian side of education; but, on the other hand, they could not afford to neglect this phase of the question; for, as Prof. Dewey, of America, had reminded them, a large portion of our life was directly concerned with utility, which must, therefore, receive due attention in schools. For this reason he thought it would not be advisable to leave money examples to the last year of school life, as, even under present conditions, children when they left school were often quite unable to deal satisfactorily with monetary calculations.

Mr. KETTLE said the question of the origin of new methods was of small importance, and that any influence which assisted improvement in teaching should be welcomed. Examining boards placed obstacles in the way of reform by their conservatism and their want of sympathy with new movements, and the teacher that desired to use better methods had to sacrifice his reputation for preparing candidates for examinations. This was especially the case in regard to geometry, which examiners required to be taught in accordance with Euclid's methods. He could not agree with the lecturer that it was advisable to exclude money sums in the earlier stages of arithmetic. The processes of arithmetic were more easily comprehended by children when taught by means of concrete examples, and money sums had the further advantage of possessing a direct bearing on the work of the pupils after they left school.

Mr. HAMILTON remarked that hitherto the interests of everybody had been adequately considered except those of the pupil. If teachers generally only knew the immense advantage of a course worked out from the pupil's standpoint, one based on experiment and having relation to what his development demanded, the work of reform would proceed much more rapidly, many of the difficulties in the subject would disappear, the work would become pleasurable, and the results in every way more satisfactory. In illustration of the method he had followed for some years he sketched a lesson given to boys of thirteen years. Each boy drew a large circle with chalk on his desk, and at the ends of a diameter two straws nine or ten inches long were fixed with drawing-pins, about which the straws were turned till they crossed at a point on the circumference. Their point of intersection was to be moved along the circumference of the circle, and each boy was to find out what he could about the angle formed, and was left as far as possible to his own resources. The boys clearly guessed that it was constant and a right angle, for set squares and folded pieces of paper were fitted into the angle and moved along between the two straws. It was now suggested to them that the apparatus was somewhat clumsy and not capable of fine work. In reply, circles were drawn on paper with compasses having fine-pointed pencils, and careful measurements made of angles drawn at various points on the circumference. The boys still maintained that the angle was always a right angle, and with younger boys this would have been accepted as quite satisfactory. These, however, were capable of more; so the reason for the fact was demanded, and, after a little time and much discussion among themselves, the geometrical proof was forthcoming. One boy next suggested that one of the straws should be fixed at another point of the circumference, and this experiment in turn led

on to the conception of a tangent as the limiting position of a secant, and also to the fact—quite obvious when arrived at in this way—that the angle between the tangent and a chord drawn from the point of contact was equal to the angle in the opposite segment. The pupils thus took an active part in the development of the various points, theoretical and practical work were dovetailed into one another, the method was scientific, the knowledge—unlike mere book-acquired knowledge—was real, and the pupils throughout were keenly interested, as they invariably are, with the living method of treating the subject.

Mr. KING considered that the scheme sketched out by Dr. Findlay was eminently suitable for boys leaving school at the age of fourteen. He, however, thought that a very skilful teacher would be needed to carry out the principles of co-ordination as sketched by the lecturer. He hoped Dr. Findlay would publish his results after a year's working, as his own experience on somewhat similar lines had not been satisfactory, the final results lacking accuracy and exhibiting a lack of power of consecutive reasoning in the pupils. He suggested that a modification of the unitary method would enable pupils to approach the difficulties underlying ratio and proportion. He expressed the opinion that the method advocated would be extremely misleading if persevered in after the elementary course had been passed.

The CHAIRMAN said that the object of teaching mathematics was twofold—to give a training in logical reasoning and to familiarize pupils with certain ideas which had a practical bearing on engineering problems and on every form of science. Under the existing system of teaching it was quite possible that undue attention was given to the first of these objects. At any rate a large number of pupils left school without the power to apply their knowledge to practical work, such as engineering, and without having carried their mathematical studies sufficiently far to understand the scientific bearing of them. Economy of time was secured by methods like those described by the lecturer. In teaching geometry it was useful to adhere generally to Euclid's order of reasoning, but hypothetical constructions might well be allowed in the early stages, the simple properties of circles might be taken before the second book, and there were many propositions which might with advantage be treated as riders, or left out altogether. In algebra there was a danger of spending too much time on elaborate factorization and combination of fractions, and losing sight of general principles. It was important to get to simple trigonometry as early as possible.

Dr. FINDLAY having replied to the various speakers, a vote of thanks to the lecturer concluded the proceedings.

COLLEGE OF PRECEPTORS.

PROFESSIONAL PRELIMINARY EXAMINATION—PASS LIST.

MARCH, 1902.

THE Supplementary Examination by the College of Preceptors for Certificates recognized by the Board of Education, the General Medical Council, the Royal College of Physicians of London, the Royal College of Surgeons of England, the Incorporated Law Society, the Royal College of Veterinary Surgeons, the Pharmaceutical Society of Great Britain, and other bodies, was held on the 4th, 5th, and 6th of March, in London, and at seven other local centres, viz., Birmingham, Bristol, Edinburgh, Glasgow, Inverness, Leeds, and Liverpool. The following candidates obtained Certificates:—

FIRST CLASS (OR SENIOR).

Pass Division.

Curle, R.	Gow, J. F.	Horner, H. W.
Thompson, Miss A. M.	Withers, Miss H. M.	

SECOND CLASS (OR JUNIOR).

Honours Division.

Beaton, Miss M. A.	Partridge, T. G.
Challenger, W. R. B.	Wright, S. J.

Pass Division.

Barker, M.	Hawks, F. S.	Miller, H. C.
Brown, A. J.	Jackson, A. C.	Minett, E. P.
Caton, Miss H. O.	Lawrence, E. I.	North, D.
Clarke, C.	Ledger, P. G.	O'Reilly, B. C. N.
Clibborn, A. S.	Lewin, I. B.	Price, C. E.
Coleman, G. C. H.	Little, W. E. S.	Reynolds, A. J. S.
Coppack, C. A.	Lloyd, H. O.	Singleton, H. R.
Eccles, H. N.	Lloyd, R. H.	Stansfield, G.
Edkins, R. F.	Lucas, G. B.	Startin, J.
Foulds, C. E.	Mackenzie, H.	Webber, B. E.
Harrison, Miss N. G.	Marks, F.	Winterbottom, B.

## REVIEWS.

## AN OWENS COLLEGE "FESTSCHRIFT."

*Historical Essays.* By Members of the Owens College, Manchester. Published in Commemoration of its Jubilee (1851-1901). Edited by T. F. Tout, M.A., and James Tait, M.A. (Longmans.)

The celebration of the Jubilee of Owens College has been among the most notable educational events of the month, and the present volume of essays will form one of the most influential and permanent memorials of the occasion. Both the birth and the majority of the college were celebrated by the publication of similar collections, which, however, had no such intrinsic unity as this, and were mainly chance (though choice) fragments clubbed together by the professorial staff. The present collection exhibits original work in the one department of history, more than three-fourths of it having been done by past students not upon the teaching staff, and the rest by "teachers not educated at the college, but who have devoted periods varying from twelve years to thirty to its service." The editors acknowledge that it is "more or less of an accident" that the historical students of the college should have undertaken the special commemoration of its jubilee in this form, and that "there are many other larger departments which might, even with fuller appropriateness, have taken a similar part in the celebration." That is frankly and justly said; but, none the less, this collection of twenty essays forms a marked testimony to the vitality of the historical department. It is instructive to observe the opinion of the editors that "so long as the college was compelled to prepare its students for the degrees of the University of London, in which history was at that time very imperfectly recognized, the progress of historical teaching at Owens was greatly impeded," and to note that they look forward with expanding hope to the time when "the growth of the colleges of the Victoria University will ere long result in a further development which will put an end to the limitations of freedom." The child has shown that he can walk alone, and naturally claims release from the leading-strings.

The twenty essays are new to print, and have been specially written for the book. The editors explain generally:—

The essays are all based upon a study of first-hand authorities, and in several cases unpublished materials have been utilized. Some may claim to throw new light upon old problems; others restate succinctly, and with reference to the latest results of research, matters which must be studied in a wide variety of sources not always very accessible.

In a word, each one of the essays advances the knowledge of its subject; and, though the collection is very miscellaneous, yet the spirit of insistent inquiry pervades the whole, and the results sum up to a very considerable total.

Four out of the twenty essays come from the pens of lady graduates, who fully hold their own in diligence of investigation and in vigour of thought, as well as in power of expression. Mrs. T. F. Tout, M.A., examines "The Legend of St. Ursula and the Eleven Thousand Virgins" with patient exhaustiveness. She distinguishes the various stages in the growth of the legend, traces the development of a sceptical attitude, and describes the reaction leading to the counter-reformation glorification of Ursula, the foundation of the Ursulines, the Jesuit spreading of her fame and translation of relics, and the growth in numbers, influence, and distinction of the Ursuline gilds. Especial interest attaches to the attraction of Ursula for artists, and to the prolonged educational work of the Ursuline nuns. Miss Speakman, B.A., explains the origin and true quality of "the Rule of St. Augustine," and traces its peculiar history. Miss M. M. Newett, B.A., sets forth an elaborate and most curious account of "The Sumptuary Laws of Venice in the Fourteenth and Fifteenth Centuries," drawn directly from the records of the "Provveditori sopra le Pompe" preserved in the State archives of the city. She "traces the development from the earliest known statute, that of 1299, to the downfall of the Republic," at the same time availing herself of the principal literature on the subject. The "Provveditori," as might have been anticipated, were not conspicuously successful: "for they waged war on the Mode, and the Mode is immortal"—"come se io non fossi immortale!" as Leopardi makes "Moda" exclaim. Mrs. Haworth's paper we shall consider presently.

For the rest we must limit ourselves to cursory notice of the more outstanding papers, though there is not one of them that is

not well worth permanent record. The most elaborate and important of all, it seems to us, is Prof. Tout's monograph on "Wales and the March during the Barons' Wars, 1258-67"—a subject that, for one reason or another, "has not yet been studied with any particularity." The paper "aims at showing, by a narrative of nearly ten years of struggle, how both the relations of the Welsh and English peoples and the alliances and hostilities of the Marcher nobles with each other and their Welsh neighbours reacted on English politics, and how in the end they largely strengthened the martial and feudal element in the English State, and permitted the establishment of that strong Welsh power which subsequently cost Edward I. so many efforts to dominate." Prof. Tout concludes:

It is not too much to say that the whole constitutional and political development of the English nation was profoundly and permanently affected by the part which Wales and the March played in the momentous years when the "greatest of the Plantagenets" was learning his lessons of statecraft.

The sympathetic and charming paper on "Elizabeth, Princess Palatine," by Dr. A. W. Ward, formerly Principal of Owens, displays a fine maturity of historical capacity and of literary execution. Mr. Fiddes, College Tutor and Secretary to the Council and the Senate, investigates with care and judgment "The Beginnings of Caesar Worship," finding that "the peculiar nature of the Roman Republican constitution" deferred its appearance to "a comparatively late date in Roman history," and that "there was nothing sudden or surprising in the worship of Emperors." An interesting episode of local history is "The Siege of Manchester in 1642," by Mr. Ernest Broxap, B.A.; and with this we may couple the able article on "The Borough of Preston and its Gild Merchant," by Mr. H. W. Clemesha, M.A. There are two papers on Napoleon. Mr. Spencer Wilkinson, B.A., reviews "The First Phase" of Napoleon's career, "which culminated in the capture of Toulon and ended with his transfer, in March, 1794, to the headquarters staff of the army of Italy"—a very illuminating inquiry. "Intense concentration on the problem of the hour, unrelaxed until the situation has been mastered and a definite solution worked out and determined upon, is the secret of Bonaparte's military success. It is also the key to the process by which he prepared for that success." And Mr. J. H. Rose re-examines "The Detention of Napoleon at St. Helena" by the light of materials in the British Record Office that, strangely enough, do not seem to have been drawn upon so fully as other European archives. He makes a strong defence of Sir Hudson Lowe, and incidentally has a word of criticism for Lord Rosebery:—

Sir Hudson Lowe was paid £12,000 a year to see that Napoleon did not escape; he took his duties seriously—who would not after Elba and Waterloo?—and was therefore unable to view the situation with the lambent humour and serene detachment that constitutes one of the many charms of Lord Rosebery's narrative. The standpoints of the Governor of St. Helena in 1816 and of a literary man in 1900 are, in truth, somewhat remote; and I submit that his lordship's criticism of our policy in St. Helena fails, firstly, because of this vital defect; secondly, because he has not studied the British archives where many of the reasons for our actions may be seen; and, thirdly, because of his exaggerated deference to French sources of information.

The other papers mainly testify to a most creditable historical interest and activity on the part of younger men.

The two final papers deal with education. Mrs. Alfred Haworth, M.A., expounds her ideas as to "Historical Training in Secondary Schools." The chief existing faults, she says, "are (1) the exclusive stress laid on English history, (2) the lack of time given to the subject, (3) the want of good text-books, and (4) the nature of the questions set at our public examinations." This reminds us of the defects of the Irishman's gun, which wanted new stock, new lock, and new barrel. Mrs. Haworth suggests a scheme of historical study in secondary schools from "ages 4, 5, and 6" up to "ages 17 and 18," which we leave to the criticism of the pedagogists, not without a sense of relief that effluence of time has placed us beyond the columns of her tabular analysis. Still, the article has its shrewd points. Finally, Mr. Thomas Bateson, M.A., gives his experience on "The Teaching of History under the English System of Elementary Education," mainly in regard to the results on pupil-teachers—"the part best illustrative of the system." Mr. Bateson's expectations seem to be less sanguine than Mrs. Haworth's. And as to present conditions, pupil-teacher instruction, "so far as history is concerned, very often starts from nothing; for in many primary schools history has been displaced by other subjects, and in particular

by an odd mixture known as elementary science." Both papers are suggestive, and may evoke further special criticism of their important subjects.

#### HUXLEY: A POPULAR MEMOIR.

*Thomas Henry Huxley.* By Edward Clodd. (Blackwood.)

By his admirable summary of the work of the late Prof. Huxley, Mr. Clodd, in this latest volume of the "Modern English Writers" series, has conferred a great benefit upon the reading public, and his estimate of Huxley's place among the great men of a great century will be endorsed by all save the hopelessly prejudiced.

Beginning with a chronology, the book deals with its subject under five aspects—as a man, a discoverer, an interpreter, a controversialist, and a constructor—followed by a note on the doctrine of the unknowable.

In the first section a general sketch is given of the busy life of Huxley, the materials being of necessity mainly drawn from the large biography recently published. The story of his upward progress by strenuous effort from the position of an assistant naval surgeon to the topmost pinnacle of fame is well and aptly told. Scarcely enough justice, however, is done to Huxley as an educationist. His advocacy of the scientific method and his championship of natural history as a subject of liberal education—a subject, too, that has opened out new horizons in almost all other departments of learning—have profoundly influenced our educational systems, from elementary school to University.

The second section says enough about Huxley's original work to convince the general reader that this master mind has greatly furthered our knowledge of many important branches of the animal kingdom, from jelly-fish up to man. Few men of science have possessed in the same degree the power of minute and laborious observation, combined with a rare gift for broad generalization. Huxley's work in his own subject would alone give him a very prominent place among great men, although, except to specialists, he is least known in his capacity of discoverer. But why does Mr. Clodd call the cæcum a "true stomach"?

In the third section we see Huxley in his well known rôle as an interpreter of Darwinism, the far-reaching influence of which at the present time owes very much to his convincing eloquence as a speaker, his unequalled lucidity and vigour as a writer of English prose, and his stimulating earnestness as a teacher. Nor must we forget Huxley's luminous presentment of the views of Descartes and Hume.

Section four deals with Huxley as a controversialist, and, though this is a characteristic side of his work, it is, in our opinion, of far less significance than his more important efforts in other directions, and perhaps scarcely justifies the large space assigned to it in a small book. Every one knows that for many years this many-sided man waged bitter war with the extreme and ultra-dogmatic clerical party, and was far in advance of most of his contemporaries in such matters. The chief authorities on the higher criticism now hold him in the main substantially right. "Truly, 'wisdom is justified of her children'; well-nigh all for which Huxley contended is conceded, and the rest will follow in due time."

In section five is presented a sketch of Huxley as a constructor of a practical system of ethics. As Mr. Clodd well remarks, "in theology he separated the accidental elements from the essential, leaving as *residuum* a religion that, co-ordinated with the needs and aspirations of human nature, would find its highest motive and its permanency in an ethic based on sympathy." The final note states, in his own words, Huxley's position as an agnostic.

We consider that Mr. Clodd has been very successful in his attempt to give, in a short space, a telling account of a many-sided genius, whose influence upon the world has been great, and who "remains alike an example and an inspiration to all men for all time."

#### GEOGRAPHY AND TRAVEL.

*Central and South America.* Vol. II. By A. H. Keane. (Stanford.)

The volume of Stanford's "Compendium of Geography and Travel" dealing with Central and South America appeared in 1878. It was a translation of von Hellwald's "Die Erde und ihre Völker," executed by Mr. Keane, and supplemented by him with an ethnological appendix. The editor was the late Mr. H. W. Bates, who added to it from his experience as a traveller

and a naturalist. Since 1878 much has been added to our knowledge, and it has become necessary to divide the book into two. The second volume, on Central America and the West Indies, is published first. It is practically a new work, and is thoroughly up to date. It includes details of history and archæology as well as the ordinary topics of a geological manual. Ethnology is a specially strong point with the author, and, though he necessarily leaves many problems unsolved, modern research has enabled him to fix the relation of the Aztecs to their more highly developed predecessors, from whom their civilization was borrowed. Fresh light, too, has been thrown on the geographical history of the "American Mediterranean," with its traces of an unbroken, or almost unbroken, isthmian bridge from Florida to Venezuela; and, on the other hand, of an archipelago occupying the area of what is now Central America. To pass to modern times, we have much interesting information both as to the natural resources and the political condition of the several countries dealt with; and it is interesting to compare this volume with the earlier work, and to note the progress made in the last quarter of a century, especially in Mexico. With regard to the future of the West Indian Islands the author naturally speaks with reserve, but is, on the whole, hopeful. In Jamaica, as to which he quotes Sir David Barbour's report of 1899, as well as the testimony of recent observers, he shows that there is distinctly a bright side to the picture. On the pressing question of the Isthmian Canal, Mr. Keane calls attention to observations indicating a steady fall in the level of Lake Nicaragua, which might be fatal to that solution of the problem. The illustrations are well chosen and almost entirely new. What we miss are small inset maps, such as appear in Mr. Mackinder's recent work. They would make it much easier to follow the letterpress. A good example of this defect is the elaborate account of the difficulties experienced in draining the City of Mexico, which is not very readily understood without some such aid.

#### THE INVESTIGATION OF GASES.

*Study of Gases.* By Morris W. Travers, D.Sc. (Macmillan.)

The object of this book is to give an account of the experimental methods used in investigations of the constitution and properties of gases, and the author is to be congratulated on having attained his object as well as can reasonably be expected for so wide a subject in a volume of three hundred and twenty pages. A large amount of useful information only to be previously found scattered through several books and papers is collected together, and placed before the reader in a clear and intelligible manner. This alone would make the volume valuable to the student of physics or chemistry.

The book is, however, much more than a compilation of the methods and results of others; it is a record of the author's own experience in carrying out difficult and interesting researches upon the properties of gases and gaseous mixtures and upon the determination of their chief constants. As such, it includes descriptions of apparatus and methods used, and of precautions to be taken in the manipulation of gases, most useful to any who may have to deal with this branch of experimental work.

To some extent the most important part of the book is where the author deals with the helium group of gases and with the study of the gases of the atmosphere by fractionation of liquefied gaseous mixtures. It is here that he is more particularly on the ground of his own personal experience, and the whole description of the liquefaction of gases and of their manipulation in the liquid state should be of especial value to such as may wish to work on similar lines. Several tables of constants of gases are given throughout the book, and there is evidence that considerable and critical care has been exercised in the tabulation. The author has added to the value of his work by frequently pointing out where knowledge on the subject is incomplete, and by suggesting the directions for further experiments. The wide scope of the book should render it of much use both to the student and to the advanced worker in this interesting and important branch of chemistry and physics. Of course, with so wide a scope, details cannot be complete in all parts of the subject, but in such cases the essentials are given. Perhaps in another edition the author may see his way to some modification of the chapters on gas analysis and spectrum analysis, which are not quite up to the standard of the rest of the book. The volume contains a decidedly thoughtful and able treatment of the subject in an eminently readable and interesting form. It is fully and carefully illustrated.

## GENERAL NOTICES.

## CLASSICS.

*Xenophon, Anabasis I.* Edited by G. M. Edwards. (Cambridge University Press.)

This edition has a vocabulary, a list of un-Attic words, a very satisfactory commentary, in which are included copious excerpts from other writers, and an introduction, chiefly historical. What Mr. Edwards means when he says that his text is conservative we do not understand. The only prudent course to adopt now in editing the earlier books of the "Anabasis" is surely to follow the first hand of "Paris. C." This Mr. Edwards does not do. But he does not appear to have made himself acquainted with the problem of the text. For instance, in chapter vii., Mr. Edwards prints *προθύμους* where "Paris. C." has *πρότερον θυόμενος*. And here it happens that the reading of "Paris. C." is almost demonstrably correct. For *προθύω* does not mean "sacrifice beforehand," as Mr. Edwards supposes, but "perform ceremonies preliminary to sacrifice," being a synonym of *προκατάρχουμαι*—and this sense does not suit the passage. The form *ἔγνων* in chapter iv. requires a comment, as it has given rise to controversy.

*Virgil's Æneid, Books I.-VI., Selections VII.-XII.* Edited by C. Knapp. (American Text-Book Agency.)

Dr. Knapp's introduction extends to a hundred pages; but the matter is so well chosen and so clearly arranged that the length may be excused. The notes, which are printed at the foot of the page in accordance with American custom, are short and simple. The editor avoids all discussion, and in matters of controversy merely gives the interpretation he prefers. Thus, he prints:

"Gnosius hæc Rhadamanthus habet durissima regna castigatque, auditque dolos subigitque fateri"

—we omit the quantities, which are not required in English textbooks—and he comments thus: "*Castigatque* belongs with what precedes. *Regna-castigat* strikingly describes the function of Rhadamanthus: he is jailer and executioner, not judge." But, of course, the question that at once arises in the mind of any one at all familiar with the text is: "*Can castigatque* belong with what precedes? Is it conceivable that the second *-que* joins *audit* to *habet castigatque*, so that there are only two and not three limbs here?" This question cannot be answered in the affirmative unless other passages are forthcoming in which *-que ... que* is used in the way Dr. Knapp supposes. That with consecutive words they should be so used seems most unlikely. English teachers, we think, like their pupils to know when there is clearly more than one way of taking a sentence. We do not think that the commentary shows much insight, or is equal in merit to the excellent introduction. There is a vocabulary, and some good reproductions of statuary.

*The Latin Period.* By E. A. Wells. (Blackie.)

The first part of this little book consists of sentences to illustrate the chief form of dependent sentences and the use of the infinitive and gerund. The rest of it is occupied with the usual ways of replacing one of the English co-ordinate sentences by a subordinate sentence or a participial clause. There is a short chapter on the connexion of sentences by particles, but the use of the relative for this purpose is only incidentally touched upon. The book may be used to supplement a fuller treatment of the subject, but is hardly sufficient in itself.

## MATHEMATICS.

*Cours de Mathématiques.* By Carlo Bourlet, Docteur ès Sciences. (Paris: C. Naud.)

Prof. Bourlet's work comprises the more original portions of the course of instruction given by him at the Ecole des Beaux Arts, and contains certain additional information, included for the sake of completeness. The subjects dealt with are the really elementary parts of the differential and integral calculus, and of analytical geometry of two and three dimensions. The course is specially adapted to meet the requirements of students of architecture and engineering. The various fundamental principles involved are discussed and explained with great clearness, and, although the book is written in French, both the words and the phraseology are so simple that any student possessing a fair knowledge of the language may readily follow the propositions from beginning to end with little or no aid from a dictionary, and with very great advantage to himself. For those requiring to obtain a knowledge of the subjects either wider or deeper than that necessary for the practical application of them, the treatise would necessarily be insufficient; yet students of this class, also, would derive great benefit from it. In the sections devoted to the differential calculus the practice of discussing together differentials and differential coefficients is one whose utility is questionable. The treatment of the elements of plane analytical geometry is excellent, and the portion of the book that deals with curve-tracing and its applications is equally good. Numerous examples are worked out in the course of the volume in order to illustrate the theory. The diagrams, while not constituting a special feature of the publication, are nevertheless very good and clear.

## MODERN LANGUAGES.

"Blackie's Little French Classics."—(1) *Madame de Sévigné, Select Letters.* Edited by Mabel F. Vernon Harcourt. (2) *Théophile Gautier, Le Pavillon sur l'Eau and Le Nid de Rossignols.* Edited by W. G. Hartog. (3) *Victor Hugo, Waterloo.* Edited by G. H. Clarke, M.A. (Blackie.)

These small brochures continue worthily an admirable series, furnishing easy classical reading in great variety. (1) Most of the letters here selected from Madame de Sévigné's correspondence are addressed to her daughter, Madame de Grignan. They "show us what a loving, eager-hearted woman she was, and how many-sided—sometimes grave, usually gay, always clever, witty, and kindly withal." (2) The two pieces from Gautier are excellent examples of his delicate fancy and his masterly style. But was it Gautier that punctuated the last two sentences of the first paragraph of "Le Pavillon sur l'Eau"? (3) Hugo's vivid account of the battle of Waterloo is taken from "Les Misérables," where it forms a not very relevant episode. The introductions and notes are adequate, and this taste of the extracts ought to lead to a desire for wider acquaintance with the writings of the distinguished author.

*French Poetry for Children.* Selected by François Louis. (Marlborough.)

This book has reached its seventh edition, which shows that it has been found serviceable. It contains nearly two hundred poems, many of the nursery type, while others are offensively goody-goody. On the whole, however, there is a very fair proportion of poems which the teacher will be glad to have. It is strange that a book which has passed through six editions should be disfigured by misprints: for instance, *on* for *sont* (page 86), *Melle.* for *Mlle.* (page 87), *ferra* for *fera* (page 89), *déjà* for *déjà* (page 90), *vite* for *vite* and *on* for *ont* (page 95), *lautre* for *l'autre* (page 118), *chantré* for *chanter* and *plait* for *plait* (page 119), *des* for *de* (page 121).

*German Vocabularies for Repetition.* By Sophie Wright. (Methuen.)

The words are divided into sections, each containing about a dozen, with the English rendering, and are taken from the most varied spheres of interest. Needlework and compliments, scenery and zoophytes are represented, as well as a host of other subjects. The book is compiled with some skill, but more care should have been taken in reading the proofs, for there are a number of slips and inconsistencies. In some cases it may well be doubted whether the most common words have been chosen: thus *Lebwohl* is surely more common than *Ade*, and, if there was room for *unzeitgemäss* under the heading "Die Jahreszeiten," *der Lenz* should have appeared also. If the plural of *Zahn* is given, why not that of *Hals*, and, still more obviously, why not that of *Herz*? The words in *-ieren* are no longer written with *-ir*. *Möbliren* is given in No. 83, *möblirt* in No. 85. Capital modified letters are no longer written *Æ*, &c., but *Ä*, &c. These are only a few instances of the lack of care displayed in what might have been a helpful little book.

## MISCELLANEOUS.

*Hindustani Self-taught.* By C. A. Thimm, F.R.G.S. (Marlborough & Co.)

The method adopted by Mr. Thimm in the present work is the method he has already applied in preceding volumes of "Marlborough's Self-taught Library." There are vocabularies on numerous groups of common subjects and a considerable variety of idiomatic expressions and phrases, disposed in three parallel columns (English, Hindustani, pronunciation), with tables of money and weights and measures. The selection is judiciously practical. But it would be rather sanguine to expect "to acquire an exceedingly good knowledge of Hindustani for colloquial purposes by means of the method and system contained herein." A companion grammar, however, is in preparation, and that may complete the necessary linguistic outfit of "travellers, students, officials, soldiers, traders, &c.," who want to speak Hindustani intelligently and intelligibly.

*Scott's Marmion.* Edited by R. Scott. (Bombay: K. & G. Cooper.)

This edition, by a professor of Wilson College, is intended for the use of Indian students. The notes are extremely full, explaining almost every poetical expression. They would hardly suit English schoolboys, but might be suggestive to young teachers who have yet to learn that the language of poetry needs a good deal of interpretation. It seems rather a pity to introduce technical terms like metonymy, hypallage, synecdoche, and some of the derivations, as *dis-cum-operire* for "discovery," or *rebellare* for "revel," might well be spared. The introductory matter consists of a life of Sir Walter Scott, a sketch of the story and the characters, and an estimate of his merits and defects as a poet. The estimate is thoughtful, but a little too learned, we should think, for students who need all the explanations given in the notes.

*The Aspirate.* By Geoffrey Hill. (Fisher Unwin.)

We have here a readable little book, combining interesting details as to the fate of the aspirate in different parts of the country and different periods of our language, with some good stories. Catullus's satire on Arrius is well known; less familiar is a passage of St.



Augustine quoted by Mr. Hill, where he complains that the conventional laws of pronunciation are more revered than the laws of God, that *qui 'ominem dixerit* is more looked down upon than *qui hominem oderit*. To come to more modern instances, a father was asked by his son the meaning of *canard*. "What you can 'ardly believe," was the answer. Good, too, is the story of the poacher turned preacher, who read: "This is the heir, come let us kill him." A good example of the tendency to insert an *h* is found in the two hands in the arms of "Antwerp" (*an t'werf*, "on the wharf"). Legend (so Motley tell us) associates the name with "hand-throwing," the town having been originally the dwelling of a giant who cut off the hands of those who refused to pay toll, and threw them into the water.

We have received from Messrs. A. & C. Black and from Messrs. Macmillan volumes of a new edition of the more popular of Scott's novels, intended for school libraries. There is little to choose between these two editions as to handiness of size and clearness of print, and they are equally provided with editorial introductions and notes. We have also received a set of five volumes, well printed and copiously illustrated, of Fenimore Cooper's works, the popularity of which with the younger generation has not been surpassed by the stories of the great Sir Walter himself, and "The Last of the Mohicans" will continue to claim a place in the school library in preference to books of adventure of greater literary merit.

Fresh series of School Readers are continually being issued. Messrs. Nelson & Sons have just published two books of the *Royal Prince Readers*, with the prettiest and most artistic coloured illustrations. Book IV. of *Chambers's Twentieth Century Readers* is as attractive as its predecessors, and the coloured illustrations are specially to be commended.

A new idea is worked out in *Blackie's Illustrated Continental Readers*, in which each continent is separately dealt with in a systematic way, the characteristic features of each country being described in popular language and illustrated by coloured pictures and photographs, with a complete miniature atlas at the end.

## FIRST GLANCES.

### CLASSICS.

Alford, M.: Latin Passages for Translation. 3s. Macmillan.

"For the use of higher forms in schools and of students working for Pass Degrees." Aims at "giving an abundance of the best Latin prose." "Arranged approximately in an order of increasing difficulty."

Balgarnie, W. H., M.A.: Tacitus, Histories, Book III. (University Tutorial Series.) Clive.

[Historical introduction; notes; index of proper names.]

Mills, T. R., M.A.: Euthyphro and Menexenus (Plato). 4s. 6d. Clive.

[University Tutorial Series. Introduction (16 pp.); well printed text; notes.]

Ormiston, F. M.: The Old Senate and the New Monarchy. (Black's Historical Latin Readers.) 2s. Black.

[Third and last volume of a series "forming a continuous history of Rome," to A.D. 14. Extracts mainly from Cæsar, Velleius Paterculus, Florus, Cicero, and Suetonius; text occasionally simplified.]

Rogers, B. B., M.A.: The Comedies of Aristophanes, edited, translated, and explained.—IX. The Frogs. X. The Ecclesiazusæ. 15s. Bell.

[In six volumes. The present volume, the first published, makes Vol. V. Greek and English (verse) on opposite pages, notes underneath; appendices.]

### MODERN LANGUAGES.

Lanciarini, Giuseppe: Gentile Brancaleoni de Montefeltro. 3 lire. Società Editrice "La Poligrafica" (Milano).

[Historical romance of the fifteenth century. An English translation is in preparation.]

Mascarenhas, The late Prof. C.: English and Portuguese Grammar and Commercial Handbook. Hirschfeld.

"Revised and brought up to date, and specially adapted to the commercial requirements of the day, with exercises and questions," by Prof. Mascarenhas, City of London College.]

Siepmann's Elementary French Series: Napoléon (Dumas). Edited and adapted by W. W. Vaughan. 2s. Macmillan.

[Biographies of Dumas and Napoleon; list of irregular verbs in text; vocabulary. Appendices (by the General Editors, Otto Siepmann and Eugène Pellissier); words and phrases, sentences on syntax and idioms for *viva voce* practice, and passages for translation into French.]

Word and Phrase-Book for "Napoléon" (by the General Editors). Separate, 6d.

Key to Appendices of "Napoléon" (by the General Editors). 2s. 6d. net.

### PHYSICS.

Hobbs, W. R. P.: Arithmetic of Electrical Measurements. (Murby's Science Series.) Ninth Edition. Murby.

[Revised to date by Dr. Richard Wormell, M.A.]

Stewart, R. W.: Text-Book of Magnetism and Electricity (The Tutorial Physics, Vol. IV.) Fifth Edition. 3s. 6d. University Tutorial Press.

[Aims at "suitability for class use and novelty of treatment."]

### ENGLISH LANGUAGE AND LITERATURE.

Cartwright, T.: The Master of Ballantrae (Stevenson). Cassell.

[Introduction, biographical and literary; notes and glossary. Rather close type.]

Cunnington, Susan: Emerson's Essay on Beauty. 1s. 6d. net. Speight (Simpkin, Marshall, & Co.).

[Edited as "a class study in English composition." Intended for upper forms in schools or for private students.]

Dictation and Spelling, Advanced. 64 pp. 8d. Relfe.

[Exercises (68) arranged according to vowels and vowel sounds. Special prominence in type to words of similar sound likely to be misspelt. Spelling lists precede exercises.]

English Tales in Verse. (Warwick Library of English Literature.) 3s. 6d. Blackie.

[Introduction by C. H. Herford. Nicely got up.]

Harris, R., M.A.: One-Hour Exercises in English Grammar. 6d. Relfe.

[52 sets of papers; progressive; "specially designed for home work" and "to develop the pupils' intelligence"; aimed at "the Junior Oxford and Cambridge Local and College of Preceptors' Examinations."]

Knight, Dr. W. T.: A Second Arithmetic. 8d. Relfe.

[One difficulty tackled at a time. Reasons for each rule. Copious examples from examination papers.]

Macmillan, M.: Shakespeare's Julius Cæsar. 3s. 6d. Methuen.

[Introduction (pp. 93); notes, critical and literary; appendix on special points.]

Smith, E. E.: Waverley. (Sir Walter Scott Continuous Readers.) 1s. Black.

[Historical introduction; notes; illustrations. Open type.]

Thomson, Clara L.: Tales from the Faerie Queen. 2s. 6d. net. Speight.

[Illustrated by Helen Stratton.]

### HISTORY AND GEOGRAPHY.

Dyer, T. H., LL.D.: History of Modern Europe. Vols. V., VI. (completing the work). 6s. each. Bell.

[Revised and continued to the end of the nineteenth century by Arthur Hassall, M.A.]

Firth, C. H., M.A., LL.D.: Cromwell's Army. 7s. 6d. Methuen.

"A history of the English Soldier during the Civil Wars, the Commonwealth, and the Protectorate." The Ford Lectures (Oxford University), 1900-1.]

Gregorovius, Ferdinand: History of the City of Rome in the Middle Ages. Vol. VIII., Parts I. and II. 4s. 6d. net each. Bell.

[Translated from the fourth German edition by Annie Hamilton. Completing the work.]

Herbertson, F. D., B.A., and A. J., Ph.D.: Central and South America, with the West Indies. (Descriptive Geographies from Original Sources.) 2s. Black.

"A text-book or reader, or both"; or else for supplementary reading.]

Meiklejohn, M. J. C., B.A., F.R.G.S.: Asia. 6d. Holden.

"Its Geography, Commerce, and Resources, with tables of salient distances."]

Morfill, W. R., M.A.: A History of Russia. 7s. 6d. Methuen.

[From the birth of Peter the Great to the death of Alexander II.; "a succinct account" for "the general reader"; "mostly drawn from Russian sources." 12 maps and plans.]

Taylor, W. R.: Synthetical Maps. 2d. each, net. Black.

[Lothians and Tweed Basin; South-Western District; and Leinster.]

The World and its People: Europe. 1s. 6d. Nelson.

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#### CHAPTER

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- III. THE PLACE OF RELIGION IN EDUCATION.**
- IV. OUR EDUCATIONAL SYSTEM.**
- V. THE EDUCATION BILL OF 1896.**
- VI. THE CHILD AND THE EDUCATION QUESTION.**
- VII. READING BOOKS FOR ELEMENTARY SCHOOLS.**
- VIII. EXAMINATIONS.**
- IX. THE VALUE OF TECHNICAL EDUCATION.**
- X. THE PROVINCE OF TECHNICAL EDUCATION.**
- XI. THE TRAINING OF THE SCHOOLBOY.**
- XII. THE TEST OF EDUCATION.**
- XIII. SUCCESS IN LIFE.**
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- i.  $X = x(x^3 + 2y^3), Y = -y(2x^3 + y^3), Z = z(x^3 - y^3)^{1/2}$ ;
- ii.  $X = x^9 - y^9 + 3x^3y^3(2x^3 + y^3), Y = -x^9 + y^9 + 3x^3y^3(2y^3 + x^3), Z = 3xyz(x^6 + x^3y^3 + y^6)$ .

Formulæ i. are said to be due to PRESTET and EULER, and formulæ ii. to ED. LUCAS.

These operations may evidently be repeated and combined, thus leading to an infinity of solutions (usually increasing in magnitude very rapidly). If  $x, z$  be both + and  $x > y$  (numerically), the sign of  $Y$  will usually be opposite to that of  $y$ ; and will change at each solution.

Ex.— $x = 18, y = -1, z = 7$  is a known solution.

The first set of formulæ give

$$X = 18(18^3 - 2) = 104940, \quad Y = (2 \cdot 18^3 - 1) = 11663, \\ Z = 7(18^3 + 1) = 40831,$$

which is the lowest solution in + integers obtainable in this way (this solution had already been obtained by Mr. R. F. DAVIS by a similar process). The results from formulæ ii. run very high.

[\* The value of  $Z$  is misprinted  $Z = z(x^3 + y^3)$  in the original.]

*Further Note on the above equation.*

Mr. R. W. D. CHRISTIE writes:—The late Prof. SYLVESTER states (see Quest. 2431) that the simplest representation of 17 as two cubes is

$$\left(\frac{104940}{40831}\right)^3 + \left(\frac{11663}{40831}\right)^3 = 17.$$

Consequently  $(104940z)^3 + (11663z)^3 = 17(40831z)^3$

for all values of  $z$ .

**12904.** (Professor MORLEY.)—The tangents at the points where any tangent of a hypocycloid of class 4 (the so-called four-cusped hypocycloid) meets the curve again meet on the cusp circle.

*Solution by W. J. GREENSTREET, M.A.*

Let  $t_0, t_1, \dots, t_4$  be the values of  $t$  at the point of contact and the four points of intersection. The curve has for equation  $x^3 + y^3 = a^3$ . The tangent is

$$(y + t_0^3) \sqrt{1 + t_0^2} - at_0 = 0 \dots\dots\dots(1).$$

Any one of the four points is  $[a/(1 + t_1^2)^{1/2}, at_1^3/(1 + t_1^2)^{1/2}]$ . Substituting and arranging,

$$(t_1 - t_0)^2 (t_1^3 + 2t_1^3t_0 + 2t_1t_0^3 + t_0^3) = 0,$$

the first bracket corresponding to the point of contact. But, if  $(x, y)$  be a point on the cusp circle  $x^2 + y^2 - a^2 = 0$ , then the equation (1) is

$$t^4 + 2t^3y/x + 2ty^3/x + y^2/x^2 = 0;$$

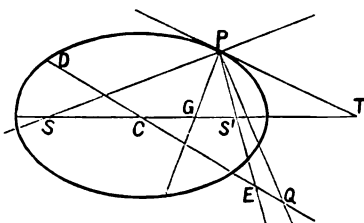
or, writing  $y = xt_0$ , this becomes  $t^4 + 2t_0t^3 + 2t_0t + t_0^2 = 0$ , showing that the points of contact of tangents from  $(x, y)$  are on one of the two tangents  $y = xt_0$ . Therefore, &c.

**15015.** (Rev. T. ROACH, M.A.)—If  $PQ$ , perpendicular to  $SP$  in the ellipse, meets  $CD$  in  $Q$  and  $S'P$  meets  $CD$  in  $E$ , show that the normal at  $P$  will touch the circle about  $PEQ$  in  $P$ .

*Solution by R. TUCKER, M.A.; G. G. MORRICE, M.A., M.D.; H. L. TRACHTENBERG; and many others.*

- $\angle SPQ =$  right angle
- $=$  GPT,
- and  $\angle S'PG =$  SPG = TPQ
- $=$  PQE;

therefore, &c.

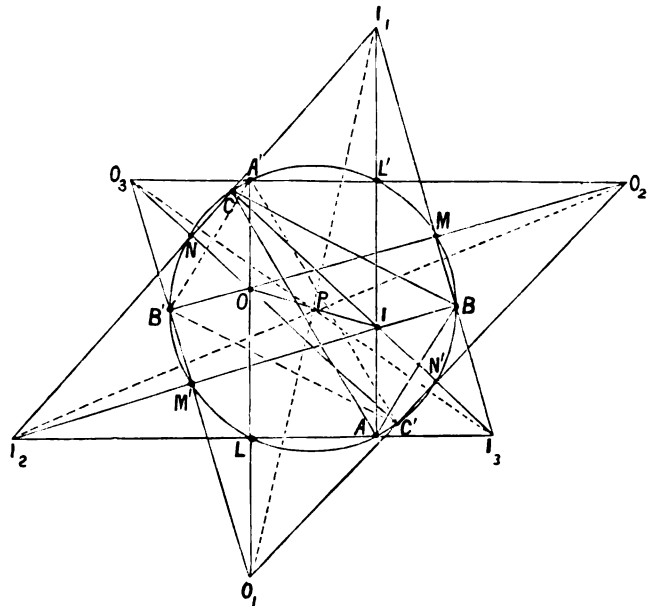


*Note to Quest. 14761.* By R. BIGGS.

The following suggests itself as a full statement of the properties involved:—

The circumcentres  $O, O_1, O_2, O_3$  of the four triangles of any orthocentric system  $I, I_1, I_2, I_3$  form a second orthocentric system congruent and parallel to the first, and so placed that  $I, I_1, I_2, I_3$  are the circumcentres of its four triangles. The two systems are in perspective at  $P$ , the centre of a circle which is the nine-point circle of both. This may

be called the twelve-point circle of the twin system, as it passes through  $L, M, N, L', M', N'$ , the middle points (common in pairs) of the twelve



joins, and through  $A, B, C, A', B', C'$ , the six pedal points. Given this centre  $P$  (which is the circumcentre of the original triangle  $ABC$  in the question, and of its analogue  $A'B'C'$ , i.e., of the pedal triangles of the two systems), and any two points of one system, or one point in each, other than two corresponding ones, the whole figure can be constructed much as in the solutions given, or more readily by the property that the radius of the eight equal circumcircles is double that of the twelve-point circle. The actual question is, in fact, equivalent to "Given base and nine-point centre, construct triangle."

This twelve-point circle touches, of course, the thirty-two in- and ex-circles of the triangles composing the two orthocentric systems; and  $A, A'; L, L', \&c.$ , are diametrically opposite points.

**15014.** (Professor NANSON.)—A conic touches  $BC, CA, AB$  in  $D, E, F$ . If  $DO, EO, FO$  cut the conics again in  $P, Q, R$ , prove  $AP, BQ, CR$  concurrent.

*Solution by A. M. NESBITT, M.A.*

If the conic be  $\sqrt{x} + \sqrt{y} + \sqrt{z} = 0$  and the coordinates of  $O$  be  $a, b, c$ , it is easy to show\* that the equation to  $AP$  is  $(x-b)^2y = (x-c)^2z$ , where  $2s \equiv a + b + c$ . Hence the truth of the theorem is obvious.

[\* For equation to  $DO$  is  $x(b-c) = a(y-z)$  and, if we take  $y + kz = 0$  for equation to  $\Delta P$ , the condition that these should meet on the conic is

$$\begin{vmatrix} 1 & -1 & -1 & b-c & 0 \\ -1 & 1 & -1 & -a & 1 \\ -1 & -1 & 1 & a & k \\ b-c & -a & a & 0 & 0 \\ 0 & 1 & k & 0 & 0 \end{vmatrix} = 0,$$

which at once gives  $k = -1$ , or

$$k = -\left(\frac{a+b-c}{a-b+c}\right)^2.]$$

**14659.** (D. BIDDLE.)— $N$  being any odd number that is prime to 3 and 7, prove that  $N^6 \equiv 1 \pmod{168}$ .

*Solution by Rev. T. WIGGINS, B.A.; ALETROP; and Lt.-Col. ALLAN CUNNINGHAM, R.E.*

By FERMAT'S theorem (C. SMITH, § 380, or MATHEWS, p. 15),  $N^{7-1} - 1 = M(7)$ , when  $N$  is prime to 7, and  $N^{3-1} - 1 = M(3)$ , when  $N$  is prime to 3. Also when  $N$  is odd  $N^2 - 1 = M(8)$ ; therefore

$$N^6 - 1 = M(7) \quad \text{and} \quad (N^2 - 1)(N^4 + N^2 + 1) = M(24);$$

therefore  $N^6 - 1 = M(168)$  or  $N^6 \equiv 1 \pmod{168}$ .

**14920.** (ALETROP.)—Généralisation du théorème de FERMAT. Démontrer, sans se servir d'aucune interprétation géométrique, que l'expression

$$\Sigma(x) = x^n - \Sigma x^m a + \Sigma x^m ab - \Sigma x^m abc + \dots,$$

où  $a, b, c$ , sont les facteurs premiers de  $n$ , est divisible par  $n$ , quels que soient  $n$  et  $x$ . [M. KANTOR, dans sa mémoire:—"Wie viele cyclische Gruppen gibt es in einer quadratischen Transformation der Ebene?" (*Annali di Matematica pura ed applicata*, Tom x., p. 64), trouva le théorème de l'énoncé pour le cas  $x = 2$ ; et M. PICQUER le démontra en

général par d'autres considérations géométriques (*Comptes Rendus*, 1883, Vol. xcvi., p. 1137].

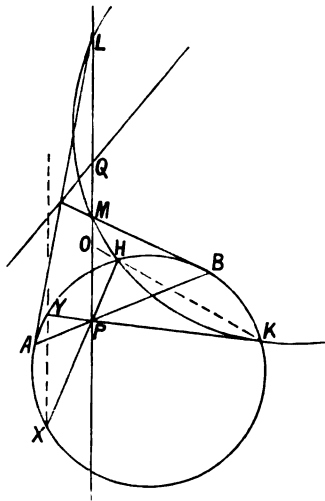
*Solution by J. P. HJØRSN.*

Dans une note complémentaire : "Sur la généralisation du théorème de FERMAT de à M. SERRET," *Comptes Rendus*, 1883, Vol. xcvi. p. 1424, M. PICQUET lui-même écrit : "Effectivement M. SERRET a énoncé le même théorème et en a donné la démonstration dans son *Algèbre supérieure*," et cette démonstration est une algébrique. Voir aussi une démonstration de M. ED. LUCAS dans le même volume, p. 1300.

**10824.** (J. L. MACKENZIE, B.A., B.Sc.)—The tangents at points A and B on a circle, and their chord of contact, cut a given line in L, M, P respectively. Any circle through L and M cuts the given circle in H and K, and PH, PK cut the given circle in X and Y; prove XY parallel to LM.

*Solution by J. C. ST. CLAIR.*

The sides and diagonals of the inscribed quadrilateral HKXY form on the line LMP an involution of which the double points are P and the point Q in which the line meets the polar of P with respect to the circle. In this involution the points in which LM meets the circle are conjugates, as also are L, M, which lie on the tangents at the extremities of the chord AB passing through P. Hence the centre of the involution is the intersection O of the line LM with HK, the common chord of the two circles; and the opposite side XY meets LM in the conjugate of O, namely, at infinity. Therefore XY is parallel to LM.



**12174.** (Rev. T. C. SIMMONS, M.A.)—Three or more circular wafers of different sizes are fastened at random on the surface of a cylinder. Find the probability that they will all lie (1) on the same generating line, (2) on a generating line drawn at random; also (3) prove that (2) may be reduced to a particular case of (1).

*Solution by Rev. Prebendary WHITWORTH, M.A.*

Let  $s$  be the circumference of the cylinder,  $\alpha, \beta, \gamma, \dots$  the diameters of the  $n$  wafers. If we replace the curved section of the cylinder by a polygon of  $sm$  equal sides, so that the diameters of the wafers, in terms of one of the equal sides, are  $\alpha m, \beta m, \gamma m, \dots$ , we find the chance of all the wafers covering the same side of the polygonal cylinder to be

$$\{ \alpha \beta \gamma \dots - (\alpha - 1/m)(\beta - 1/m)(\gamma - 1/m) \dots \} + s^{n-1}.$$

Hence, ultimately, when  $m$  is infinite the required probability (1) is  $(1/\alpha + 1/\beta + 1/\gamma + \dots) \alpha \beta \gamma \dots + s^{n-1}$ .

The probability (2) may be written down at sight, viz.,  $\alpha \beta \gamma \dots + s^n$ . (3) It is obvious that (2) may be obtained from (1) by introducing one more wafer of diameter zero.

**15042.** (H. BATEMAN.)—Eliminate A, B, C from the equations

$$\begin{aligned} \sin 2A \sin A &= l \sin B \sin C, & \sin 2B \sin B &= m \sin C \sin A, \\ \sin 2C \sin C &= n \sin A \sin B, & A + B + C &= \pi. \end{aligned}$$

*Solution by Professor SANJANA, M.A. : Rev. T. ROACH, M.A. ; and others.*

We readily get  $lmn = 8 \cos A \cos B \cos C$ ; also

$$\begin{aligned} (l + m + n) \sin A \sin B \sin C &= \sum \sin 2A \sin^2 A = \frac{1}{2} \sum \sin 2A (1 - \cos 2A) = \frac{1}{2} \sum \sin 2A - \frac{1}{4} \sum \sin 4A \\ &= \frac{1}{2} (4 \sin A \sin B \sin C) + \frac{1}{4} (4 \sin 2A \sin 2B \sin 2C), \end{aligned}$$

whence  $l + m + n = 2 + lmn$ .

**14575.** (J. A. THIRD, M.A., D.Sc.)—If A'B'C' be the first BROCARD triangle of ABC, and D, E, F be the points where B'C', C'A', A'B' meet BC, CA, AB respectively, show (1) that DA', EB', FC' are tangents to the BROCARD circle of ABC, and (2) that DA, EB, FC are tangents to the circumconic of ABC which passes through the BROCARD points.

*Solution by C. E. YOUNGMAN, M.A.*

The BROCARD points  $\Omega, \Omega'$  are concyclic with A'B'C', and AC', BA', CB' meet at  $\Omega$ , and AB', BC', CA' at  $\Omega'$ ; therefore, by the PASCAL hexagon A'A'ΩB'C'Ω', A'A' and B'C' meet on BC; i.e., the tangent at A' goes through D. Similarly, by the hexagon AA'Ω'BCΩ on the conic ABCΩΩ', AA and BC meet on B'C'.

**14764.** (Professor NEUBERG.)—Construire un triangle ABC, étant donnés les côtés indéfinis AB, AC et le centre K des symédianes.

*Solutions (I.) by Professor JAN DE VRIES, H. W. CURJEL, M.A., and R. F. DAVIS, M.A.; (II.) by J. BLAIRIE, M.A.; (III.) by Professor SANJANA, M.A.; (IV.) by the PROPOSER.*

(I.) AZ being the isogonal conjugate of AK with respect to the given angle XAY, from a point N on AZ draw parallels to AX and AY meeting AY and AX in C' and B'. If K' is the symmedian point of AB'C', parallels to B'K' and C'K' passing through K will cut AX, AY in the angular points B, C of the triangle.

(II.) On p. 73 of *The Companion to the Weekly Problem Paper*, Mr. DAVIS has shown that the symmedian point is the centre of gravity of weights  $a^2, b^2, c^2$  placed at the angular points. If, then, AK be produced to L, so that  $KL/AK = a^2/(b^2 + c^2)$ , L is a point in BC. Through K draw C'B' so as to be bisected at K. The line B'C' is antiparallel to BC, and the sides  $a', b', c'$  of AB'C' are proportional to  $a, b, c$ ; therefore

$$a^2/(b^2 + c^2) = a'^2/(b'^2 + c'^2),$$

and L is known. Through L draw BC antiparallel to B'C', and the triangle is constructed.

(III.) Let  $\beta, \gamma$  be the known perpendiculars from K on AC, AB; then  $\frac{1}{2}b \tan \omega = \beta, \frac{1}{2}c \tan \omega = \gamma$ . But

$$\tan \omega = \frac{4\Delta}{a^2 + b^2 + c^2} = \frac{bc \sin A}{b^2 + c^2 - bc \cos A};$$

substituting, we have the two equations

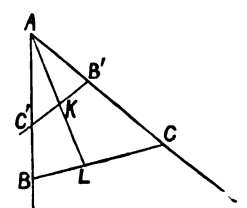
$$2\beta(b^2 + c^2 - bc \cos A) = b^2c \sin A, \quad 2\gamma(b^2 + c^2 - bc \cos A) = bc^2 \sin A,$$

whence  $b$  and  $c$  are to be found,  $\beta, \gamma, A$  being given. We obtain easily

$$c = \frac{2(\beta^2 + \gamma^2 - \beta\gamma \cos A)}{\beta \sin A}, \quad b = \frac{2(\beta^2 + \gamma^2 - \beta\gamma \cos A)}{\gamma \sin A}.$$

Measuring these lengths on AB, AC, and joining the points obtained, the triangle is constructed.

(IV.) Soient P, Q, R les projections de K sur BC, CA, AB; K étant le centre de gravité du triangle PQR, on joint K au milieu S de QR et on prend sur la droite SK une longueur KP' = 2SK, &c.



**6021.** (E. W. SYMONS, B.A.)—Prove that (1) the cosine of the angle between the planes  $Ax + By + Cz = 0, A'x + B'y + C'z = 0$ , referred to oblique axes inclined at angles  $\alpha, \beta, \gamma$ , is

$$\frac{AA' \sin^2 \alpha + \dots - (BC' + B'C)(\cos \alpha - \cos \beta \cos \gamma) - \dots}{[A^2 \sin^2 \alpha + \dots - 2BC(\cos \alpha - \cos \beta \cos \gamma) - \dots]^{\frac{1}{2}} [A'^2 \sin^2 \alpha' + \dots - 2B'C'(\cos \alpha' - \cos \beta' \cos \gamma')]^{\frac{1}{2}}}$$

and (2) the length of the perpendiculars from the point  $(xyz)$  on the plane  $Ax + By + Cz + D = 0$  is

$$(Ax + By + Cz + D) \left( \frac{1 - \cos^2 \alpha - \cos^2 \beta - \cos^2 \gamma + 2 \cos \alpha \cos \beta \cos \gamma}{A^2 \sin^2 \alpha + \dots - 2BC(\cos \alpha - \cos \beta \cos \gamma)} \right)^{\frac{1}{2}}.$$

*Solution by Professor NANSON.*

Taking two sets of four lines and denoting by  $(pq)$  the cosine of the angle between the  $p$ -th line of the first set and the  $q$ -th line of the second, we find by compounding the arrays formed with the two sets of direction cosines that  $|(pq)| = 0$ . Taking the first three lines in each set to coincide with the oblique axes, we get

$$\begin{vmatrix} 1 & \cos \gamma & \cos \beta & \lambda \\ \cos \gamma & 1 & \cos \alpha & \mu \\ \cos \beta & \cos \alpha & 1 & \nu \\ \lambda' & \mu' & \nu' & \cos \theta \end{vmatrix} = 0 \dots \dots \dots (1),$$

where  $\alpha, \beta, \gamma$  are the angles between the axes,  $\lambda, \mu, \nu; \lambda', \mu', \nu'$  are the cosines of the angles made with the oblique axes by any two lines, and  $\theta$  is the angle between the two lines. Solving for  $\cos \theta$ , we get

$$-\delta \cos \theta = \left( \frac{\lambda \mu \nu}{\lambda' \mu' \nu'} \right) \dots \dots \dots (2),$$

where  $\delta$  is the minor of  $\cos \theta$  in (1), and  $\left( \frac{\lambda \mu \nu}{\lambda' \mu' \nu'} \right)$  is the result obtained by replacing  $\cos \theta$  by zero in the first member of (1).

Making the two lines coincide, we get, from (2),

$$-\delta = \left( \frac{\lambda \mu \nu}{\lambda \mu \nu} \right) \dots \dots \dots (3),$$

which is the relation connecting the oblique direction cosines  $\lambda, \mu, \nu$  of a line with  $\alpha, \beta, \gamma$ .

Taking the two lines in (2) to be perpendicular to the given planes, we have  $\lambda, \mu, \nu$  proportional to  $A, B, C$ , and  $\lambda', \mu', \nu'$  proportional to  $A', B', C'$ . Hence from (2), (3), we get

$$-\cos \theta = \left( \frac{ABC}{A'B'C'} \right) \left\{ \frac{(ABC)(A'B'C')}{(A'B'C')(ABC)} \right\}^{-\frac{1}{2}},$$

and on expansion of the determinants this gives the first formula in the question.

Again, by projection, the distance of the point  $(xyz)$  from the plane  $\lambda x + \mu y + \nu z - p = 0$  is  $\lambda x + \mu y + \nu z - p$ . Hence, from (3), it follows that the distance of the point  $xyz$  from the plane  $Ax + By + Cz + D = 0$  is

$$(Ax + By + Cz + D) \delta^4 \left\{ - \frac{(ABC)}{(ABC)} \right\}^{-1},$$

and on expansion this gives the second formula in the question.

**15040.** (R. CHARTRES.)—Find the mean value of the  $n$ -th power of the area of a cyclic quadrilateral whose perimeter ( $2s$ ) is constant, and deduce the results for (1) a kite, (2) a triangle.

*Solution by the Proposer.*

$(\text{Area})^n = \{(s-a)(s-b)(s-c)(s-d)\}^{4n}$ , where  $a+b+c+d=2s$ ; therefore

$$\text{mean value} = (2s)^{2n} \iiint x^{4n} y^{4n} z^{4n} w^{4n} dx dy dz dw + \iiint dx dy dz dw \\ = 3!(2s)^{2n} \{G(\frac{1}{2}n+1)\}^4 + G\{4(\frac{1}{2}n+1)\}.$$

If  $d = 0$ , we get the case for a triangle

$$= 2! s^{2n} \{G(\frac{1}{2}n+1)\}^3 + G\{3(\frac{1}{2}n+1)\}.$$

If  $a = b$  and  $c = d$ , we get the case for a kite

$$= s^{2n} \{G(n+1)\}^2 + G\{2(n+1)\}.$$

But this can also be obtained in a very elementary way.

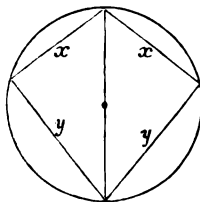
We require the mean value of  $(xy)^n$  when

$$x + y = s.$$

Now  $s^{2n} = (x+y)^{2n}$ ,

containing  $(2n+1)$  terms, each of the same mean value, a theorem first given by Prebendary WHITWORTH; therefore mean value

$$\frac{s^{2n}}{2n+1} + \frac{(2n)!}{(n!)^2}.$$



**QUESTIONS FOR SOLUTION.**

**15084.** (A. M. NESHITT, M.A.)—If  $u_r$  denote the chance that  $r$  letters, intended for  $r$  different recipients and placed at random into  $r$  envelopes correctly addressed, not one shall reach its proper destination (disregarding errors of delivery, &c.), it is fairly obvious a priori that

$$u_n + u_{n-1}/1! + u_{n-2}/2! + \dots + u_0/n! = 1.$$

Solve this difference equation directly; i.e., prove that  $u_n$  is the first  $n+1$  terms of the expansion of  $e^{-1}$  without reference to the problem from which it originally sprang.

**15085.** (H. MACCOLL, B.A.)—Each letter denoting a proposition, let  $\phi = (ax = ay)(ax = az)$ , and let  $\psi = \alpha(x = y) + \alpha'(x = z)$ . Show that  $\phi$  implies  $\psi$  when the propositions  $(x = y)$  and  $(x = z)$  are constants, but not necessarily when they are variables. [Defn.—A constant is either certain or impossible; a variable is neither certain nor impossible. See solution of Quest. 14665 in the Educational Times for March.]

**15086.** (LT.-COL. ALLAN CUNNINGHAM, R.E.)—Factorize completely (into prime factors)  $N = (60,000^6 + 1)$ .

**15087.** (Professor E. B. ESCOTT.)—In Nature for May 6, 1897, we have the following "Sieve for Primes" given:—"In order that a number  $n$  be prime, it is necessary and sufficient that the  $\frac{1}{2}(n+1)$ th term of the following recurrent series give a remainder 1 when divided by  $n$  :—

$$1, 4, 11, 29, 76, 199, 521, \dots$$

where the scale of relation is  $u_n = 3u_{n-1} - u_{n-2}$ ." Show, by a numerical example, that this condition is not sufficient.

**15088.** (Rev. T. WIGGINS, B.A.)—(1) Of numbers between 1 and 20, how many sets of 3, 4, or 5 can be found such that the square of one number in each set equals the sum of the squares of the remaining numbers in the same set? Also, if the numbers from 1 to 100 are taken, how many sets of 3 numbers satisfy the above conditions? No set should be a multiple of any other. (2) Find in two ways  $a_1, a_2, \dots, a_9$ , such that  $a_1^2 = a_2^2 + a_3^2 = a_4^2 + a_5^2 = a_6^2 + a_7^2 = a_8^2 + a_9^2$ , where each of the  $a$ 's lies between 1 and 100, but the suffixes have no reference to order of magnitude.

**15089.** (The late Professor R. B. CLAYTON.)—Normals lying in a given plane are drawn to a series of confocal quadrics. Show that they envelop a parabola.

**15090.** (Professor NANSON.)—Through a curve of order  $a$  are drawn three surfaces of orders  $l, m, n$ . Prove that the number of points common to the three surfaces, exclusive of those which lie on the curve, is  $a(l+m+n) - \beta$ , where  $\beta$  is a number depending on the curve only; and hence show that, when the curve is the complete intersection of two surfaces of orders  $\lambda, \mu$ , then  $\beta = \lambda\mu(\lambda + \mu)$ . Prove also that, if the three surfaces pass respectively  $p, q, r$  times through the curve, the number of intersections is  $a(lqr + mpr + npq) - pqr\beta$ ; and find the modification which this formula undergoes when the surfaces touch all along the common curve.

**15091.** (Professor HUDSON, M.A.)—Prove that the evolute of  $r = a(2 + \cos \theta)$  has three cusps lying on a straight line perpendicular to the initial line.

**15092.** (R. TUCKER, M.A.)—ABC and A'B'C' are a triangle and its medial triangle.  $\Omega, \Omega', \Omega_1, \Omega_2$  are the BROCARD points; and K, K' the symmedian points. Prove that  $\Omega\Omega_1, \Omega'\Omega_2$ , the join of the BROCARD ellipse centres, and KK' pass through the common centroid. Also  $\Omega\Omega_2, \Omega'\Omega_1$  intersect in  $a^2a = b^2\beta = c^2\gamma$ . (Cf. MILNE, Companion, p. 174, Ex. 11.)

**15093.** (C. E. YOUNGMAN, M.A.)—On the circumcircle of ABC points D, E, F are taken such that AD, BE, CF meet at P; and D', E', F' are the images of D, E, F for BC, CA, AB, respectively. AD', BE', CF' meet at P'. Find the locus of P and the envelope of PP'.

**15094.** (Professor UMES CHANDRA GHOSH.)—If tangents be drawn to KIEPERT'S hyperbola of a triangle at its vertices and orthocentre, prove that the three diagonals of the quadrilateral formed by these tangents intersect in pairs at the feet of the perpendiculars of the triangle drawn from its vertices to the opposite sides.

**15095.** (Professor NEUBERG.)—ABC étant un triangle donné, trouver un point M tel que si A', B', C' sont les points de rencontre de BC, CA, AB avec les droites AM, BM, CM, M soit le centre de gravité des points A', B', C' pour les masses données  $\alpha, \beta, \gamma$ .

**15096.** (ROBERT W. D. CHRISTIE.)—Find two distinct sets of triangles equal in area and infinite in number, the respective products of whose circumscribed and inscribed radii are as the longest and shortest sides of one set.

**15097.** (H. BATERMAN.)—PP', QQ' are two pairs of isogonal conjugate points. PQ, P'Q' meet in R; P'Q, P'Q' meet in K'. Prove that R and K' are isogonal conjugate points.

**15098.** (D. BIDDLE.)—One of the walls of a room is covered by a mirror, and in a horizontal line parallel to it are the eye of an observer and the centre of a sphere 2 feet in diameter. The distance of the line from the mirror is 12 feet, and the distance of the centre of the sphere from the observer's eye is 12 feet. Find the portions of the sphere's surface that are visible directly and by reflection respectively, and give the total amount which the observer commands.

**15099.** (R. KNOWLES.)—From a point T ( $h, k$ ) tangents are drawn to the parabola  $y^2 = 4ax$ ; from a point P ( $x', y'$ ) a third tangent is drawn meeting these in M and N. Prove that the equation to the circle TMN

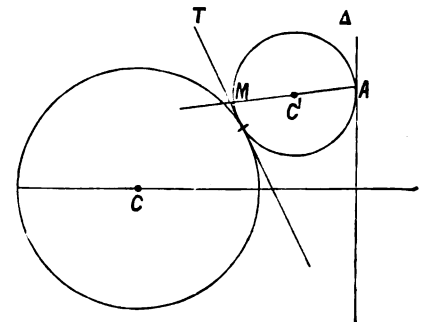
$$\text{is } x^2 + y^2 - \frac{ky' + 2a(a+h)}{2a}x - \frac{2ak + y'(a-h)}{2a}y + \frac{ky' + 2ah}{2} = 0.$$

**15100.** (Professor SANJANA, M.A.)—On the principal axis produced of a conic, a point B is taken whose distance from the corresponding focus S is  $b$ ; a secant BMN is drawn making with BS an angle  $\theta$ ; and  $\beta$  and  $\gamma$  are the angles made by the radii vectors SM and SN with the axis. It is required (1) to calculate  $\tan \frac{1}{2}\beta$  and  $\tan \frac{1}{2}\gamma$  in terms of  $b, \theta$ , and the semi-latus rectum  $l$ ; (2) to show that  $\tan \frac{1}{2}\beta \cdot \tan \frac{1}{2}\gamma$  is constant for all values of  $\theta$ ; and (3) to prove that the minimum value of  $\tan^2 \frac{1}{2}\beta + \tan^2 \frac{1}{2}\gamma$  is  $2(b-l+bc)/(b+l-bc)$ . [Extension of Quest. 13296; with slight changes the proposition will hold when B is on the axis itself.]

**15101.** (Professor COCHEZ.)—On donne une circonférence C,

$$x^2 + y^2 = R^2,$$

et la droite  $\Delta (x = a)$ . On construit la circonférence C' tangente à C et à  $\Delta$ . La tangente commune T rencontre le diamètre C'A en M. Lieu de M.



**15102.** (J. PRESCOTT, B.A.)—Given a square ABCD; draw a line through A to meet CD in X and BC produced in Y so that XY may be equal to a given length.

**15103.** (J. S. LAWSON, M.A.)—Show that the sum of the harmonic series  $\frac{1}{a} + \frac{1}{a+b} + \frac{1}{a+2b} + \dots$  to  $n$  terms  $> \frac{2n}{2a+(n-1)b}$ .

**15104.** (R. KNOWLES.)—Prove that the sum to  $r$  terms of the series  $1 - 10 + 35 - 84 + \dots \pm \frac{1}{2}r(4r^2 - 1)$  is  $-\frac{1}{2}r(4r^2 + 6r - 1) \dots (r \text{ even})$  and  $\frac{1}{2}(4r^3 + 6r^2 - r - 3) \dots (r \text{ odd})$ .

**15105.** (SARODA PRASAD BAUERJEE.)—From a point O, taken at random in a triangle ABC, the lines BO and CO are drawn to meet the opposite sides in E and F. Find the mean area of the circle circumscribed about AEF.

## OLD QUESTIONS AS YET UNSOLVED (IN OUR COLUMNS).

**4475.** (Dr. HART.)—Find, if possible, a rational value of  $n$  that will make at least one root of the equation

$$x^4 - 4nx^3 + 6(1 - 2n^2)x^2 + 16n^3x = 8n^4 - 1$$

rational.

**8474.** (Professor GILLILAND, M.A.)—A closed conical vessel whose height is twice the diameter of the base is just filled with liquid and suspended from a point in the rim of its base. Prove that, if the weight of the vessel be neglected, the vertical component of the pressure on its curved surface will be  $\frac{1}{3}$  of the weight of the liquid.

**8492.** (SATS CHANDRA RAY, B.A.)—Two uniform rigid rods, lengths  $2a$  and  $2b$ , are connected by a smooth hinge and rest on the convex side of a vertical parabolic arc whose latus rectum is  $2l$ . If, in the position of equilibrium,  $\theta$ ,  $\phi$  be the angles which the focal chords to the points of contact make with the rods, show that

$$a/b \cdot \sin \theta \sin \phi - b/a \cdot \sin \phi \sin \theta = l(1/a + 1/b)(x/y^2 - y/x^2),$$

where  $x$  and  $y$  are given by  $x + y = \sin(\theta + \phi)$ ,  $x \tan \phi = y \tan \theta$ .

**9163.** (Professor ATH BHAJ BHVT, M.A.)—Show that the reciprocal polar of the evolute of the parabola of the  $n$ th degree  $y = \lambda x^n$  is the curve  $\{k^2nx/(nx^2 + y^2)\}^{n-1} = y/\lambda nx$ , where  $k^2$  is the constant of inversion.

**9453.** (Professor NEUBERG.)—Un jeu de trente-deux cartes est étalé en cercle. Quelle est la probabilité que deux cartes de même valeur (deux sept, deux huit, &c.) ne se suivent pas immédiatement?

**9814.** Show that, for all integer values of  $n$ ,

$$\frac{1}{2n+1} - \frac{1}{1} \cdot \frac{1}{2} \cdot \frac{1}{2n+3} + \frac{1 \cdot 3}{1 \cdot 2 \cdot 2^2} \cdot \frac{1}{2n+5} - \frac{1 \cdot 3 \cdot 5}{1 \cdot 2 \cdot 3 \cdot 2^3} \cdot \frac{1}{2n+7} + \dots$$

$$= \frac{1}{2^n} \left\{ 1 - \frac{2n-1}{2(n-1)} + \frac{(2n-1)(2n-3)}{2(n-1) \cdot 2(n-2)} - \dots \right\}$$

$$+ (-1)^n \frac{1}{2^{2n+1}} \cdot \frac{(2n!)}{(n!)^2} \log(1 + \sqrt{2}).$$

**10198.** (JOHN GRIFFITHS, M.A.)—The coordinates  $x$ ,  $y$ ,  $z$  being proportional to the perpendicular distances from the sides of a triangle ABC, prove that (1) the locus of a point  $(x, y, z)$  such that its pedal circle (i.e., the circle which passes through the feet of the perpendiculars drawn from the point in question upon the sides of the triangle) touches the nine-point circle is the cubic

$$x(y^2 - z^2) \cos A + y(z^2 - x^2) \cos B + z(x^2 - y^2) \cos C = 0;$$

and (2) trace this curve.

**10236.** (ARTEMAS MARTIN, LL.D.)—What is the greatest number of equal spheres, each 1 inch in diameter, that can be packed in a hollow sphere whose internal diameter is 3 inches?

## NOTICES TO CORRESPONDENTS.

ERRATUM.—Mr. MACCOLL, B.A., writes:—"In the *Educational Times* for March, 1902, p. 155, second column, line 8,  $(\phi = z)$  should be  $(\phi = \psi)$ . Also, in the preceding line,  $\alpha_n$  should be  $\alpha^n$ ."

A solution to Quest. 15054, bearing neither name and address nor *nom de plume*, has been received. The Editor reminds contributors that it is essential that every question, solution, and note should be signed with the name or known pseudonym of the author, and that first contributions should be accompanied by both the name and the address of the contributor.

It is requested that all Mathematical communications should be sent to the Mathematical Editor,

Miss CONSTANCE I. MARKS, B.A., 10 Matheson Rd., West Kensington, W.

*Vol. I. (New Series) of the "Mathematical Reprint" is now ready, and may be had of the Publisher, FRANCIS HODGSON, 89 Farringdon Street, E.C. Price, to Subscribers, 5s.; to Non-Subscribers, 6s. 6d.*

## THE LONDON MATHEMATICAL SOCIETY.

Thursday, March 13th. — Major MacMahon, R.A., V.P., and subsequently Lieut.-Col. Cunningham, R.E., in the Chair. Thirteen members present.

Mr. G. H. Hardy was admitted into the Society.

The Rev. J. Cullen read a paper "On the Solutions of a System of Linear Congruences." Messrs. Mathews and Cunningham spoke on the subject of the paper.

Mr. Hardy gave an abstract of his paper "On the Theory of Cauchy's Principal Values (iii)."

Mr. R. Hargreaves communicated a paper "On the Algebraical Connexion between Zonal Harmonics of Orders differing by an Integer."

"On Quadrature Formulæ," by Mr. J. Buchanan, was taken as read.

Dr. Macaulay gave an expression for the resultant of  $n$  homogeneous equations in  $n$  variables as a determinant divided by a minor of that determinant.

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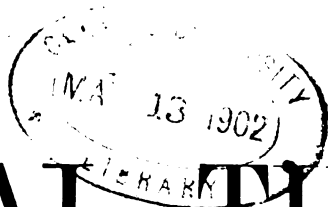
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CONTENTS.

	Page		Page
The Education Bill .....	209	Correspondence .....	223
Notes .....	210	Registration and the Supply of Teachers.—Admission and Removal of Pupils: Uniformity of Conditions.	
“Special Reports on Educational Subjects.”—Blue-coats and Yellow Legs.—The New Broom at Merchant Taylors’.—Fresh Endowments.—Uniformity of text-books.—The Survival of the Fit.—The Interest of the Poor in Charitable Endowments.—Classical Archaeology in Schools.—“Co-education” and “Co-ordination” in America.—The New President of Columbia.		Professor Meiklejohn .....	224
Summary of the Month .....	212	Reviews .....	224
Current Events .....	214	The Discovery of the Future.—The late Bishop Creighton and the Warden of Glenalmond on Education.—Health in the School.	
Fixtures; Endowments; Scholarships; Appointments; Literary Items; General.		General Notices .....	226
The Feelings as a Factor in School Training. By J. L. Paton, M.A. Paper read at the Evening Meeting of the College of Preceptors .....	219	First Glances .....	228
		Mathematics .....	231
		Meeting of the Council of the College of Preceptors .....	234

The Educational Times.

*The Education Bill.*

THE congestion of Parliamentary business has prepared us for the announcement of an Autumn Session. The Education Bill, we take it, will be left over till that more convenient season. It would be rather sanguine, however, to expect that the intervening space for deliberation will wholly exorcise the pugnacious temper either of supporters or of opponents of the measure. It seems only too probable that the Bill will be disputed pertinaciously, with a bitterness obscuring the real educational issues.

Though the opposition so widely and hotly displayed is largely based on educational grounds, it can hardly be doubted that the main impulse is religious or ecclesiastical. Nonconformists “indignantly protest”—and will certainly continue to protest more or less indignantly—against “paying rates and taxes to schools whose teaching is repugnant to their conscience,” against the perpetuation of “the unjust subjection of a State-paid teaching profession to sectarian tests,” and against the prospect of “the multiplication of sectarian schools.” Indeed, some of their most honoured leaders have approved the suggestion of a refusal to pay rates. It is futile to reply that there are, under the existing system, which they champion, very many citizens that “pay rates and taxes to schools whose teaching is repugnant to their conscience,” and that quietly recognize the principle of submission to the general will expressed in constitutional form. The promoters of the Bill, on their side, must be allowed credit for equal conscientiousness. Is it beyond the resources of statesmanship to find a means of rational compromise? There is no trouble in Scotland. There is no difficulty in Canada. Why should there be an educational embroilment of this character in England?

Apart from intractableness on the religious difficulty, the Bill might be worked into passable shape. There are indications that the Government will not struggle hard to maintain the feeble option. The “single Local Authority charged with the superintendence and provision of both elementary and secondary education,” which Mr. Chamberlain already perceives in the Bill, may by conciliatory accommodation be eventually found in the Act. As the Bill stands, it is not

too much to say that there may be within the same area “a School Board, a Technical Education Committee, a Local Authority under Clause VII.,’ several sets of voluntary school managers, a School of Art Council, and privately constituted committees of science and art classes, an endowed grammar school, under separate management, competing with a higher-grade Board school, and sometimes a technical day school competing with both.” Such a “unification” seems preposterous enough. But, with discreet handling, there should be no insuperable difficulty in achieving at least a very near approach to real unification. There would still be lacking the promised co-ordination of primary and secondary education in any effective sense; but for that we shall have to wait for more extensive and particular inquiry.

If the system is to be national in any real sense, there will be demanded a larger measure of public control. The working of School Boards, whatever their failings, has unquestionably engaged the public interest in education and helped to raise the standard in no inconsiderable degree, while it has greatly improved the position of the teachers and the school equipment. If the powers given to managers by the Bill be not brought under the control of the Local Authority, there will be a break in the principal of unification that must seriously interfere, especially in country districts, with the efficiency of education and perpetuate discrimination against capable teachers on specifically religious grounds. With every desire for absolute freedom in religious teaching, we cannot but hold that the arrangements for it must not prejudice the secular teaching. There ought not to be any reasonable difficulty in accommodating the two subjects.

Another point that will call for attention under the same head is the strong concentration of control in certain official hands. The Councils are to find the money, but their powers are very stringently limited—as has been pointed out clearly by the Northern Counties Education League, and as any one can verify by going through the clauses of the Bill. The Local Government Board is an excellent institution, but it seems a retrograde movement to cast such wide powers into its lap; and, if the Councils are to throw their energies, even by deputy, into the work, they must have larger scope. No man or body of men can do satisfactory work if bound hand and foot. Notably, it has been justly pointed out, the

Local Government Board is set up as a court of appeal in cases where the Local Authority wants an increase of the rate for secondary education. What are the qualifications of the Local Government Board for this purpose? The Local Authority—which, we think, is not likely to be aggressive—ought, where it has any large purpose in view, to go with a statement of its wants and its objects to the Board of Education, which is competent to decide the matter, and then, and not till then, to pass on to the Local Government Board. On this point we should be inclined to lay particular stress.

We should like to discern signs that a spirit of reasonable accommodation will prevail in the settlement of substantial differences. We trust we shall hear no more those wild and whirling words of threatened resistance to demands of rates and taxes. If the Government would but lay hold of the Bill in a broad national spirit, disregarding fanatical extremists on both sides, and not fearing their fate too much, they might yet shape the Bill on such lines as would settle the question for our time and brighten their somewhat tarnished educational record.

### NOTES.

THE eighth and ninth volumes of "Special Reports on Educational Subjects," just issued by the Board of Education, bring together an immense quantity of most varied information, which ought to be turned to practical account here. In Vol. 8, we learn that Latin is taking a low place in secondary schools, and practical matters a higher place in elementary schools, in Norway and Sweden. There is also much interesting information about education in Switzerland, Holland, Hungary, Portugal, Servia, Japan, the Transvaal, &c., as well as discussions of the methods of teaching arithmetic and Latin at home, and of the order and method of language teaching in our secondary schools. The 13 reports in Vol. 9 examine various aspects of education in Germany. They deal

with recent changes in secondary education for boys in Prussia; with primary education in Prussia and Saxony; with school gardens in Germany; with the German higher schools for girls, and with certain contrasts between secondary education for girls in Germany and in England; with the continuation schools in Berlin; with the growth of Technical High Schools; with recent developments of higher commercial education; with the methods of measuring mental fatigue which have been adopted by some German students of education; and with the education of feeble-minded children and the care of neglected children in Germany.

Vol. 10 will be devoted to the United States.

THE spirit of reform appears to have breathed—across the Sussex Downs?—upon the Governors of Christ's Hospital. It is not only that the exodus from Newgate Street has actually taken place—and been completed on Primrose Day. More than that: they are credibly reported to be deeply exercised over the perplexing problem of the boys' traditional habiliments. It has been borne in upon them that some modifications of the ancient Blue-coat outfit are, if not absolutely necessary, yet peradventure desirable. Indeed, it is stated, though not without judicious reservation, that the picturesque amplitude of the gown will be curtailed,

that the buckled shoes will yield to commonplace serviceable boots, and that the invisible blue worsted cap will be replaced by headgear of special design. But what of the corduroy breeches? And what of the yellow stockings—those lovely ducks' legs? There is really no ground for alarm; a more modern toggery will scarcely administer any violent shock to the archaeological sensibilities of Horsham.

THE new broom at Merchant Taylors' is labouring to justify the old proverb. The clean sweep of assistant masters in that institution may, however, be stayed by wiser thoughts induced by the strong opinion of the profession and of the public. We have no sympathy whatever with incompetence; but when a head master of six and twenty, who came to Merchant Taylors' a year ago with no experience of a great public school, dismisses, or causes to be dismissed, teachers that were in active service when he was in his cradle, we look for very sufficient reasons. The resignation of the head of an important department, whose public record of more than a quarter of a century flings any suggestion of incompetence back in the teeth of the assessor, has been followed by the dismissal of three more assistant masters, who have given the best energies of their life to the school—for 26, 23, and 12 years respectively. Two of the three are over 50, and the other is 45; and they are all married men. Not one of them, we understand, had any complaint addressed to him before the disastrous bolt from the blue fell upon him; and one of them was dismissed simply "in consequence of changes in the school work." We recognize fully the trust committed to head masters and governors, but we insist on the duty of equitable consideration for assistant masters as well as for pupils and parents.

THE pittance granted to two of these three assistant masters—the third gets absolutely not a stiver of *solatium*—is scarcely worth mention, and we must hope that the Court of Governors will promptly awaken to the dread prospect they have so suddenly and inconsiderately opened out before these old servants of theirs. There is matter for very serious consideration in the argument of a writer in the *Westminster Gazette* (April 10):

If these two masters [of 23 and 12 years' standing] proved incompetent, how is it that the Company has taken from 12 to 20 years to discover the fact? Both men must have been as incompetent 10 years ago as now. If so, one is forced to the conclusion that the Company is to blame for permitting the lads at its school to remain so long in incompetent hands. To neglect it now adds injustice; for it makes its masters suffer for its own remissness.

We cannot but believe that the Company will yet reconsider the situation and make reasonable provision for every one of the dismissed teachers. But, further, the case has an interest that reaches far beyond the individual masters concerned, and far beyond the profession. For, as Mr. F. B. Kirkman has pointed out in the same article in our contemporary, "insecurity of tenure, added to low salaries and the difficulty of making provision for old age, is known to be injuriously affecting the quality and quantity of the supply both of secondary and elementary teachers, and hence the efficiency of the instruction given in our schools."

THE past month has been tolerably fruitful of educational endowments. Liverpool appears to promise no less promptitude of liberality than Birmingham. University College, London, starts fair on its quest of the million; and it will do well to take Mr. Astor's sensible hint to make first and creditable provision for the unendowed chairs it already has. Mr. Rhodes's spacious gifts naturally converge on Oxford, while Edinburgh, which has done so much for colonial students, has just missed a share on a rather insufficient plea. It seems quite hopeless to expect that Oxford can ever develop a medical school that can for a moment pretend to rival Edinburgh. The foundation of these munificent scholarships, creating so many spiritual ties between England and other English-speaking countries, and between England and the central Power of Europe, constitutes the noblest expression of Mr. Rhodes's "Imperialism." It stands in violent contrast with the amazingly crude and benighted destination of the residue of his estate. We congratulate Oriel, without any misgivings as to the administrative capacity of her "children." Mr. Shadwell is not the man to swell his totals with the figures of the current year of grace.

THE multiplicity of text-books and the changes in the same school, as well as the lack of uniformity in different schools, are common causes of parental vexation, whatever may be said on the side of the teachers. The trouble is not confined within the four seas, however; and M. Leygues, the Minister of Public Instruction in France and Grand Master of the University, has girt up his loins to apply a remedy within his jurisdiction, at any rate to some extent, by way of a beginning. He has informed all the State *lycées* and *collèges* by circular that he proposes to appoint a commission of specialists to prepare Greek and Latin grammars for universal and exclusive use in every one of these institutions. M. Poincaré, ex-Minister, has at once taken the field in opposition: he pronounces the project useless, and even dangerous, as trammelling scientific research. M. Bréal, the distinguished Professor at the Collège de France and Member of the Institute, joins forces with M. Poincaré. So there is a general mella over the business, as hot as if it were a question of spelling reform. The *Temps* interposes with the suggestion that, while the official volumes should be provided for the schools, the use of them should be decreed optional, in reliance on their merit to win them preference or exclusive adoption. Was it M. Nisard or another that took out his watch and said: "Now, at this moment every public school in France is at such and such a lesson"? Uniformity may readily become a fetish.

PROF. D'ARCY THOMPSON, in a recent lecture at Aberdeen, drew pointed attention to an aspect of University economy that must eventually attract more consideration than it has yet received in this country. He was describing what he had seen in American institutions of the higher learning, and he stated that one of the chief advantages of free education in the United States is that it gives the teacher or the authorities control over the selection of their students. He said:

In America it is an essential condition of free education that there

shall be a severe test of the students' talents to begin with, and of their industry and performance as time goes on. There is a constant weeding out of those that seem unfit. In this country a good half of our students might well not be in the University. This is a strong statement; but, honestly, there are a great many outside lads better able to take their places.

There can be no doubt that the statement is correct. Yet the error lies on the safe side. An examiner that performs the weeding-out process had need of a very special gift of insight and discretion, and probably it is only the student's teacher, confirmed by an independent external examiner, that could be entrusted with so momentous a decision after reasonable experience of the student's work. One recalls Tait's fury at the examiners that awarded Clough a Second Class in the Final Schools. "They had not only a first-rate scholar, but a man of original genius, before them, and were too stupid to discover it." Stupidity of this sort has not died out. At the same time there ought to be some firm hand to remove a student from the wrong place, and some discerning intelligence to put him in the right place.

MR. JESSE COLLINGS does well to be jealous for the interests of the poor in the charitable endowments of the country. At a recent meeting of the Governors of the Blue Coat School in Birmingham he is reported to have charged the Charity Commissioners with defrauding the poor, in pursuance of their "policy of laying hold of everything they could in the form of charitable endowments and applying them to middle and higher class education." We do not essay to verify his calculation that the Commissioners have thus diverted a total sum of "millions of pounds." Of course, "neither the country nor Parliament knows of these things, because it is only such schemes as are opposed that ever come before Parliament, and these are not 4 per cent. of the schemes the Charity Commissioners frame." There is a good deal to be said for the policy of the Commissioners, undoubtedly; but it is a policy that can very readily be overstrained, especially where the Commissioners are not in personal touch with the conditions of the poor. The greater, therefore, is the responsibility of the local trustees for unsleeping vigilance.

IF Dr. Percy Gardner's advocacy of the teaching of classical archaeology in schools would lay a further burden on teachers and pupils, yet there would be a compensating relief in the enlightenment and variety it would introduce. As a result of a recent conference between some University teachers of the subject and a committee of head masters, Dr. Gardner has formulated his ideas on the kind of archaeological teaching suitable for schools, and embodied them in an interesting and instructive pamphlet just issued from the Clarendon Press. The object in view is simply to "help and supplement" school education in the classics—"to help the imagination and to impress the memory of the learner," and to supplement the merely literary study "by engaging the learner's attention and arousing his curiosity through bringing before him evidence as to the art, the customs, and the daily life of the nations among which civilization arose." Dr. Gardner condemns certain illustrated editions of the classics as "incorrect or inadequate, and tending to mislead as much as to help"; but he admits

that far more reliance may be placed on some of the atlases and handbooks of antiquities. To correct this essential defect he sets out in an appendix a considerable list of useful archæological apparatus, for which he gives large credit to Mr. J. L. Myres, of Christ Church.

DR. GARDNER does well to indicate the activity of the Germans in archæological teaching—an activity largely impelled by a dread of the superior attractions of physical and biological science. The argument will apply here as forcibly as in Germany. Dr. Gardner thinks “that the archæological illustration of the classics, to be at all effective, must be done by a special teacher, and at special times”; and, as to subjects, he suggests that “the best plan would be to secure for every school, either as resident master or as visiting lecturer, some man”—or woman?—“who has studied archæology, who knows something of Greek and Roman lands and of the great museums of Europe, and then leave him a free hand to teach any branch of the subject that interests him, and is likely to interest the boys.” Except in large towns—and even in most large towns—is not this, in the meantime at least, a counsel of perfection? Still, it is better to make the right start when the start is made at all. The best method will be “brief lectures, illustrated with the lantern”; and the direct illustration of Greek and Roman literature will be less valuable than a systematic study of some branch of ancient art—temples, columns, tombs, vases, coins, &c. The movement “can be but tentative and gradual.” But it now lies with the head masters to see what can be done in this direction.

PRESIDENT JAMES, of Northwestern University, has been telling his Board of Trustees that “recent events point to a serious crisis” in the history of the system of co-education. Hitherto the strongest institutions of the West—Oberlin, Michigan, Chicago, Wisconsin, and Northwestern—have admitted women on the same footing as men; whereas in the East—Vassar, Bryn Mawr, Smith, Wellesley, Barnard, Radcliffe—the separate or “co-ordinate” system prevails. Chicago contemplates the substitution of “co-ordination” for “co-education” in the first two years. The objections to co-education appear to be mainly two: the curriculum is planned primarily for men preparing for men’s work, and “difficult problems of administration and discipline” tend to emerge. There does not seem to be any substantial trouble from such problems in this country, but it may be that the American lady student of the Wild West is less amenable to discipline and to Mrs. Grundy. By the way, is it the fact that President James’s predecessor was dismissed on the ground that he was unable to raise for the University chest only some two or three million dollars? The precedent is not without interest to our Principals.

PROF. NICHOLAS MURRAY BUTLER, editor of the *Educational Review*, leaves the Chair of Philosophy and Education to become President of Columbia College, in succession to Mr. Seth Low. We congratulate both College and President.

## SUMMARY OF THE MONTH.

THE Education Bill, though pretty widely accepted in general terms by teachers, has evoked a storm of Nonconformist denunciation. The grounds of objection are religious and political as well as educational. The main points are these:—

1. The unification of the educational machinery is not attained. The essential plan of a sole authority is permissive merely.
2. Option is given to County, Borough, and District Councils, but not to School Boards.
3. The Local Authority is not elected *ad hoc*. The controlling bodies are neither directly elected by, nor directly responsible to, the ratepayers.
4. The powers of the Councils are so severely restricted that there is little real municipal control.
5. The provision for higher education is very insufficient, and there is no real co-ordination of primary and secondary education.
6. The extinction of School Boards, which have admittedly done good work, and the transference of their duties to Councils already overweighted with responsibility, will not tend to the advance in primary education that is urgently called for by the necessities of the times.
7. There are no adequate guarantees of efficiency.
8. The areas are too large for effective management.
9. The religious difficulty is intensified. The whole cost of sectarian schools is paid by the people, while the people have no real control of the schools. Religious strife is likely to be introduced into municipal elections and work.
10. Sectarian schools will be multiplied.
11. No attempt is made to rectify the anomalies of the training colleges for teachers “with their sectarian tests, accompanied with the injustice of well-nigh exclusive public maintenance.”
12. Women are electorally excluded from educational work.
13. Teachers, though State-paid, are subjected to sectarian tests.
14. The sphere of officialism, already too wide, is enlarged.

By his will, Mr. Rhodes bequeathed the sum of £100,000 to his old college, Oriel College, Oxford, and directed his trustees to establish 60 Colonial scholarships of £300 a year for 3 years, and 2 American scholarships (inferentially of the same value) for each of the present States and Territories of the United States, all tenable at Oxford. “I consider,” he wrote, “that the education of young Colonists at one of the Universities of the United Kingdom is of great advantage to them for giving breadth to their views, for their instruction in life and manners, and for instilling into their minds the advantage to the Colonies, as well as to the United Kingdom, of the retention of the unity of the Empire.” And: “I also desire to encourage and foster an appreciation of the advantages which I implicitly believe will result from the union of the English-speaking people throughout the world, and to encourage in the students from the United States of North America, who will benefit from the American scholarships, . . . an attachment to the country from which they have sprung, but without, I hope, withdrawing them or their sympathies from the land of their adoption or birth.”

My desire being that the students who shall be elected to the scholarships shall not be merely bookworms, I direct that, in the election of a student to a scholarship, regard shall be had to (1) his literary and scholastic attainments; (2) his fondness for, and success in, manly outdoor sports, such as cricket, football, and the like; (3) his qualities of manhood, truth, courage, devotion to duty, sympathy for the protection of the weak, kindness, unselfishness, and fellowship; and (4) his exhibition during school-days of moral force of character, and of instincts to lead and to take an interest in his schoolmates; for those latter attributes will be likely in after life to guide him to esteem the performance of public duties as his highest aim.

Further, by codicil, he established 15 scholarships at Oxford of £250 each, tenable for three years, for students of German birth, to be nominated by the German Emperor, for “a good understanding between England, Germany, and the United States of America will secure the peace of the world, and educational relations form the strongest tie.”

IN connexion with Mr. Rhodes’s scholarships, the *Westminster Gazette* (April 7) appropriately recalls the following passage in Mr. Bryce’s valedictory lecture on resigning the chair of Civil Law in 1893 (“Studies in History and Jurisprudence,” II., 523):

Perhaps those who dwell in Oxford have scarcely yet realized the magnificent position this University holds, as not only the oldest and the most externally beautiful and sumptuous place of education in the

English-speaking world, but as a spot whose name and fame exert a wonderful power over the imagination of the English peoples beyond the sea, many of whose youth would gladly flock hither were they encouraged to do so by arrangements suited to their needs. For those among the studious youth of the United States and Canada who desire to follow out their special studies, I can safely say from what I have seen of Canada and the United States that, did Oxford and Cambridge provide what the Universities of Germany provide, and were it as easy to enter here and choose the subject one seeks to study as it is in the Universities of Germany, it is to Oxford and Cambridge, rather than to Germany, that most of them would resort; nor could the value be over-estimated of such a tie as their membership here would create between the ancient mother and the scattered children, soon to be stronger than their mother, but still looking to her as the hallowed well-spring of their life.

THE National Union of Teachers held their 33rd Annual Conference at Bristol (March 31-April 3), under the presidency of Mr. Allen Croft, of Nottingham, who delivered a vigorous address, largely on the Education Bill. "A number of circumstances," he said, "impel me to believe that something in the nature of a conspiracy against the better education of the people is on foot in certain influential quarters to-day." After a day's discussion, a compromise was effected, and the following resolution was agreed to:—

That this Conference expresses approval of those principles of the Education Bill, 1902, under which may be created Local Authorities for controlling and maintaining all forms of education within wide areas, and hereby records its satisfaction with the Government's desire to place our educational system on a sound basis; but is of opinion that the measure cannot become educationally effective unless the permissive clauses of the Bill relating to elementary education be struck out, and it be made compulsory on the Local Authorities to take over the control of elementary as well as higher education, and that, in view of the unjust and unequal incidence of local rates, it is essential that additional grants should be made to Local Authorities from the Imperial Exchequer.

At an Extraordinary Meeting of the Senate of the University of London (April 16) the following resolution was adopted with reference to the death of the Earl of Kimberley, Chancellor of the University:—

The Senate desire to express their deep sense of the loss which the University has suffered by the death of its Chancellor, the Earl of Kimberley, K.G., D.C.L. Lord Kimberley was for forty-three years a member of the Senate, and throughout that long period not only showed a strong personal interest in the progress of the University, but from his great experience in public affairs, his wisdom in council, and his characteristic moderation and candour contributed materially to its welfare. On the lamented death of Lord Herschell the appointment by the Crown of Lord Kimberley as his successor in the Chancellorship was welcomed by all who had the interests of the University at heart. Until prevented by illness, his constant presence at the Senate meetings and his scholarly and statesmanlike views upon all matters concerned with the advancement of true learning were of the utmost service during the critical period of the reorganization of the University. The Senate beg most respectfully to express their deep sympathy with the family of the late Chancellor, and to assure them of their cordial appreciation of the services which he rendered to the cause of higher education in the kingdom and throughout the Empire by his long connexion with the University of London.

THE Court of Governors of the University College of North Wales passed the following resolution (April 16) on the lamented death of Mr. William Rathbone:—

The Court desires to place on record its profound sense of the irreparable loss sustained by the whole community, and especially by those engaged in the conduct of the Welsh educational movement, by the death, in a ripe and honoured old age, of Mr. William Rathbone, one of the chief founders of this College and for many years its President. The Court recognizes in him a unique example of unselfish, energetic, and lifelong devotion to the moral and social elevation of his fellow-countrymen. It recalls not only the unflinching generosity with which, during a long life, he supported every movement for the public good, but also the statesmanlike largeness of view, the breadth of personal sympathy, the insight amounting to intuition which enabled him to discern the possibilities of a country and people with whom he first came into contact after middle life, and, above all, the invincible faith in his fellow-men—qualities which together made him one of the most potent forces for social amelioration during the last half-century. The Court feels that the memory of his life and work will remain an imperishable inspiration for philanthropic and educational effort in this country, and that thus

the ardent desire of Mr. Rathbone himself will be fulfilled that the causes to which he devoted his life might continue to command the enthusiasm of devoted workers. Finally, the Court desires to convey to the members of his family an expression of its deep and respectful sympathy in their bereavement.

Principal Reichel said that their late President seemed to him to be the pivot of the movement which led to the establishment of the College.

LORD REAY, President of University College, London, has formally issued (April 11) the appeal for a million. He says very justly:

By the new statutes of the University of London a teaching University has been created. It is impossible, however, for the University to exercise its proper functions with regard to teaching and research until it has capital funds and adequate buildings at its disposal. The part of the Imperial Institute allocated to the University does not more than suffice for the purposes of examination and secretariat. University College, London, has, from its foundation seventy-five years ago, been a seat of University education and research. Its yearly output of original work is not exceeded by that of any University in the land. Its buildings, freehold land, and endowments represent a capital value of at least £800,000, and its present accommodation could be trebled by the extension of the buildings in its own grounds. It is evident, therefore, that the policy of incorporating the college in the University is an important step in building up the Greater London University on existing institutions. The great need of our country at the present time is an increase in the supply of men with trained brains, men who will act as leaders in the world of thought and of affairs and in the struggle for mastery over the forces of Nature. The recent industrial development of Germany, the growing ascendancy of America, are largely due to the recognition of this fact, and to the provision by the State or by private individuals of the necessary means—of Universities well equipped with laboratories and well supplied with endowments.

Donations and subscriptions should be sent to the treasurer, Sir Richard Farrant, at the College.

The *Times* says (April 12): "The condition of University College is grievous, . . . not creditable to London. . . . The appeal is the bitter cry of learning in distress. . . . It will be a pity if they [the College] do not meet with a generous response. It will be a public misfortune if they ask altogether in vain."

PROF. MARSHALL laid before the Senate of Cambridge University (April 11) a vigorous plea for the establishment of a Tripos in Economics and Political Science, these subjects having no due scope as a part of the Moral Science Tripos. The grounds of his project he expressed as follows:—

If similar economic changes continue for long, and go much farther, our surplus of revenue over expenditure, available for naval and military use, will be less than that of Germany. England is not, and probably never again will be, completely mistress in her own house. She is not free to weigh the true benefits of a higher culture or a more leisurely life against the material gains of increased economic vigour, without reference to the rate at which the sinews of war are growing elsewhere. There is need for a larger number of sympathetic students, who have studied working-class problems in a scientific spirit; and who, in later years, when their knowledge of life is deeper and their sense of proportion more disciplined, will be qualified to go to the root of the urgent social issues of their day, and to lay bare the ultimate as well as the immediate results of plausible proposals for social reform.

In the course of his plea, Prof. Marshall strongly urged that a knowledge of economics is now of vital importance not only to the legislative, executive, and diplomatic corps, occupied with economic issues half their time, but also to business men. He also suggested an outline scheme. Meantime, a memorial requesting the Council of the Senate to nominate a syndicate to inquire into and report upon the best means of enlarging the opportunities for the study in Cambridge of economics and associated branches of political science has been numerous signed by members of the Senate.

THE Lord Mayor of Liverpool has issued an appeal for funds to establish a Liverpool University upon the University College of the city. About £330,000 will be required, of which there has already been promised £145,000 by some 60 leading citizens. The College endowment of chairs and lectureships amounts to £186,300; sites acquired and buildings erected and in course of

erection, £251,550; fellowships, scholarships, and prizes, £32,800 (exclusive of value of fellowships and scholarships established by annual gifts or granted by City and County Councils, the Royal Institution, the Ladies' Educational Association, the Tate Trustees, and other bodies outside University College); endowments for maintenance, £20,275; and day training college hostel and endowment, £10,000. The total of £500,925 does not include the value of books in the library and apparatus in laboratories, nor does it take account of sums, amounting to many thousands of pounds, given to the College year by year for immediate expenditure, nor of the annual income of the affiliated schools of architecture and applied art, public health, and tropical medicine. The additional lectureships to be endowed include electrotechnics, geology, and chemistry, besides others in connexion with commerce, engineering, and medicine.

At a meeting of the governors of the Yorkshire College, Leeds (April 9), the following resolution, moved from the Chair, and seconded by the Right Hon. A. H. D. Acland, was unanimously carried:—

In view of the recent expressions of public opinion contained in the resolutions passed at meetings of the West Riding County Council, the Leeds City Council, the Technical Instruction Committee of the Bradford City Council, the Convocation of Victoria University, and other important bodies against the proposed dissolution of the Victoria University, the Board of Governors of the Yorkshire College authorize the Council to take such steps as may appear to them desirable to obtain the appointment by the Crown of a Royal Commission or other suitable body to inquire into the whole subject, including, if possible, (1) the working of the Victoria University as at present constituted; (2) the reasons for its proposed dissolution; (3) the comparative educational advantages of the present University and of the three separate degree-giving bodies which it is suggested should replace it; (4) the probable effect of a dissolution of the Victoria University upon the professional and academic standing of graduates and undergraduates of that University.

THE Central Welsh Board Executive Committee have resolved, in connexion with the next half-yearly meeting of the Board at Blaenau Festiniog in May, to convene a conference of science teachers in intermediate schools, to be attended also by His Majesty's inspectors and the professors and lecturers at University Colleges. The Committee, in reply to a letter from the Cardiff Cymmrodorion Society emphasizing the importance of encouraging Welsh pupils to attain proficiency in the Welsh language, side by side with a knowledge of English, said the Board was prepared to do all they could to encourage the study of Welsh, including Welsh history and Welsh literature, but that they wished carefully to guard against the teaching of Welsh instead of English.

PRINCIPAL FAIRBAIRN, Principal Reichel, and Prof. Gwatkin attended (April 10) at St. David's College, Lampeter, as a deputation from the Theological Board of the University of Wales, and discussed with the College Board the proposed arrangements for conferring the B.D. degree of the University of Wales after residence at Lampeter. "It is to be hoped," says the *Western Mail*, "that the scheme to bring Lampeter College within the scope of the University of Wales will be carried out successfully, for it would be the means of removing a great deal of friction from Welsh higher educational circles."

THE Special Committee of the British Association appointed at the last meeting to consider the conditions of health essential to the carrying on of the work of instruction in schools is addressing itself, in the first instance, to the collection of information upon the following matters:—

A collection and tabulation of recorded original observations on the periods of day appropriate for different studies, the length of lessons, and the periods of study suitable for children of different ages.

A collection and tabulation of anthropometrical and physiological observation forms in use in various schools with a view to preparing a typical form for general use.

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A collection and tabulation of recorded investigations into the causes of defective eyesight in school-children and a definition of the conditions necessary for preserving the sight.

An inquiry into the practical knowledge of hygiene possessed by school teachers.

The subject is of general importance as well as of scientific interest, and we have no doubt that these investigations will attract the willing co-operation of teachers. Any facts or references relating to the subjects under consideration sent in to the Chairman (Prof. C. L. Sherrington) or to the Secretary (Mr. E. White Wallis, 72 Margaret Street, W.) will be very helpful.

LAST autumn Prof. J. W. Jenks, of Cornell, was sent out to India by the Government of the United States, to report on the system of Anglo-Indian government and administration, with a view to finding out how the Philippines should be managed. Now the University of Chicago has "determined to procure special information in regard to the condition and future prospects of the Philippines," and has commissioned Mr. Alleyne Ireland, the author of "Tropical Civilization" and other studies of Colonial questions, to visit the European colonies in the Far East and to make a report on their systems of government, and their financial, social, and commercial condition. Mr. Ireland's inquiry is expected to occupy two or three years. They have large views in Chicago.

THE Recreative Evening Schools' Association have memorialized the Board of Education, in connexion with the Education Bill, "so to revise and strengthen the law as largely to encourage and promote evening continuation schools of a kind suited to the needs of various localities." They urge the menace of "hoolliganism" and of "the keen and aggressive industrial competition" of other countries, and make specific recommendations.

THE Froebel Society (whose annual meeting at the College of Preceptors we failed, through accident, to record last month) is thriving vigorously. Its membership has risen from 661 to 706; and its balance sheet has improved. Lord Beauchamp is the new President. In his address, he maintained that "in education a continual advance is necessary," that "the individual in education has been too much neglected," and that "the general rate of remuneration of teachers is far too small."

## CURRENT EVENTS.

On May 21 there will be held at the College of Preceptors a joint meeting of members of the College and of the Assistant Masters' Association, when Prof. Knight, of St. Andrews University, will read a paper entitled "Some Notes on American Universities."

UNIVERSITY COLLEGE, LONDON, will give a *conversazione* on June 19, when each of the departments of science and research will set out exhibits illustrating the progress of its work.

A COURSE of inter-collegiate lectures (University College and Bedford College) on "Althochdeutsche und Altsächsische Litteratur," will be delivered in German by Prof. R. Priebisch, Ph.D., at University College, on Fridays, at 5, beginning on May 2.

MISS C. SPURGEON'S special course of 8 weekly lectures at Bedford College for Women on "The Rise and Development of the English Novel" commences May 1 (if not April 29).

MISS CECILIA WAERN commences a similar course on "Some Principles of Art Criticism, with special reference to the Wallace Collection," on May 9.

THE School of Art Wood Carving, South Kensington, has been re-opened in rooms at the Royal School of Art Needlework in Exhibition Road. Some free studentships are vacant. The evening class meets on three evenings a week and on Saturday afternoons.



In consequence of the illness of Lady Warwick, the Conference on the Co-ordination of Rural Industries, at Warwick Castle, is postponed till further notice.

THE London Geological Field Class has commenced its seventeenth year of Saturday afternoon excursions, and will continue them till July 12. They are under the conduct of Prof. H. G. Seeley, F.R.S., and are arranged to illustrate the geology and higher physical geography of the Thames Basin. Particulars from the Hon. Gen. Secretary, Mr. R. Herbert Bentley, 43 Gloucester Road, Brownswood Park, N.

ON May 9 the last monthly meeting of the London Branch of the Association during this session will be held at the Sesame Club, Dover Street, Piccadilly, at 8 p.m.

THE Long Vacation Course of the School of Geography, Oxford, will be given in the Old Ashmolean Building, Broad Street, from July 29 to August 19.

THE fifth Annual Conference of the British Child Study Association will be held at Liverpool on May 8-9.

MODERN languages holiday courses have been arranged by the Teachers' Guild at Tours, Honfleur, and Santander. Particulars from the Secretary, Teachers' Guild, 74 Gower Street, W.C.

THERE are rival attractions at Greifswald, Jena, Kiel, Marburg, Lausanne, Neuchâtel, Villerville-sur-Mer (near Trouville), and Grenoble. Particulars from the Special Inquiries Branch of the Board of Education.

THE Executive Committee of the Central Welsh Board will hold a Conference of Science Teachers at Festiniog on May 15. A collection of apparatus for science teaching in schools will be on view. Admission tickets from Mr. Hammond Robinson, Central Welsh Board, Cardiff.

ONE of the first responses to Lord Reay's appeal for a million on behalf of University College, London, has come from Mr. William Waldorf Astor. Mr. Astor gives £20,000 for the endowment of existing unendowed professorships at the College—a gift not only munificent, but also wisely discriminating.

THE Lord Mayor of Liverpool issued an appeal for funds to equip University College as a University (March 27). At the same time he announced subscriptions to the amount of £140,000, including two of £25,000 each (from Sir John Brunner, M.P., and Mr. William Johnston, shipowner), four of £10,000, and several of £5,000.

MR. ROBERT IRVINE, F.C.S., of Granton, by his will directs his trustees to hold the residue of his estate (after bequests to relatives) as a separate trust until it amounts to £25,000—or, in their discretion, £30,000—to found a Professorship of Bacteriology in Edinburgh University, and to equip a class-room and a laboratory for original research.

MR. JAMES S. DIXON, of Fairleigh, Bothwell, has offered £10,000 towards founding a Chair of Mining in the University of Glasgow.

MR. GEORGE RAE, Chairman of the Directors of the North and South Wales Bank, has given £1,500 to the North Wales University College for the foundation of a Lectureship in Political Economy, with special reference to banking and finance.

SEVEN Cambridge colleges will hold a combined examination for 67 entrance scholarships and various exhibitions, commencing December 2. Pembroke: 1 scholarship of £80, 4 of £60, 4 of £40. Gonville and Caius: 2 scholarships of £80, 2 of £60, 6 of £40. King's: 3 scholarships of £80, 2 of £60; 3 exhibitions of £40; 5 Eton scholarships, or, if these be not filled up, Eton exhibitions of £40 to £70 may be awarded. Jesus: 2 scholarships of £80, 2 of £60, 3 of £40; four of these being restricted to sons of clergymen of the Church of England (special application to the Senior Tutor). Christ's: 1 scholarship of £80, 3 of £60, 2 of £40. St. John's: 3 scholarships of £80, 5 of £60, 3 of £40; open exhibitions of £30; certain close exhibitions of various values, thrown open for this time and subject to no age limit. Emmanuel: 1 scholarship of £80, 3 of £60, 4 of £40; 2 subsizarships, no age limit (special application to the Master). Candidates to be not more than 19 on Oct. 1. Forms of admission and particulars from the Rev. J. Kennedy (Pembroke), Rev. E. S. Roberts (Caius), Dr. M. R. James (King's), Mr. Gray (Jesus), the Master (Christ's), Dr. D. MacAlister, Rev. C. E. Graves, Mr. Tanner, and Mr. Sikes (St. John's), and the Master (Emmanuel). Forms to be lodged by November 25.

AT King's College, London, some scholarships and exhibitions will be open in September. Two exhibitions of £15 each and 2 of £10 are offered to the candidates passing highest in the Matriculation Examination on entering the engineering division: examination begins September 22. Two science exhibitions, £30 and £20, for 2 years, are open to candidates under 19 (on October 1): examination begins September 23. Two medical entrance scholarships, £70 and 60 gs.: examination (anatomy and physiology) commences September 23. Two medical exhibitions (Sambrooke), £60 and £40: examination commences September 16. Two scholarships (Warnford), £25 each, for 3 years: open to matriculated students of the Faculty of Medicine, being also perpetual pupils of the Hospital, at beginning of their first winter session: examination commences September 23. Names of candidates to be sent to the Secretary of the College on special form a week previous to examination.

TWO exhibitions, £50 and £30, are offered by Trinity College, Cambridge, to candidates selected for admission to the Civil Service of India at the Open Competitive Examination in August. Apply to the Senior Tutor before September 1.

A NEW scholarship of £35 per annum, tenable for 3 years, and carrying with it a free studentship, has just been founded in connexion with the engineering department of University College, Liverpool. It is restricted to the sons of Liverpool working men. Examination, May 12-17.

AT the Royal Holloway College for Women (University of London) 10 entrance scholarships from £75 to £40, and several bursaries of £30, tenable for 3 years at the College, will be awarded on the results of an examination to be held July 1-5. Candidates must enter their names before June 3. Particulars from the Secretary, Royal Holloway College, Englefield Green, Surrey.

AT Bedford College for Women (University of London) an arts scholarship, £31. 10s. a year for 3 years, and a science scholarship, £48 a year for 3 years, will be awarded on an entrance examination June 19. Forms of entry to be returned by June 7. Apply to the Principal.

AT Lady Margaret Hall, Oxford, four scholarships (£60, £50, £30, £30), tenable for 3 years, are offered for competition in March, 1903.

\* \* \*

AT St. Hugh's Hall, Oxford, one scholarship of £25 a year will be open to competition in March, 1903. Exhibitions of small value may also be awarded at the same time.

\* \* \*

THE Technical Education Board of the London County Council gives notice that the last day for receiving applications for intermediate county scholarships and Swanley horticultural scholarships is Saturday, May 3; and that the date of the commencement of the final part of the examination for these scholarships has been postponed from Monday, June 30, to Monday, July 7. The last day for receiving application forms for senior county scholarships is Monday, May 12.

\* \* \*

THE Senate of the University of London Appointments, has appointed Dr. R. D. Roberts, M.A. (Camb.), D.Sc. (Lond.), Registrar of the Board to promote the Extension of University Teaching.

\* \* \*

THE REV. DAVID MILLER KAY, B.D., B.Sc., of the Church of Scotland Mission, Constantinople, has been appointed Professor of Hebrew and Oriental Languages in the University of St. Andrews, in succession to the late Prof. Birrell, D.D.

\* \* \*

THE REV. HENRY MELVILL GWATKIN, M.A., D.D., Professor of Ecclesiastical History at Cambridge University, has been appointed Gifford Lecturer in the University of Edinburgh for 1903-5.

\* \* \*

MR. H. B. BAKER, B.A., science master at Dulwich College, has been appointed Head Master of Alleyn's School, Dulwich, on the retirement (after twenty-seven years' service) of the Rev. J. H. Smith, B.A.

\* \* \*

MR. ALFRED TRICE MARTIN, M.A. (Oxon.), F.S.A., has been elected to the Head Mastership of Bath College in succession to the Rev. W. Yorke Faussett, M.A.

\* \* \*

THE REV. CORNWELL ROBERTSON, M.A., senior mathematical master of St. Peter's School, York, has been appointed Head Master of King Edward's School, Stratford-on-Avon, in succession to the Rev. E. J. W. Houghton, who has gone to St. Edmund's School, Canterbury.

\* \* \*

MR. A. CARDEW, Mr. A. C. Eddis, Mr. A. F. Leach, and Mr. R. E. Mitcheson, formerly Assistant Charity Commissioners under the Endowed Schools Acts, have been appointed administrative Examiners for Endowed Schools under the Board of Education.

\* \* \*

THE following gentlemen have been appointed Junior Inspectors under the Board of Education:—Mr. G. S. Hodson, assistant master, Woodlands School, Manchester; Mr. E. M. Battiscombe, classical lecturer, St. David's College, Lampeter; Mr. W. M. T. Lawrence, demonstrator, Owens College, Manchester; Mr. H. H. Piggot, assistant master, Bradford College; Mr. H. H. Quilter, assistant master, King Alfred School, Hampstead; Mr. A. Abbott, assistant master, Intermediate School for Boys, Cardiff; Mr. H. Price, assistant master, Bedford Grammar School; Mr. E. T. Campagnac, classical lecturer, University College, Cardiff; Mr. A. F. Page, science master, Mill Hill School; Mr. J. Maudsley, science master, Bradford Grammar School; Mr. E. E. Roberts, assistant master, St. Paul's School; Mr. A. L. Thornton, science master, Bolton Higher-

Grade Board School; Mr. H. J. Dean, assistant master, Great Bookham National School; Mr. F. W. Cape, assistant master, King William's College, Isle of Man; Mr. D. A. Macnaughten, assistant master, Tonbridge School; Mr. E. F. D. Bloom, science master, Cambridge County School; Mr. F. W. Thompson, assistant master, Manchester Grammar School; Mr. E. Hackforth, assistant master, Westminster School.

\* \* \*

Literary Items. MESSRS. A. & C. BLACK announce that the first of the new supplementary volumes of the "Encyclopædia Britannica" will presently be published by them in conjunction with the *Times*. The volumes will not only complete and bring up to date the ninth edition, but, in combination with the already existing volumes, will constitute a tenth edition. The chief editors are Sir D. MacKenzie Wallace, President Hadley, of Yale University, and Mr. Hugh Chisholm. There will be in all 11 new volumes, including more than 10,000 articles by more than 1,000 contributors, 150 full-page plates, 125 coloured maps, and 2,300 other illustrations. The volumes will be published at monthly intervals, approximately.

\* \* \*

MESSRS. SWAN SONNENSCHN & Co. propose to publish, at the end of the present year and annually, a Schoolmasters' Year-Book, containing "biographical notices, from a professional standpoint, of the masters and others engaged in or connected with the work of secondary education," as well as "a large amount of information likely to be of interest and service to these masters, particulars of societies, magazines, institutions, examinations, &c., connected with secondary education, a review of the educational year, a record of events," and so forth.

\* \* \*

General. PROF. SCHECHTER received a hearty send-off to his new post in the United States. There was a farewell dinner at the Trocadéro, with a presentation and an address, in which English joined with Jewish friends and admirers. The address expressed grateful appreciation of Dr. Schechter's eminent services to the cause of Judaism, his solid and brilliant contributions to Jewish learning, and the high standard of Hebrew and Rabbinic scholarship he had uniformly maintained at University College, London, and at Cambridge.

\* \* \*

THE Royal Society of Sciences of Denmark has conferred its membership upon Prof. T. W. Rhys Davids, Sir John Scott Burdon-Sanderson, and Dr. Henry Sweet.

\* \* \*

PROFS. JAMES DEWAR, William James, and Wilhelm Wundt have been elected honorary members of the New York Academy of Sciences.

\* \* \*

WE are glad to note that a Civil List pension of £75 a year has been bestowed on Mrs. J. Viriamu Jones, widow of Principal Jones, of the University College of South Wales and Monmouthshire, and Vice-Chancellor of the University of Wales, in recognition of her late husband's services to higher education in Wales.

\* \* \*

THE London College of Music will commemorate the Coronation by an award of "Coronation Bronze Medals" on its June and July examinations. Particulars from the Secretary.

\* \* \*

IT is hoped that the new Training College, which the London County Council is establishing in connexion with the University of London, will be opened in October.

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**THE FEELINGS AS A FACTOR IN SCHOOL TRAINING.**

ON Wednesday evening, April 23, Mr. H. COURTHOPE BOWEN presided at the monthly evening meeting of members of the College of Preceptors, when Mr. J. L. PATON, M.A., read the following paper:—

The word *sensibility* is a word which has of late lost caste. It is used by the novelist to describe the young lady who is morbidly impressionable and romantic; it is used by a Cabinet Minister to describe the tender-heartedness of the peace-lover, the Quaker, and the pro-Boer. It carries with it nowadays a connotation of over-sensitiveness and sentimentalism. It is used with a tone of disparagement.

The adjective *sensible*, on the other hand, though it has not lost caste, is used in a sense quite foreign to its original meaning, to denote rather intellect than feeling, a person whose judgment is cool, impartial, and dispassionate.

It was not in this way that Edmund Burke used these words. To him the word "sensibility" denoted one of those attributes which distinguish the higher types of men. One of the qualities which has passed with the age of chivalry is "that sensibility of principle which felt a stain like a wound"; and one of the qualities of the true law-giver is that he must be "full of sensibility."

I would like, for the purposes of this paper at any rate, to reinstate the word in the high place among human qualities which was accorded to it by Edmund Burke. To my mind, every well bred and well trained man and woman ought to be, in his phrase, "full of sensibility"; they must have that delicate feeling of personal honour, that quick response of sympathy, that fine tact in dealing with others which the word "sensibility," and, so far as I know, no other word in the language, implies. The great difference to me between man and man, the difference according to which men are ranked as higher or lower, is just this, that one *feels* more than another, feels more promptly, more deeply, and more truly, and acts according to such right feelings. "The heart that is soonest awake to the flowers" and "first to be touched by the thorns"—the heart that, being so awake and so touched, is ready to work at the extraction of thorns and the cultivation of flowers—that is, after all, the highest type of educated man.

It is for that reason that I venture to take the subject of the feelings as the subject of this evening's lecture.

"The true lawgiver should be full of sensibility." So should every teacher. He is alive to the slightest indication, because, just as a slight indication in the body may be to the physician a symptom of grave disorder, so in our much more delicately adjusted moral nature the slightest outward sign—a tone of the voice, a glance of the eye, a curl of the lip, a titter in the tone—may be symptomatic of inward disorder.

May I take a homely illustration? The captain had retired about an hour ago, and but for the man at the wheel and the look-out there was no one on deck. Suddenly the captain's door opened, and the captain stepped out in his pyjamas and bedroom slippers. "Holloah, Captain, I thought you were in your bunk and sound asleep." "So I was right enough, but I thought I heard a noise. I think it's somewhere in the engine-room." There was indeed plenty of noise: there was the noise of the waves, and the swish of the water, and the regular thud of the engines. "Lots of noise, Captain, for that matter." But it wasn't any of these noises that got him out of bed. It was a rope at the far end of the ship which had not been properly made fast, and it was flapping irregularly against the side of the vessel. "Bless you, sir," said the captain, "when you have a ship on your mind, you've got to be thinking all the while when you're asleep; you've got to have an eye in the back of your head and listen with your toes."

The true schoolmaster must be full of sensibility. If he can't listen with his toes, let him seek some other profession. Over the door of Plato's Academy was the inscription *Μηδεις ἀγεωμετρητος*

*είσιτω*. If Plato had run a normal school for the training of teachers, the inscription would have been *Μηδεις ἀναίσθητος είσιτω*. There is no entrance here for the insensate man, the pachyderm who cannot feel.

Not only must the true teacher have feeling himself—he must understand, sympathize with, and utilize the feeling of, his pupils. How fatal is the mistake of ignoring the feelings in education, and how tragic are the consequences of so doing, is shown in fiction by "The Ordeal of Richard Feverel" and in real life by the autobiography of John Stuart Mill. George Meredith's novel is highly prized by all interested in education. The resultant impression of that book, to my mind, is that no amount of cleverness in the teacher and no amount of excellence in system or curriculum is of any avail if one leaves out of account the natural propensities, feelings, and desires of the child whom we educate. Training is like a game of dominoes—it is no good having the best of pieces in one's hand, however high they may be; unless one can fit them in with the pieces played by one's adversary, one loses the game. I commend "The Ordeal of Richard Feverel" to any one who does not know it as a most helpful piece of educational thinking. As to John S. Mill, every one knows the story of his early training—how splendidly it answered as a training in intellectual gymnastic and the accumulation of knowledge, how utterly it ignored both his hands and his feelings, and how prolonged and turbid and painful was the reaction of outraged Nature.

But I will not dwell on this. The old system is no more. All I wish to point out is that practically the whole of the advance which has been made in educational science has been made precisely by taking into account the natural feelings of children, studying them, and adapting to them both ourselves and our teaching. The old philosophy of education kept its eye on knowledge—such and such knowledge was to be inculcated, such and such instruments of knowledge were to be mastered. The matter of the teaching, the system of the teaching was the same for all. It was simple—delightfully simple—but it was wrong. One kind of feelings this school did take into its cognizance—the bodily feelings. "Blessed are the pure in heart," said Dr. Keate. "Be pure in heart, boys. If you aren't pure in heart, I'll fog you." Such was the old school. And there was no advance in educational science until another school arose, who said: "We are beginning at the wrong end. We have been planning out education for children in the same way as the French Government makes clothes for its soldiers. First they make the suit; then they fit the man to the suit. We have got hold of the wrong end of the stick. Before we make the suit of clothes, we must take the measure of the child that is to wear them. The first thing to study is the growing organism that we have to develop—we must find out its latent powers, the laws of its growth, and its instinctive tendencies; observe the lines along which these tendencies develop, and take them as our rule in the planning out of methods." This is what Pestalozzi (following Fichte) called "Der Prozessgang der Natur in der Entwicklung des Menschengeschlechts." This was the secret of what has been called his "gift of divination, his luminous guesswork." The discovery was the outcome of his experience. His experience was not, of course, unique; but the reason why Pestalozzi saw the lesson of his experience, while others who had the same experience did not see, was due precisely to the intense sympathy of his nature; he was "full of sensibility," and therefore he had eyes to see.

Now I think, if Pestalozzi could see to-day the results in European and American education of the new truth which he discovered, he would have no reason to be discouraged. Those results are most apparent perhaps in primary education. Consider the difference between the modern kindergarten and the old elementary school. Contrast the freedom, sociableness, and spontaneous joyousness of the present infant class with what Edward Thring tells us of his own preparatory school, where all talking at meals was forbidden; and young Edward Thring himself was flogged for "a very little laugh at dinner." "All my life long," he says, "the evil of that place has been on me. It is even now one of my strongest impressions, with its misery, the misery of a clipped hedge, with every clip through flesh and blood and fresh young feelings; its snatches of joy, its painful but honest work—grim, but grimly in earnest—and its prison morality of discipline. The most lasting lesson of my life was the failure of suspicion and severity to get inside the boy world, however much it troubled our outsiders."

Let that stand for evidence which might be multiplied indefinitely. Such things as this are dealt with nowadays by a special

society, and the policeman, the family butcher, the family milkman, the family washerwoman, and the grocer's boy all combine to bring such occurrences to the notice of the society and protect child life from such inhumanity.

The results of the new theory of education are, as I have said, most easily seen in primary education. The results in secondary education have been slower in maturing; they are not nearly so universal, they are less easily discerned, but I believe they are every bit as real. Within my own time there has been a wonderful change in the relations between masters and boys. I don't think the credit can be ascribed to any one personality or any one school—it has been in the air, it has been everywhere silently operative, but it seems to me so real and so important that the word "change" is too weak, and perhaps the proper word for me to use would be "revolution." In what does this silent revolution consist, and how has it come? It consists in the closeness and freedom of the personal intercourse between master and pupil. Thirty or forty years ago the masters lived apart from the boys. The master was what a master still is in Continental schools—an officer—and the boys were the rank and file. The idea of a master corresponding with a boy was unheard of. If a command was given, he no more dreamed of saying "please" than the officer on parade thinks of saying, "Right turn, gentlemen, if you please," or "Kindly turn to the front." The relationship is very different now. I remember when I went to Rugby as a master being surprised at the quite informal way in which boys and masters foregathered out of school hours, how after evening preparation one would drop in to a study to give back a composition, or even without any such pretext, just for a bit of a chat, and not infrequently also a bit of a cake, without there being the slightest suspicion on the part of the boys that you were an intruder, or the slightest feeling on the part of the master that he was unwelcome or *de trop*—and all this without there being any laxness of discipline or any other advantage taken by the boys. As it has been wittily phrased, "The masters are still boys, and the boys are still mastered." Now this is the old Greek idea of education being a *ξυνουσία* or companionship (*Miterziehung*, as the Germans call it)—it is the quiet, unnoticed, and unobtrusive influence of one who is with the boys in games and in hobbies as well as work, who shares in all their life and to whom deference is paid, not because of any official position he holds, but because of what he is in himself.

What this change has accomplished it is not for me to estimate. I will just notice on the negative side that it has abolished in our English public schools, first of all, bullying, and, secondly, those coarse vices of self-indulgence and drinking which figure so largely in Dr. Arnold's sermons.

How has it come about? It has come about mainly through games. "Sympathy," as Mr. Herbert Spencer says, "is best cultivated by participation in the pleasures of people." The pleasures of boys—English boys at any rate—are chiefly cricket, football, rowing, and outdoor games. It has become the custom of masters to share in these, and, so sharing, they have learned a sympathy which they would never have learned in the mere class-room routine; and this sympathy has given them *insight* and *influence*, and has enabled them to put their finger on the central *sensorium* of the genus boy, without his knowing it, in a way which was never possible before. And herein I should like in justice to say how much is due to junior masters, especially in our boarding schools. Boys take their ideals and their tone much more readily from a younger man. I have been often surprised at the influence on senior boys of one who is perhaps only three years or so their elder. With a grey beard or a bald head they are apt to say unconsciously to themselves: "Yes, that's all very well for him; but then he's old and I'm young, and that's what makes the difference." They cannot say this of a man who is just fresh from his schools. Honour to whom honour is due. I think it is only right to make some public acknowledgment of the way the junior masters on the staffs of our different schools, too often wretchedly underpaid, have thrown themselves, without stint of leisure or of interest, into the life of the school to which they have been attached.

There are some, I know, who think that such men lower the profession by such conduct. "What becomes of your dignity?" they say. "Does not such familiarity inevitably breed contempt?" ["Commend me to a proverb for a thumping falsehood," as somebody has said.] When you call a boy by his Christian name, or—still more shocking—accost him as 'old man,' don't you find that he loses all respect for you?" To which I answer: "Not at all. One must stoop if one would raise. As long as it is natural, there is no danger in it. The one intolerable

thing in dealing with the young is affectation, and the worst affectation is the affectation of superiority. Go read your Shakespeare and see if Caliban did not learn more in one hour from two drunken rascally butlers than he learned in twelve years from the dignified and unbending Prospero. And why? Simply because they came down to his level; they found what the sage Prospero with all his sagacity never found, the right point of departure."

That education will be the best which finds the *point of departure*. In intellectual work it will secure, in the first place, interest, and through interest will prompt the mind to self-activity in acquiring ideas and knowledge. In all other matters, physical, social, æsthetic, and spiritual, it will watch for the unfolding of the several feelings, appetites, desires, and as each feeling, or appetite, or tendency unfolds it will provide the right opportunity and the right way for its exercise and its expression, so that each instinctive tendency of the organism may, as it develops, contribute its part to the building up of the whole "through that which every joint supplieth," and so conduce to the full-grown perfect manhood or womanhood. In fact, this seems to me to be precisely the difference between the Hooligan, we will say, on the one hand, and the best type of the English public-school boy on the other. Initially there was no difference; but in the one case, as each instinct awoke, it found a right sphere and a favourable atmosphere for its exercise; in the other case each natural instinct and feeling was warped and soured by wrong environment into a monstrous, an unnatural, and an unsightly perversion of Nature.

Let us then take stock of some of these feelings as they arise in the case of boys, for I would prefer to speak of what I know. But I shall be told at the outset that boys have no feelings; it's absurd to say that they have. We have all of us felt this at times when we have had a splitting headache and our classes have chosen just that day on which to be specially tiresome. Robert Louis Stevenson describes somewhere the callous way in which a child came up to him as he lay ill, and, airily disregarding the patient's complex and acute sufferings, requested his attention for some more pressing business of its own. It is true that children are delightfully incapable of entering into the feelings of their elders. It is a wrong deduction to say that therefore they have no feelings at all.

He jests at scars who never felt a wound.

And a boy who never had a headache in his life does not sympathize with your headache, simply because he doesn't understand what it means. If you had sore gums from teething, or what a little fellow of my acquaintance once called "a pain under your pinafore," through eating too much plum-pudding, then he would understand and you would have, for a time at any rate, his sympathy. The cruelty of boys (which is so well known that I need not illustrate it) is due largely to this anæsthesia. A boy, who habitually pelted toads, one day saw a toad, in its expiring agony, fold its forefeet together like hands. This touched him, it got home, it made him feel the pain he had inflicted, and afterwards he not only did not pelt toads himself with stones, but stopped other fellows from so doing. The boy had feelings, as all boys have, but they were dormant, inhibited by lack of perception.

Nor must we be surprised if we find their feelings absolutely irrational. I knew of a midshipmite who never could get to sleep ashore until the gardener came and played the garden-hose upon his window. And Prof. James tells the story of a child who, in the midst of a raging fire, in presence of devouring flames, showed neither astonishment nor fear, but the noise of the firemen's trumpet and the wheels of the engine made him start and cry. We must simply not expect them to be rational—we must take them as they are, however unreasonable—and work upon that basis. That must be our point of departure—at any rate, we shall never get any other.

We must not be annoyed to find these feelings changeable, not to say capricious. "The young," says Aristotle in his Rhetoric, "desire passionately, but quickly cease from their desire." The young mind is not stable or tenacious, nor can it hold much at a time, and a new interest quickly expels an old one. But, even so, by long suffering and judicious selection, certain moods may be encouraged, become habitual, and, gathering strength, gradually come to constitute temperament.

From this very changeableness of feeling the true teacher will learn to avoid, above all, monotony. There must be perpetual novelty and change; we must never get into a rut. Here, as much as anywhere, the skill of the true craftsman is seen. He has to go over

the same ground again and again, but he must always have fresh illustrations and fresh aspects, and work backwards and forwards over the same subject. "Small changes benefit the organism," says Darwin. This is specially true of the young. Dullness and monotony are the devil to them. If a thing has always been done one way, that is precisely a reason why it should be done the reverse way now and again. Beware of what Oliver Wendell Holmes calls "the ginger-bread rabbit expression" on the faces of your class. It is a sure sign that you have lost touch with interest. Rather do anything than suffer it to continue; stand on your head, if you like, or else do as a colleague of mine used to do, seat yourself in the class—take a humble place at the bottom—tell off one of the boys to take the lesson, and let them see how many places you can get by fair answering of questions. The first and the great commandment for a teacher is: "Thou shalt be alive." Let your teaching fairly tingle with life. Make your class feel they are under a man, not under a machine.

In enumerating some of the more marked instincts or natural feelings, it is impossible to speak in universals. The sequence according to which they develop is exceedingly diverse, and their expression is, if possible, more diverse still. Darwin wrote a treatise on the expression of the emotions. This gives us what we may call the normal and physiological mode of expression. But consider how different in different persons will be the expression of the same emotion. A party was climbing in the Rocky Mountains. It was a heterogeneous sort of party; there were ministers, business men, and professional men. Suddenly they breasted a ridge and the Pacific Ocean burst upon their view. It was a great moment. "Hallelujah!" said the Methodist minister; "Glory to God." "Well, I'll be condemned!" said the stockbroker. It was the same feeling—the same spirit; there was difference of expression, of ritual—that is all.

With these premisses and provisos we may pass in review briefly some of the instinctive feelings as they arise, and see what guidance we may get from the consideration.

The first instinct is for activity and motion. Every nurse knows how much more easily a child's attention is attracted by a moving object than by still life. The same instinct persists all through childhood. If it is an object lesson, keep, if possible, active objects before the class. Better than a diagram to show the breathing of the lungs is a double bladder with a tube to it by which you can inflate and deflate; better than a stuffed bird is a live cat; better than a dried botanical specimen or a whole herbarium is a growing haricot-bean. Don't let your class-room be a mausoleum. Even in physics let the expanding power of heat be demonstrated by a toy steam engine. Whatever the subject, give them plenty to do themselves. If it is science, let it be heuristic; if it is language, let there be quick, sharp question and answer in the language taught.

It is boys of the sprightliest temper who are commonly fullest of mischief. Their mischievousness is really their attempt to enliven their surroundings. They are bursting and itching with life at every pore themselves, and they cannot abide the sight of everything torpid about them. They can raise more life by vexing folk than by doing serviceable acts. *Ergo* they do vexatious things; *ergo* they throw stones, because that flutters old stagers badly. If they cannot see the vexation and flutter they cause, still, they can enjoy it in the mind's eye. They will break a window on the sly, or steal a workman's tool, or fasten up his door, just to enjoy the thought of how he will fret and fume. Last week, in Edinburgh, I could see them at work in the streets. They were picking up the High Street, and after 6 the workmen went away, leaving some poor old fellow with a fire in a brazier in charge. What high old times those were for the street arabs, when they trundled off his wheelbarrow, upset the heaps of stone, sneaked his lanterns, or threw squibs into his sentry-box just to see him start! This is an instinct. We have to reckon with it. It is as strong in the Edinburgh student as in the Edinburgh street boy. Repress it or coerce it we cannot in any considerable measure. Turn it out with a pitchfork: it will still recur. But divert it we can into more useful channels; and gymnastics, wood carving, carpentry, and such manual classes are some of the ways in which schoolmasters have endeavoured to exploit it.

But more important than all the manual exercises in the whole pedagogic cyclopædia is that the teacher should himself be sprightly. Who tends fat cattle should himself be fat. Who teaches boys himself should be a boy. And one of the wisest things Dr. Arnold ever said was when, speaking of the corkscrew staircase which led to his sixth-form room at Rugby, he re-

marked: "When I can't run up that staircase I shall not attempt to teach boys any more."

Another instinctive feeling which comes to the front very early is *acquisitiveness*. Whatever the increasing altruism of the day may have done for us elder folk, your boy is no altruist. He has a veritable John Bull appetite for annexation. He likes to have things for his very own, and as many of them as possible. He is a born collector. He collects anything, from soap coupons and cigarette pictures to postage-stamps, play-bills, birds' eggs, butterflies, or door-knobs. The Kaffirs in South Africa, Mr. Nevinson tells us, collect boots. They have no special use for them; they just hang them round their necks as ornaments, and the man who goes about with the greatest number of boots round his neck is a proud man. Boys are like this: they collect for the sake of collecting; but the sagacious educator can pretty readily exploit this instinct to serviceable ends. Whatever he learns about the special objects he collects, the collector will, at any rate, learn some amount of patience and perseverance; he will get some idea of classification with all that this involves of nice discrimination, neatness, and order. All this over and above what he will learn about the actual articles he collects. And this will be considerable. A boy, who is still at school, began as a coin collector at a very early age. His father had an aversion to threepenny-bits; the boy rather liked them. That was how it started. It chanced that one day in Bond Street, with his nurse, he happened to pick up an old English coin; the chance directed his attention to this particular branch of coin-collecting, and by the age of sixteen he was an authority of the first rank on Ancient British hammered coins and a Fellow of the Numismatic Society.

Another instinctive feeling which develops at an early age with boys is the combative and emulative tendency. This finds its legitimate scope in football and field sports, which not only give scope to the instinct, but regulate and discipline it, and exercise with it other higher qualities of self-control, concentration, courage, and unselfishness.

May I be allowed to cite here what seems to me a typical instance of the way in which games at a good school educe and educe all that is best in a boy's feeling, and produce that indefinable something which we call "good form"? At the cricket match between Rugby and Marlborough, three years ago, when Marlborough had finished their second innings, only one hour remained, and Rugby had a hundred runs to make. Marlborough could easily have spun out the time, instead of which they were out in the field in a minute, and every time the field had to change, either at change of over or when a left-handed batsman faced the bowler, the Marlborough boys one and all ran to their places. Rugby made the runs, but Marlborough, though she missed the victory, gained the undying respect of her rivals, and won the honour of having upheld the best traditions of English games.

The school games, and all the organizing work that they involve, serve also as a field for another instinctive feeling which is found, at any rate, in all vigorous specimens of boyhood. They want to manage things for themselves. With quite young children how frequent it is to hear them say: "Now let me do it." "Let me try it by myself"! It is so all the way up. And school games, a cadet corps, athletic sports, and all the other branches of school activity, a debating society, a musical society, a chess club, a camera club, a scientific society, a school magazine, all afford splendid scope for this instinctive desire to manage. In fact it is here that you find that training in citizenship and affairs which you do find in English schools and will scarcely find in any others. Let it have scope; there may be hitches, there may be mismanagement; but in this, as in everything else, boys learn by making mistakes. As Mr. Chesterton says: "What is worth doing at all, is worth doing badly." The feeling for leadership is the counterpart of the feeling for comradeship. The one implies the other, and it is the boast of our English schools that in their sports and in their system of prefect government they have recognized both these natural instincts and utilized them for the purposes of the corporate life.

It is in the comradeship of games and school societies that the *social* instinct finds its satisfaction and its growth. That is another of the most strongly marked feelings in boys. It is not always positive in character; about the difficult years of 13 to 16 the social instinct is chiefly shown by a shyness which seems to shrink from society, but which really is a sign of how strong the social sense is growing. Masters may work on this for purposes of punishment. For instance, one of my Rugby colleagues, instead of setting lines in the summer term, used to require a boy to bring him so many dockweeds dug

up from the cricket pitch. It wasn't the digging up the boy minded; it was the publicity of the proceeding, and I have known boys get up at unearthly hours of the morning to fulfil the stern mandate. Key used to punish a boy in this way. He would have him up before the whole school, and make him first take off his coat and then wear it inside out. Thring used to make the boys who were late for morning assembly come up before the whole school and sign their names solemnly in the register beneath his very eyes—a much worse ordeal for a boy than to be beaten with many stripes.

But this method of punishment must be used with great caution. It is quite easy by means of it, without meaning it and without knowing it, to injure a boy's self-respect; and self-respect, like a human tooth, has a sensitive enamel coating—the slightest scratch on the surface opens the door to a process of corruption and decay which it is no easy matter to arrest.

This raises the whole question of punishment in schools, a question on which I do not propose to enter. I will only say that there is no duty which needs so much sensibility on the part of a master, so much appreciation of a boy's own feeling. So many boys are good fellows and gentlemen in feeling and fools on impulse. Our danger as masters is twofold—on the one hand over-severity. It is a great mistake to treat a boy as though he were a bad lot altogether. Few boys—very few—are that. To treat a boy as such is the best way to make him into a bad lot. On the other hand, over-strictness is far better than slackness. I am no friend to coercion; but coercion is better than idleness, and punishment is better than evil or vicious habit. When a boy does wrong, the better part of that boy knows that he deserves punishment. If you let him down too lightly, the better part of him is disappointed in you, the worse part of him rejoices in its impunity. Let love here reinforce with all its power the better side, even though it takes the form of extreme severity. More than anything else this tests the right balance and discrimination of a master's "sensibility," and greater perhaps than any other reward in our profession is the love and respect in after life of a boy whom you have expelled from school. Prior, in one of his ballads, prescribes the way in which a man should treat his wife.

Be to her faults a little blind,  
Be to her virtues very kind.

This may, or may not be the proper way in which to treat a wife. That does not concern me now. I am certain that as regards schoolboys the first part of the maxim is quite wrong. Never be blind to his faults. But the second clause is admirable. Be very kind to his virtues. We lose our power over a boy when we degenerate into mere fault-finders. I am afraid our marking system rather encourages this, and when boys read their terminal reports I think they must often feel that our eye has been keener to detect failure than merit, that they have had

All their faults observed,  
Set in a note-book, learned and conned by rote  
To cast into their teeth.

Boys have an instinctive love of praise. Don't stint praise where praise is deserved. Some boys, and many of the better sort, are easily discouraged—they come to something stiff, they make a failure, and they are only too apt to say: "It's no use trying." Take any chance such a boy gives you of praising him. Fortunately he is as easily encouraged as discouraged.

What thou wilt  
Thou sooner shalt enforce it with thy smile  
Than hew to it with thy sword.

This is, I think, specially true of higher work. In teaching higher composition I found it had immense effect on some boys to tell them what were the best points in their compositions as well as the worst, and whenever a boy flashed out into something really good to adopt it as my own fair copy, or, at any rate, commend it as a good variant, when dictating the fair copy to the set. Don't put the blind eye to the telescope when there is any sign of excellence. Greet it as the heroes of faith greeted the promises "from afar." Give it its due meed openly before the class or before the school—

One good deed dying tongueless  
Slaughters a thousand waiting upon that.

There was one other point which I intended to treat. It was the question of humour and the value of a pervasive humour in putting a master *en rapport* with a boy; also the limitations of its use. But, being a Scotchman, perhaps it would be less painful for you if I left this untouched.

I do wish, in conclusion, to say one word on the discipline of



the feelings. In this more than any other question wise discrimination, right balance, due regulation are required. Indiscriminate indulgence is fatal.

I have laid stress on the importance of finding for each interest as it awakes in the growing boy an appropriate scope, appropriate objects, and the danger of either stunting the whole manhood, if no such scope is afforded, or of perverting manhood if the interest finds a vicious or unnatural channel of expression. It is also necessary, first of all, to keep the due balance between feeling and actions, and, secondly, to have all feelings, instincts, and due subordination to that great arbiter, *the will*, which stands behind all our ideas and impulses and acts. First, the balance between feeling and action. Nothing is further from my intentions than to produce an "emotional" creature, the sort of effusive namby-pamby, common in London, who goes to concerts and sermons, sits in comfortable ease and enjoys the titillation of the senses, emotional and spiritual, but allows the whole of the emotional impulse to melt into thin air without ever allowing it to translate itself into honest effort. It is for this reason that I profoundly distrust a musical education or an artistic education of any kind. I believe that it does not tend to produce stable and virile character.

Nor do I want to produce a creature incapable of doing anything that is disagreeable. In saying that we should take all advantage of a boy's *likes*, I do not mean that he should be taught to do nothing except what he likes. On the contrary, I believe that to endure hardness is an essential part of every training, and every child should have to do every day, as part of its training, something which it heartily detests. And for this there must be *compulsion*, there must be fear; only I would not have fear the main element.

Nor do I hold that one like is as good as another. The mind that admires a display of fireworks, a grandiose procession, or a street of showy shop-windows, is of a far lower calibre than one which admires the budding of a flower, the sunset, the plunge of a diving bird, or the graceful bound of a deerhound.

It seems to me that feelings become wrong through being put in their wrong place, when they are not related to a higher principle and subordinated to the supreme law. The mother who loves her son so much that she cannot bear to let him endure punishment or suffer hardship is no mother, but a curse, to her child. The mother who for ambition's sake prompts her son to deceit and aids him in it is also criminally foolish. But the error in both is not that they love their boy too much, but that they love him too little; that they do not love the best in him and desire the best for him. Such love in a mother is selfishness, even though she say with Rebekah: "Upon me, upon me be the curse." It is a species of idolatry, because it puts the lower in the place of the highest, and the highest is that which is writ large on the base of Wellington's statue in the Guildhall, and writ large in the story of our island race—it is the law of duty.

"The test of being educated," says Herbert Spencer, "is, Can you do what you ought; when you ought; whether you want to do it or not?"

Mr. KING thought that the disappearance of "bullying" from English public schools was not due so much to any progress in moral development as to the increased supervision now exercised by the masters. The methods of education at present in vogue tended to soften the character and unfit boys to face the difficulties that they would have to contend with in after life.

The CHAIRMAN thought that practical teachers were agreed as to the value of the feelings in education, but caution must be observed in appealing to the sensibility of children, or their studies would be detrimentally affected. Thus, excessive regard to the beauties of a flower used to illustrate a lesson in botany might result in the cultivation of the artistic sense, but would hardly conduce to the acquirement of the exact knowledge of the parts of the flower and their functions which was the more immediate object of the lesson. History lessons, again, were more interesting if the children's sentiments were aroused, but an undue indulgence in such sentiment prevented them from acquiring a real grasp of the historical facts which formed the subject of the lessons. The lecturer had rightly pointed out that the idea that children were naturally cruel was erroneous, and that conduct which was often ascribed to cruelty was really due to inability to comprehend pain of which they had had no experience. On the other hand, children, although lacking in sympathetic feeling, were keenly sensitive to the sympathy of other people, and in some instances showed a quite inordinate craving for such sympathy. He was able from his own experience to endorse what the lecturer had said as to the improvement that had been effected in schools through the change of attitude between masters and pupils. Some teachers, however, found it difficult

to be familiar with their pupils without sacrificing their own dignity, and it was necessary that the teacher should have a good knowledge of the character he was dealing with in order that he might know to what extent it was advisable to sympathize with the pupil's difficulties.

Mr. PATON having replied, a vote of thanks to the lecturer concluded the proceedings.

## CORRESPONDENCE.

[We do not hold ourselves responsible for the opinions expressed by our correspondents.—ED. E.T.]

### REGISTRATION AND THE SUPPLY OF TEACHERS.

To the Editor of the Educational Times.

SIR.—It is quite beyond dispute that the present supply of graduate men teachers is altogether insufficient in number and in quality to meet the demand. The principal scholastic agents have been emphasizing this fact for some years, and, to show how acute the difficulty is becoming, I instance a recent case in which a head master had six applications for a vacant post which a year or two ago would have attracted perhaps sixty candidates. The reason is not far to seek. In the past teachers have been poorly paid for arduous work, and, now that the entire conditions of service have come under discussion and have for a time been uncertain in respect of increased severity, young graduates seek other careers.

The proper training of teachers is very desirable, but it is necessary to distinguish between what is ideal and what is practical. Many of the most ardent and worthy advocates of registration who are pressing for severe conditions of registration, and who would drive all future teachers into the training college, are, unfortunately, either connected with large schools well and easily supplied with assistants, or have, by reason of their position, no practical knowledge of the difficulties besetting the heads of the smaller secondary schools; and, if these theorists are not to prevail, they must be brought face to face with the practical difficulties of the situation.

The Order in Council for regulating the registration of teachers shows that after three years the conditions to be fulfilled by a teacher desiring to be placed in Column B (the list of secondary teachers) of the Register, are roughly these: (1) University degree; (2) training college year; and (3) trial year, with the alternative to the second condition that, instead of passing a year at a training college, it may be passed, under certain conditions, as a student-teacher at a recognized school.

With the exception of this alternative to the second one, these conditions resemble exactly those which prevail in Prussia; but it should be explained that previous to the year 1890 the Prussian training-college year (*Seminarjahr*) was not obligatory, but was added chiefly because so many candidates were seeking appointments in the higher schools, and it was desirable to lessen the number by increasing the difficulty of qualification, the immediate effect being to reduce the number of applicants for higher posts from 500 to 180.

In Prussia then the conditions of qualification of secondary teachers were regulated to some extent by the supply, and it would be absurd for us to adopt similar conditions without similar consideration.

The Prussian qualified secondary teacher is practically sure of employment; he has a liberal allowance during temporary ill-health, and finally he receives a pension. In England one is afraid of being "too old at forty"; nowhere is there security of tenure, as the recent dismissals at the Merchant Taylors' School very painfully show; there is no pension in old age. The reasoning which would demand, in addition to the University course, a further year of unpaid preparation may be ideal, but it certainly is not practical.

In England any secondary men's training institutions that we have appear to be tentative and experimental in organization, and it is altogether too much to expect that the University graduate will readily rush in and provide means for rendering them efficient. They must be the growth of time. At present they would generally fail to attract men who, in the majority of cases, have with difficulty found funds for their University course, and who, wanting value for money, as most Englishmen do, will hesitate before incurring further expense for pecuniarily speaking, so small an ultimate result.

It appears to me that the safety-valve of the present situation is that condition which in the Order in Council is allowed as an alternative to the training college year—namely, the year as student-teacher in a recognized school.

Those strongly in favour of pressing forward at this present crisis the claims of the training college would like to see the word "unpaid" inserted before "student-teacher"; but, failing this, their efforts will no doubt be given to adding to the difficulty of the conditions on which schools may receive student-teachers.

Any raising of the conditions will bear heavily on many graduates wishing to become qualified teachers, but it would especially affect that class of assistants, often very helpful in the smaller secondary schools, who take their degree at a University not demanding residence.

The whole alternative clause runs thus: "He must have passed an approved examination in the theory of teaching, have spent at least one year as a student-teacher, under supervision, at a recognized school (not being an elementary school), and have produced evidence of ability to teach."

If the candidate must produce evidence of his ability to teach, it can be produced (1) by the practical examination of the candidate himself, and (2) by the examination of the pupils under his care. The first method would suit a graduate, who, in addition to gaining his certificate in the theory of education, might practise as a student-teacher and obtain a certificate of ability to teach from an institution not requiring residence, such as the College of Preceptors.

I suppose that many non-graduate teachers will still find employment even in recognized schools, and, as these often take their degree, without residence, at London or at the Royal University of Ireland, after some years of teaching experience, I see no reason why their work in a recognized school should not be taken as evidence of their ability to teach.

I venture to urge, then, that the alternative clause should be freely interpreted, and that a candidate who can show a certificate granted by an institution such as the College of Preceptors, in the theory and also in the practice of education, should be allowed as much latitude as possible in the choice of the place where he should gain his knowledge and experience,—I am, &c.,

A. MILLAR INGLIS.

The College, Maidenhead, Berks, April 21.

#### ADMISSION AND REMOVAL OF PUPILS: UNIFORMITY OF CONDITIONS.

*To the Editor of the Educational Times.*

SIR,—With your permission, I should like to invite principals of private schools to send me copies of forms of admission of pupils, and also any newspaper or other reports of law cases in which judgment had been given relative to disputes between parents and head teachers respecting the removal of pupils.

Representatives of the Head Masters' Association, of the Preparatory Schools' Association, of the Private Schools' Association, and probably of the Association of Head Mistresses, are to meet shortly to try to come to some general agreement as to the conditions of admission and removal of pupils, and it would be very helpful to me, as representing the Private Schools' Association, if the request I have set forth in the beginning of this letter were to meet with hearty response. It seems hardly necessary to point out how generally advantageous it would be if, in the points referred to, uniformity of conditions were to prevail throughout the profession.—I am, &c.,

A. MILLAR INGLIS.

The College, Maidenhead, Berks, April 22.

#### PROFESSOR MEIKLEJOHN.

WE regret to have to announce the death, on April 5, in his 72nd year, of J. M. D. Meiklejohn, M.A., Professor of Education in the University of St. Andrews, who had been for more than a quarter of a century a member of the College of Preceptors and of its Examining Board. In the early years of the movement for the training of secondary teachers in connexion with the College, Prof. Meiklejohn played a conspicuous part: he took up the work of lecturing on the Practice of Education to a large audience of teachers when the Rev. R. H. Quick was obliged by ill-health to resign the professorship to which he had just been appointed.

Prof. Meiklejohn's career was more than ordinarily interesting and varied. His father was an Edinburgh schoolmaster, and it was at his school that young Meiklejohn received his education and preparation for the University of his native town, where he highly distinguished himself, obtaining the gold medal

for Latin. For some years after he left the University he was engaged in teaching and in literary work, one of his earliest productions being a translation of Kant's "Kritik der reinen Vernunft," a remarkable performance for so young a man. For two years he was employed as an Assistant Commissioner under the Endowed Schools Commission, and in the year 1876, when the Chair of Education was founded in St. Andrews University, he was appointed to the post, which he filled to the day of his death. His position as Professor of Education, his personal experience of the requirements of schools, and his special literary faculty explain the remarkable success of the series of educational works in various departments which he published in rapid succession, and which are still in very large demand.

It is interesting to note that his scholastic experience was gained largely in private schools; for some years he was Principal of Bowdon College, near Manchester, and afterwards of a preparatory school in Bayswater. It was, however, as a public lecturer that Prof. Meiklejohn's gifts were most conspicuous, and those who many years ago, at the College of Preceptors and elsewhere, had the privilege of listening to his lectures on English literature, and remember his impressive personality, his eloquent exposition, and his ringing voice, may possibly regret that his exceptional rhetorical gifts were not more in evidence. He has left a large family of sons and daughters, but we are not aware that any of them has elected to adopt the father's and grandfather's profession, and hand on the torch to future generations of teachers.

## REVIEWS.

### WHAT NEXT?

*The Discovery of the Future.* By H. G. Wells, B.Sc.  
(Fisher Unwin.)

If Mr. Wells raised "anticipations" by the subject of his discourse at the Royal Institution (January 24), it would be interesting to learn how far he succeeded in satisfying them. In the imaginative sphere we can all build our castles in the air, very much to our satisfaction; and in fiction the artist can forecast and fulfil within wide limits of speculation. But when one comes to the scientific handling of the business the results appear to be somewhat elusive.

Granted two general types of mind, the one looking backward and the other straining forward—call them "legal" and "creative," or oppose them under any other names—why, asks Mr. Wells, does the first prevail? "Though foresight creeps into our politics, and a reference to consequence into our morality," he says, "it is still the past that dominates our lives. But why? Why are we so bound to it? It is into the future we go; to-morrow is the eventful thing for us." But "foresight"—in the sense of "the broad creative idea"—is no new thing in politics, ours or other people's: though "beneath the legal issues the broad creative idea has been very apparent in the public mind during this war," was the idea any less apparent, say, in the Scottish War of Independence, or in the Punic Wars, or in the annexation of the vineyard of Naboth the Jezreelite? Again, is not morality the very child of reference to consequences? As for the hold of the past upon us, Mr. Wells himself cannot but acknowledge the force of our experiences, such as they are, in our interpretation of them. Our "impression of the superior reality and trustworthiness of things in the past" is no doubt "one of the results of the peculiar condition of our lives"; and, if it is "not an absolute truth," we shall hold it none the worse for that so long as we remain in "the peculiar conditions of our lives" and find no better guide of our steps. "The man of science," Mr. Wells assures us, "comes to believe at last that the events of the year A.D. 4000 are as fixed, settled, and unchangeable as the events of the year 1600"; yet he adds a rather important distinction: "only about the latter he has some material for belief, and about the former—practically none." But he does not assess the value of a belief that is confessed to have practically no basis. Such a belief may be perfectly right, but it can scarcely be claimed as a triumph of "scientific" investigation or of "intellectual methods."

However, Mr. Wells proceeds to inquire "how far this absolute ignorance of the future is a fixed and necessary condition of human life, and how far some application of intellectual methods may not attenuate, even if it does not absolutely set aside, the veil between us and things to come." And he suggests

"that along certain lines, and with certain qualifications and limitations, a working knowledge of things in the future is a possible and practical thing." To be sure, since the sixteenth century we have come into "a new and more critical way of looking at things"; Owen could build up an extinct animal from a bit of bone, and we can all, like Mr. Wells, believe in the *Megatherium*, which we have never seen, as confidently as we believe in the hippopotamus that has engulfed our buns. Adams and Leverrier calculated the spot and the moment for the discovery of Neptune. But when it is a question of "the future," outside the range of physical induction, our anticipations must be modest. "Suppose," however, says Mr. Wells, "the laws of social and political development, for example, were given as many brains, were given as much attention, criticism, and discussion, as we have given to the laws of chemical combination during the last fifty years—what might we not expect?" Well, that depends on our knowledge and temperament. Mr. Wells expects a vast deal more than we should expect. There have been very diligent, astute, and numerous theorists and practitioners in both these spheres during the last fifty years, and their conclusions do not encourage prophecy. We should recommend him to study, for example, the sixth chapter of the first volume of Mr. Bryce's "Studies in History and Jurisprudence," on the predictions of Hamilton and Tocqueville as to the future of the constitution of the United States. "The Republic fared far otherwise than as Hamilton and his friends either hoped or feared," and very differently also from the prognostications of Tocqueville. And so in many other cases. Who shall predict whether the Education Bill will pass? Where are the prophets of the South African War? Yet in both cases the essential facts seem peculiarly accessible for a basis of forecast. Of course, a careful study of the pertinent facts, with due precautions against error—a just application of scientific method to social and political facts—must do something to clear and steady one's vision. But Mr. Wells seems to hope for a good deal more from "a systematic exploration of the future." He sees the point of difficulty clearly. "Directly man becomes a factor the nature of the problem changes." Is man, then, "indeed, individually and collectively, incalculable"? Individually, he is; collectively, perhaps, not altogether. "The knowledge of the future we may hope to gain will be general, and not individual." Here, to begin with, is a far-reaching limitation of our prospects.

"How far, then, is it possible at the present time to speculate the particular outline the future will assume when it is investigated in this way?"—"scientifically" investigated, we presume, with a view to discovery of "general" knowledge of the future. Demolishing the Comtist notion of "any millennial settlement of cultured persons," Mr. Wells comes upon the fact "that man is not final," and this, he says, "is the great, unmanageable, disturbing fact that rises upon us in the scientific discovery of the future." Modestly, however, he acknowledges his inability to solve the question, "What is to come after man?" and accordingly he turns to "the nearer future, while man is still man." What, then, does he see through his telescope? A "mere irresponsible suggestion" of two years ago turned into a pretty general belief, even into a commonplace with Cabinet Ministers, "that our dense populations are in the opening phase of a process of diffusion and aëration." There does not seem to be much credit to prophecy in this example. Also "it seems pretty evident that the mass of white and yellow population in the world will be forced some way up the scale of education and personal efficiency in the next two or three decades." This is so "general" as to be practically useless. But further:—

It is not difficult to collect reasons for supposing, and such reasons have been collected, that in the near future—in a couple of hundred years, as one rash optimist has written, or in a thousand or so—humanity will be definitely and consciously organizing itself as a great world State: a great world State that will purge from itself much that is mean, much that is bestial, and much that makes for individual dullness and dreariness, greyness, and wretchedness in the world of to-day.

We find no balancing of opposing probabilities, but again the vagueness renders the conclusion wholly barren. Moreover, there is no "scientific" demonstration of this "great world state"; it is but "the sanguine necessity of our minds that makes us believe" in its eventual emergence. Thus, inevitably, Mr. Wells feels himself driven, step by step, to drop "scientific" discovery and "intellectual" methods, and to acknowledge that his speculations are "built finally upon certain negative beliefs that are incapable of scientific establishment," and particularly upon the belief "that neither humanity nor, in truth, any individual human

being is living its life in vain." The "scientific" process and the "intellectual methods" are calmly abandoned. And the inane result of the whole inquiry comes at last to this: that "it is possible to believe that all the past is but the beginning of a beginning, and that all that is and has been is but the twilight of the dawn"—"that all that the human mind has ever accomplished is but the dream before the awakening."

Seldom, if ever, has an audience at the Royal Institution—or elsewhere—solemnly gaped at such vacant bubbles. How many of them came away the wiser about "the discovery of the future," or took home with them any fresh inkling of "a working knowledge of things in the future," scientific or otherwise?

## EX CATHEDRA.

(1) *Thoughts on Education*. By Mandell Creighton, D.D., sometime Bishop of London. Edited by Louise Creighton. (Longmans.)

(2) *Pastor Agnorum: a Schoolmaster's Afterthoughts*. By John Huntley Skrine, Warden of Glenalmond. (Longmans.)

We have coupled these two volumes, published almost simultaneously, because they both profess to give the mature experience of an educator. Dr. Creighton will be remembered, first and foremost, as an historian, and next as a bishop of extraordinary activity and versatility, whose life was not spared long enough to show his full powers as an administrator and a Church reformer. But Mrs. Creighton tells us that education "was a subject of practical interest to him during the greater part of his life," that "he was a born educator," and that he often said himself: "I am nothing if I am not educational." Mr. Skrine is one of the fifty (or hundred, in the last edition) Victorian laureates, and an Oxford Newdigate, but he will be better known to our readers as the author of two charming monographs, "Uppingham by the Sea" and "A Memoir of Edward Thring." First a pupil, and then a master, at Uppingham, he has followed closely in his great master's footsteps.

The first volume, with all respect to the eminence of the author, need not detain us long. The addresses, with two exceptions, are merely reprints of newspaper reports. Excellent as impromptu (half a sheet of note paper, so Mrs. Creighton tells us, represented the maximum of preparation) and for their immediate purpose, they throw little light on the problems that most exercise us to-day. Though the style is easy and fluent, there is hardly a sentence or a turn of thought that clings to the memory; and, except as another proof of Dr. Creighton's ready wit and geniality, the book will not add to his fame. In theory, in systems, in professional training, Dr. Creighton has a profound disbelief. Teaching itself he holds to be "an incommunicable art." After the "three R's" he would have "no definite subjects taught at all, but, instead, things in general." "The body which has to do this kind of work for the community [the work of real education], there can be no doubt about it, is the Church." The random utterances we have quoted suffice to show that we who call ourselves educationalists—an "offensive" name, we may admit—take a different view of the problem from that of the Bishop. While freely acknowledging with him that the relation between the individual teacher and his pupil is of more importance than any system, and that the main part of teaching is to inspire a love of knowledge, we hold, no less firmly, that education is an art, based on science, reducible to rules, and communicable in the same degree as the art of medicine or of war. It is hard to understand how so able a man can have failed to grasp what seems to us so obvious. The simple explanation, we take it, is that Dr. Creighton was never a schoolmaster. The best of lecturers and private tutors may make the worst of form-masters.

Mr. Skrine, like Dr. Creighton, is somewhat sceptical as to pedagogics, and is careful to tell us that he is not composing a treatise on education, but he knows at first hand what he writes about, and with all our belief in theory we gladly sit at the feet of an *abnormis sapiens*, one who has consciously or unconsciously imbibed the first principles of Froebel and Pestalozzi. Mr. Skrine is a poet, and his doctrine is wrapped up in poetical allegories, images, and metaphors. In saying this, we do not intend to imply either that his meaning is obscure or that he confounds the separate arts of prose and verse composition. His prose is vivid and pictorial, but plain and unaffected. There is much we disagree with, but we cannot too highly commend his delineation of the "very perfect gentle" schoolmaster.

Let us see how Mr. Skrine stands the test of turning his imaginative and graceful poetry into bald, matter-of-fact prose. He may, indeed, object, on principle, to the test, and call in aid the authorities who tell us that a paraphrase of poetry is an.

impossibility, and that such an exercise as we set in our last number is an absurdity—"you seize the flower, its bloom is shed." Still, we stick to our guns, and, while awarding extra marks for excellence of style (to borrow the language of the schools), insist that the essays must be classed mainly according to the value of the ideas they contain, the truth of the theories they expound. We will choose for analysis the chapter entitled "The Parent, a Neglected Factor in Education," guided solely by the consideration that the subject is less trite than most of those treated in the volume. Here, then, is a brief *résumé* of the argument, which is couched in the form of a dialogue:—

Professors of pedagogy neglect the *crux* of the whole matter—the relation of parent and master. The ordinary master ignores one-half of his duty—the education of the parent. It is true that parents differ so widely in character and morals that it is impossible to treat them as a class; but they may, and should be, dealt with individually. The head master should make a point of seeing the parent—at least once—so as to establish a personal relation, and he should write to him fully at any turning point in his son's career. More than this cannot be expected of him; he has not the time. A *nevus* must be established; for the rest he must trust to chance and circumstance. Public schools may appear to an outsider a violation of nature in that they divorce a boy from his home; but they are justified by their results. A boy can grow to more in them than if he stays at home.

Now this argument tacitly assumes that the English public school is, or may be made, an ideal institution, and that its imperfections are due solely to the frailties and shortcomings of those that work it. The chapter begins with a sly hit at the College of Preceptors, and to talk of founding a Chair of Pedagogy seems to Mr. Skrine to show a lack of humour. We cannot help thinking that, if Mr. Skrine had sat under Dr. Findlay, or even attended a Winter Meeting at the College of Preceptors, he would have remembered that in "the land where philosophers be" this ideal public school is virtually unknown, and that some of the best thinkers among ourselves (not all of them Preceptors) look to the day school as the ideal school of the future, capable of combining all the advantages of home and cloister.

There is another assumption that runs not only through this chapter, but through all the book, and that is the autocracy of the head master. Mr. Skrine is not content that the head master should be *primus inter pares* (he says so *totidem verbis*); he would have him prophet, priest, and king. One of the objections urged in this essay against frequent correspondence with parents is that it would compel the head master to "toss over every detail which is indifferent to morals to a chief of the staff." Morals are the inalienable prerogative of the head, "a province with which no subordinate can be entrusted." This radically false conception of the relations between a head master and his assistants (for such we hold it to be) vitiates much of Mr. Skrine's theory. The *nevus*, if it is to be what Mr. Skrine desires—a co-trusteeship and not a mere business contract—must be between the parent and the boy's house master or tutor, not his head master. It is possible to stand *in loco parentis* to twenty or thirty boys; it is impossible to do so to two or three hundred. Only long use and wont can have reconciled us to that monstrous pluralist, the head master of a great public school, at once general manager and supervisor, chaplain, sixth-form master, and house master of probably the biggest boarding-house in the school, with a larger income than a bishop and the prospect of a bishopric as a retiring pension.

Let us be just. It is clear, from the whole tenour of the volume, that Mr. Skrine would repudiate this actual portraiture as his ideal. His head master, like Carlyle's King, rules by no divine right, but solely by virtue of his *caunting*:—

Let us suppose our Round Table has been set up in the school of our dreams, and an order gathered round it. Every master has a seat at it and counts for one. Even the King (for the roundest table must admit this one distinction) counts for one as knight, and when he counts for more, as the Grand Master of an order must, it is not for two or three he counts, but for all; he claims more than another only because he claims it in the name of the whole.

We have no doubt that Glenalmond under its present Warden is such a Round Table. The mistake Mr. Skrine makes is in thinking that the majority of head masters are like himself; that King Arthurs are, or may be, the rule among monarchs. *Ich dien* must be the badge of all our tribe, head masters and assistants alike; but, the more he is eager to do true service, the less will a man of independent temper be willing to take a post from which he can be ejected at the will and pleasure of an autocrat.

A recent incident that was brought to our notice may serve as a pendant to Mr. Skrine's "Idylls of the King." A beardless head master enters a class-room and finds a Latin lesson proceeding when Greek was down in the time-table. He thus addresses the form master, a man twice his age: "Mr. Jones, you are paid by the Governors to carry out my instructions, and, if you neglect them, you must expect to be reprimanded. Boys, put away your Cæsars and get out your Xenophons."

#### HEALTH IN THE SCHOOL.

*Hygiene for Students.* By Edward F. Willoughby, M.D. Lond. (Macmillan.)

Although the subject of health is one that appeals to all, there are special departments of hygiene which are devoted to special conditions of life: thus, there is the hygiene of the home, of the city, of the workshop, of the school, and so on. As, with the increasing complications of civilized life, these departments become more highly developed, so the laws regarding their health become more elaborate, and the special knowledge more exact. In this new edition of a well known text-book, Dr. Willoughby has endeavoured to embrace all these departments in one manual. For the examination candidate this is doubtless a wise arrangement, but for practical purposes it is obvious that a number of smaller manuals, each on its special department, would be more useful. For a general work of reference, however, it is excellent. The chapter on "School Hygiene" is somewhat disappointing, leaving several points untouched; not, apparently, from lack of space, since country holiday funds are discussed, as well as the comparative mental abilities of men and women. The treatment of infectious diseases, the lighting of schoolrooms, and the question of desks are all thoroughly dealt with. We would particularly draw attention to a table showing the right measurements of desks for scholars of varying heights. Such a table would be of great service to teachers who are provided with adjustable desks, but do not know how to adjust them, or forget to do so; for a desk that is fixed wrongly is far more unhygienic than the ordinary chair and table. In the question of lighting, a North aspect is advocated. This is doubtless best when an even light is wanted for drawing; but sunshine is too important a factor in the lives of children to be excluded from their ordinary schoolroom.

## GENERAL NOTICES.

### CLASSICS.

"Blackie's Illustrated Latin Series."—*The Phormio of Terence.* Edited by W. Cecil Laming, M.A.

Mr. Laming's introduction (27 pages) sketches the ancient comic drama, tells of Plautus and (at greater length) of Terence, describes the Roman theatre, outlines the plot of the "Phormio," and explains the Terentian metres. The text lays no claim to being critical; it follows in the main Hauler's revision of Dziatzko's edition. A few troublesome passages, however, are briefly considered in an appendix. There is no attempt to give stage directions, which form an interesting and helpful feature of Mr. Sloman's careful edition (Clarendon Press). The explanatory notes are full, accurate, and pointed. We cannot but think that Mr. Laming unnecessarily perpetuates the difficulty about *initiant* (Act I., Sc. i., l. 15). Though "the ceremony [of consecration on weaning] was a purely Roman one, and Terence is not likely to have found a reference to it in his Greek original," surely that can be no valid reason against a reference to it by Terence; and the alternative explanations seem to us to involve greater difficulties. There are 22 illustrations, mostly reproductions from the Vatican MS. These add greatly to the usefulness of the book. Altogether a careful, scholarly, and serviceable volume.

"Bell's Illustrated Classics."—*P. Ovidi Nasonis Tristium Liber Primus.* Edited by A. E. Roberts, M.A.

In a brief introduction Mr. Roberts gives the chief events in Ovid's career, a descriptive list of his writings, an analysis of the first book of the "Tristia," and a concise explanation of the metre. He breaks up the poem into sections, placing at the head of each a summary of the contents. The notes are ample, instructive, and suggestive. In appendices will be found a useful description of a Roman book (figured from a Pompeian wall-painting on another page), a map of Ovid's journey to Tomi, and a classified list of such grammatical and rhetorical usages in the text as seem worthy of special note. The vocabulary obviates the need of a dictionary, but the book may be had without it. There are nearly thirty well chosen illustrations. Mr. Roberts's Latin is better than his English.

## MATHEMATICS.

*Spherical Trigonometry.* By the late I. Todhunter, M.A., F.R.S.  
Revised by J. G. Leatham, M.A., D.Sc. (Macmillan.)

In its present revised form the well known work on spherical trigonometry by the late Dr. Isaac Todhunter has been very much enlarged and improved. Dr. Leatham has undertaken the task of reviser in a spirit that must call forth the thanks and admiration of all students that cherish a feeling of affection for and a sincere appreciation of the thorough, patient, and untiring investigation that marks all Dr. Todhunter's work. Nothing has been altered for the sake of alteration. The many changes and extensive additions which now bring the book into touch with the present state of the science enhance the value of the work in proportion as they increase its size. Special features of the new volume are the introduction of fresh and very valuable chapters on "Spherical Geometry" and the careful development of the principle of duality in connexion with circles on the sphere. The reviser has treated the theory of systems of coaxial circles in a manner that gives prominence to the analogy between such systems on the sphere and on the plane. Separate chapters at the close of the book are devoted to the generalized spherical triangles and to the application of determinants to spherical geometry. The numerical examples of the solution of triangles are placed in the chapters they naturally belong to, and not, as in early editions, at the end of the book. This rearrangement is a distinct improvement.

*Complete Mental Arithmetic for the Senior Division.* By James Lamb, F.E.I.S., F.S.A. (Scot.). (McDougal's Educational Co.)

This is a very good little book on mental arithmetic. It gives in clear and concise form the principal rules for the rapid and accurate performance of arithmetical processes, and for the solution of ordinary arithmetical problems. It contains also a large number of useful exercises and test papers, to which a time limit is attached. The answers are not included in the volume itself, but a "Teachers' Book" has been issued. The large type and serviceable binding selected for so inexpensive a publication deserve a special word of praise.

## ENGLISH LANGUAGE AND LITERATURE.

*Shakespeare: Julius Cæsar.* Edited by M. J. C. Meiklejohn, B.A. (Holden.)

"The first of a series edited under the general editorial supervision of Prof. Meiklejohn"—who, alas! is now no more. The apparatus of explanation and commentary is very complete. The introductory matter (19 pages) sets forth the probable date of the play (we should put it at least a year earlier), the source of the materials, the duration of the action, the dates of the historical events referred to, the details of the plot and a summary as well, and an account of the chief characters both as represented in the play and as known to history. The notes on the text are generally serviceable, though some of them might have been spared. Besides, there are good notes on scansion and on old or unusual grammar, and useful lists of the anachronisms and of the chief historical inaccuracies in the play. Add to all this a series of nine examination papers and an index to the notes on the text. "In O.E.," no doubt, "the infinitive ended in *an*; later, in *en*." But is it the fact that "then the Danish fashion of using *to* was introduced"? The Danes had no "*to*" to use or to lend us; and our "*to*" has surely been otherwise satisfactorily accounted for. Then it seems much too sweeping to say that "in the time of Shakespeare the *to* was employed or was omitted at pleasure." Again, in Act III, Sc. i., l. 262,

"A curse shall light upon the limbs of men"

—Mr. Meiklejohn (with others) thinks "*limbs* is probably a corrupt reading"; for "'domestic fury' and 'civil strife' [next line] would not affect the limbs of men." No? Then read on. Besides, "*limbs*" is not to be prosaically restricted to arms and legs: cf. Vergil, "*Æneid*," III. 137, where Conington translates *membra* "the human frame," and no critic proposes an emendation. In spite of all the "proposed readings," the text is plainly sound. Once more: Augustus died, not "in the seventy-seventh year of his age" (page xvii.), but 35 days short of 76: "septuagesimo et sexto ætatis anno diebus v. et xxx. minus," according to Suetonius. Such slips, however, detract but little from the comprehensive usefulness of the book.

*Composition and Rhetoric for Higher Schools.* By Sara E. H. Lockwood and Mary A. Emerson. (Ginn.)

The school system of the United States lends itself more completely than ours does to the systematic teaching of English composition. The book before us begins with a brief review of the chief rules of grammar and punctuation, followed by some exercises in paraphrase and retelling the thoughts of others. A good example of how not to do it is quoted from a pupil's version of a well known passage in "The Lady of the Lake": "But, before he took his swift racecourse, he shook off the dewdrops from his fleshy sides, and, like a proud and tall leader with a coat-of-arms, tossed to the sky his little front with its many beams." The more difficult problem of telling one's own thoughts is sensibly attacked. Among other contrivances may be mentioned the use of pictures (such as Stratford-on-Avon, Cromwell refusing the Crown, the Laocoon Group) as subjects for paragraphs. Pupils are first to write rough notes on the points to be observed, and then to work them up.

A good hint is: "Describe a place as if you were the only person who knew about it." A good deal of space is devoted to the important point of securing unity and coherence in the paragraph. The "topic-sentence"—that is, the sentence conveying the central idea—is specially dwelt on. One point in the arrangement of the book is striking as an illustration of the growing influence of the point of view of the "reformed" method of teaching modern languages. Exercises on the correction of ill-expressed sentences, and on the proper use of words involving some difficulty, follow those which involve the expression of thought in a story or paragraph. The authors have, in fact (perhaps unconsciously), reversed the order of the traditional method of teaching the classical languages.

## MODERN LANGUAGES.

*The French and English Word-Book.* By H. Edgren and P. B. Burnet. (Heinemann.)

The characteristic feature of this dictionary is the method of indicating the pronunciation. Transliteration, both phonetic and conventional, is (as far as possible) avoided, and the sounds of letters are indicated, for the most part, by symbols—like dashes, dots, &c.—placed under the letters, on the same principle as the *cedilla*, and by printing mute letters in italics, and occasionally by using special letters, as *E* for the *e* in *le, menace*, &c. The date of the introduction of a word is indicated by small figures, as *Huguenot*<sup>15</sup>, meaning that it dates from the fifteenth century. In the French-English part the Hatzfeld-Darmstetter-Thomas lexicon has been closely followed, and is generally responsible for the etymology. As far as meanings are concerned, this authority has not always been used judiciously. Thus, for *nid* we have "nest, cradle." The history of "cradle" is an interesting example of the methods of lexicographers. Littré quotes a passage of Boileau in which *nid* means "a source of moral evil." Darmstetter, at the end of his article, has "*Fig.[urative] berceau*," and quotes the same passage. The authors of the book before us have simply taken *berceau* from Darmstetter and translated it "cradle" without more ado. There are several cases in which a cursory inspection shows want of care in the compilation; thus *dépêcher* (transitive) is rendered "make haste," and "telegram" is not given among the meanings of *dépêche*; *frère de lait* is rendered "milk-brother," instead of "foster-brother"; *pousser une botte*, "give one thrust"—an odd expression; *il a poussé sa chance*, "he has made his chance count"—also odd; *qui diait're vous pousse à vous faire imprimer?* "what in [*sic*] the deuce brings you to go into print?"—certainly not idiomatic English. It is equally easy to find evidences of haste in the English-French part. Thus, among the French words for "indulge" (transitive) we find *permettre, accorder, se livrer, se laisser aller*; for the intransitive use of the same word, *se livrer à, se laisser aller à*. On the same page, *induire* (obsolete in this sense) is coupled with *entraîner* as a rendering for "induce"; while the student who had to translate "an induced current" would find no help.

*A Complete French Verb Drill.* By J. Lazare and H. Marshall. (Hachette.)

This is simply a table of the French verbs, with exercises of a commonplace type. No serious effort is made to teach French idiom or syntax, otherwise than incidentally. It might be used to supplement more general exercise-books.

## SCRIPTURE.

"The Century Bible." (Jack.)

(1) *Hebrews.* Edited by A. S. Peake, M.A.

Prof. Peake has successfully combined scholarly and popular treatment of a subject bristling with difficulties. In an introduction of some length he discusses fully and fairly the authorship, teaching, destination, and history of the Epistle. Though retaining in his title "the Epistle of Paul the Apostle," he concludes that Harnack's identification of the author with Priscilla, though not proved, "seems to be the most probable that has yet been proposed." The Authorized Version of "Hebrews" is reprinted, and then comes the main portion of the book, the Revised Version "with annotations." The running commentary is full, judicious, and instructive. Prof. Peake shirks no difficulty, and he is scrupulously careful to deal with all views of real importance. The references to the literature of the subject will be welcome to all inquiring readers. This is a kind of work that ought not to be confined to theological students or Sunday-school teachers, but to be studied widely for private edification. The get-up is very dainty and attractive.

(2) *Corinthians.* Edited by J. Massie, M.A., D.D.

Prof. Massie packs a great deal of matter into his 78 pages of introduction. He briefly establishes the authorship of the Epistles, narrates the founding and the conditions of the Church at Corinth, and examines, with minute care, the problems that emerge. In explaining the occasion of "the First Epistle (so called)," he deals with Apollos and his teaching, with the "parties," with the general state of the Church, and with the particular questions of ecclesiastical position and discipline, morals, the regulation of Christian worship, and the doctrine of the Resurrection. The Second Epistle presents much greater perplexities for disentanglement. Was there an intermediate letter? Was there an intermediate visit? Then we have

the Judaizers and their relations to Paul. Finally, the burning question: Is the Epistle a unity? As in the other volumes of the series, the Authorized Version is reprinted, and, thereafter, the Revised Version with notes and an index. There is a clear map showing the journeys of St. Paul in Asia Minor and Greece. Not a page but bears the marks of thoroughly competent workmanship. The volume should be in the hands of every thoughtful reader of the Bible.

(3) *Thessalonians and Galatians*. Edited by Walter F. Adeney, M.A.

Prof. Adeney makes an able contribution to the series of which he is general editor. The introduction deals very carefully and fully with the genuineness, date and place of origin, occasion and objects, and characteristics and teaching of the three Epistles, including also a useful section on the origin of the Galatian churches. Prof. Adeney utilizes the main arguments of Prof. Ramsay in favour of the South Galatians as the recipients of the Epistle to the Galatians. We are not satisfied that he is sure of his ground in discussing the argument based on the legal points. We hardly think it matters for the purposes of the text whether *διαθήκη* be taken as "covenant" or as "will"; in either case the son, by the adoption of faith, takes the benefit. The point of irrevocability is too complicated for discussion here. But, as to adoption, Prof. Adeney says: "The Greek custom of adoption carried with it certain religious rights and obligations. This had been so with the Roman custom in ancient times; but it had ceased to be the case before the commencement of the Christian era. Now in our Epistle the Apostle assumes that it is still a current custom. To be made a son of Abraham by adoption is to come into the privileges of the patriarch's covenant. This then implies a Greek civilization, rather than a Roman. Then, according to the old custom, to be an heir implied sonship, because the son had a right to inherit his father's property. Thus to make a will in favour of anybody implied the adoption of that person. This custom had ceased at Rome by St. Paul's time, but in our Epistle he argues that the possession of Abraham's faith carries with it the sonship, as the inheritance implies the adoption." We cannot help thinking that this passage contains both bad law and bad logic. To say that the son's right to inherit involves an implication of sonship in heirship seems an obvious logical fallacy. Again, the alleged custom whereby the institution of an heir was an implied adoption of him is, we imagine, not to be found in the extant writings of the Roman jurists. Further, it surely is not the fact that the Roman religious rights and obligations arising out of adoption had ceased before the Christian era. Else what does Justinian, some five centuries later, mean, for example, by "personis in sacris patris constitutis" ("Cod." viii. 47 (48), 4, 10)? Once more: "To be made a son of Titius by adoption is to come into the privileges of Titius's covenant"—is not this proposition valid in Roman law at (and long after) the time of Paul? Prof. Adeney also seems to identify *ius italicum* with "the proud rights of Roman citizenship" (pages 73-74), which would be somewhat hasty. Apart from these rather special technicalities, however, the work is thoroughly well done—clear, pointed, and instructive.

## FIRST GLANCES.

### CLASSICS.

- Carter, George, M.A.: *Rules of Latin Syntax*. Relfe.  
[Third Edition, with additions.]
- Parallel Grammar Series.—A Parallel of Greek and Latin Syntax. By C. H. St. L. Russell, M.A. 3s. 6d. Swan Sonnenschein.  
[Two objects: (1) "to simplify the study of Greek by a direct comparison with Latin idiom"; (2) "to provide a syntax of both languages which will cover the whole course of a boy's training at a public school." Print and binding excellent.]
- Scriptorum Classicorum Bibliotheca Oxoniensis.—Homeri Opera. By D. B. Monro and T. W. Allen. 2 vols. 3s. 6d. each. Clarendon Press.  
[Text elaborately revised; brief critical notes.]

### MATHEMATICS.

- Boole, Mary Everest: *The Cultivation of the Mathematical Imagination*. 6d. Colchester: Benham & Co.  
[34 pages. "Written by Prof. Perry's wish in order to facilitate comprehension of how to put pupils into the condition of mind in which such mathematical knowledge as they may acquire at school will be of use in after life for the understanding of the physical sciences."]
- Loomis, Elisha S., Ph.D.: *Original Investigation; or how to attack an Exercise in Geometry*. 1s. 6d. Ginn.  
[“With many model solutions and a complete discussion of the principles underlying the same.”]
- Smith, Charles, M.A.: *Solutions of the Problems and Theorems in Smith and Bryant's Geometry*. 8s. 6d. Macmillan.  
[230 solid pages, clearly and carefully printed.]

### MENTAL SCIENCE.

- Mackenzie, John S., M.A., Litt.D.: *Outlines of Metaphysics*. 4s. 6d. Macmillan.

[Aims "chiefly at indicating the place and nature of the various metaphysical problems, rather than at thrashing them out in detail." Genetic treatment. Handling grows firmer in latter half.]

Pierce, A. H., Ph.D.: *Studies in Auditory and Visual Space Perception*. 6s. 6d. Longmans.

[Experimental psychology. Treats the localization of sound, and offers explanation of certain optical illusions.]

### MODERN LANGUAGES.

- Cours Élémentaire Black.—France de Montereil (Jules de Glouvet). Abrégé et annoté par F. B. Kirkman, B.A. 1s. 6d.  
[“Roman de la guerre de cent ans (1418-29).” Footnotes in French. At end—and separate if desired English notes (4 pages) and vocabulary. Effective illustrations; frontispiece Henry V. of England. Beautifully printed.]
- Blackie's Little French Classics.—(1) *L'Avocat Patelin* (Brucys-Palapat). Edited by E. B. Le François. (2) *Oraisons Funèbres* (Bossuet). Edited by the Rev. H. J. Chaytor, M.A. 4d. each.  
[Very good additions to the series.]
- Siepmann's German Series (Elementary).—Friedrich der Grosse und der siebenjährige Krieg (Ferdinand Schrader). Adapted and edited by R. H. Allpress, M.A. 2s. Macmillan.  
[Introduction; notes; list of strong verbs; vocabulary. Also key to "Word and Phrase Book" (by the general editor of the series), which appears separately (6d.).]

### ENGLISH LANGUAGE AND LITERATURE.

- Black's School Shakespeare.—Henry IV., Part I. Edited by H. W. Ord, M.A. 1s. net.  
[Introduction, notes, one examination paper. Well got up.]
- Blackwoods' English Classics.—Samson Agonistes (Milton). By E. H. Blakeney, M.A.  
[Sympathetic treatment. Excellent introduction and useful notes.]
- Carter, George, M.A.: *Questions on Shakespeare's A Midsummer Night's Dream*. 1s. Relfe.  
[Papers on each scene, and 12 of general questions. Interleaved.]
- Columbia University Studies in Comparative Literature.—The Italian Renaissance in England. By Lewis Einstein. 1.50 dols. Macmillan (agents).  
[“To trace the Italian influence in England from the beginning of the 15th century until the death of Elizabeth.” Careful study. Some good portraits reproduced. Extensive bibliography.]
- Dinglewood Shakespeare Manuals.—Midsummer Night's Dream; Questions and Notes. By Stanley Wood, M.A. 1s. Heywood.  
[Flood of questions; "with full answers to a large number of the more difficult" of them.]
- Fowler, J. H., M.A.: *A First Course of Essay-Writing*. 6d. Black.  
[“To reduce the number of those unpleasant and often unprofitable minutes which a beginner spends in contemplation of the 'theme' that has been given him.”]
- George, Hereford B., M.A., and W. H. Hadow, M.A.: *Poems of English Country Life* (selected and edited). 2s. Clarendon Press.  
[Judicious selection; sensible notes. Nicely got up.]
- Jones, W. H. S., M.A.: *King Richard the Third* (Shakespeare). Ralph, Holland, & Co.  
[“To meet the requirements of Certificate students.” Full introduction; footnotes; questions. Text rather closely printed, but clear.]
- Luce, Morton: *The Tempest* (Shakespeare). 3s. 6d. Methuen.  
[Handsome and scholarly edition. Literary introduction on sources, date, and characteristics; footnotes critical and explanatory. Appendices treating particular points at some length.]
- Moffatt's Shakespeare's Richard III. 2s. Moffatt & Paige.  
[Elaborate introduction and exhaustive notes.]
- Wood, Stanley, M.A.: *Shakespeare's A Midsummer Night's Dream*. 1s. 6d. Gill.  
[“Gill's Oxford and Cambridge edition.” Very full introduction and notes—suitable, apparently, for teacher rather than for pupil.]
- The Windsor Shakespeare.—Othello. Edited by Henry N. Hudson, LL.D. Jack.  
[Pretty edition. Brief introduction and footnotes, with critical notes at the end.]

### HISTORY AND GEOGRAPHY.

- Barnard, F. Pierrepont, M.A., F.S.A. (with others): *Companion to English History* (Middle Ages). 8s. 6d. net. Clarendon Press.  
[“Designed primarily for higher educational purposes,” but also for “the reading public at large.” In 12 sections. Profusely illustrated; 97 full-page plates. Most useful “companion.”]
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Since, in general,  $d(uv)/dx = u dv/dx + v du/dx$ ,  
the general formula for integration by parts is

$$\int u dv/dx dx = uv - \int v du/dx dx.$$

In the integral  $\int x^m dx$ , let  $x^m = u$  and  $1 = dv/dx$ . Then

$$\int x^m dx = x^{m+1}/(m+1) - \int x^m dx$$

therefore  $(m+1) \int x^m dx = x^{m+1}$  or  $\int x^m dx = x^{m+1}/(m+1)$ .

In the case when  $m = -1$  this formula fails, but we may proceed as follows:—  $\int dx/x = \int dx \cdot 1/[1-(1-x)]$

$$= \int dx [1 + (1-x) + (1-x)^2 + (1-x)^3 + (1-x)^4 + \dots];$$

therefore  $\int dx/x = x - \frac{1}{2}(1-x)^2 - \frac{1}{3}(1-x)^3 - \frac{1}{4}(1-x)^4 - \dots$

$$= x - \frac{1}{2}(x-1)^2 + \frac{1}{3}(x-1)^3 - \frac{1}{4}(x-1)^4 + \frac{1}{5}(x-1)^5 - \dots;$$

therefore  $\int dx/x = 1 + (x-1) - \frac{1}{2}(x-1)^2 + \frac{1}{3}(x-1)^3 - \frac{1}{4}(x-1)^4 + \dots$

Now  $x - 1 - \frac{1}{2}(x-1)^2 + \frac{1}{3}(x-1)^3 - \dots$  is  $\log_e(1+x-1)$ , that is,  $\log_e x$ , and, as the expression above differs from this only in the constant 1, we have, apart from an arbitrary constant, the indefinite integral  $\int dx/x$  is equal to  $\log_e x$ .

If we apply integration by parts to  $\int \sin x dx$ , we have

$$\begin{aligned} x \sin x - \int x \cos x dx &= x \sin x - \frac{1}{2}x^2 \cos x - \int \frac{1}{2}x^2 \sin x dx \\ &= x \sin x - \frac{1}{2}x^2 \cos x - \frac{x^3}{2 \cdot 3} \sin x + \int \frac{x^3}{2 \cdot 3} \cos x dx. \end{aligned}$$

Proceeding thus, we get

$$\int \sin x dx = \sin x [x - x^3/3! + x^5/5! - \dots] + \cos x [-x^2/2! + x^4/4! - \dots],$$

or  $\sin x \sin x + \cos x (\cos x -$   
therefore  $\int \sin x dx = \sin^2 x + \cos^2 x - \cos x$  or  $1 - \cos x$ ;

therefore, neglecting an arbitrary constant, the indefinite integral  $\int \sin x dx$  is equal to  $-\cos x$ .

$$\begin{aligned} \int \cos x dx &= x \cos x + \int x \sin x dx = x \cos x + \frac{1}{2}x^2 \sin x - \int \frac{1}{2}x^2 \cos x dx \\ &= x \cos x + \frac{1}{2}x^2 \sin x - \frac{x^3}{2 \cdot 3} \cos x - \int \frac{x^3}{2 \cdot 3} \sin x dx. \end{aligned}$$

Proceeding thus, we have

$$\cos x [x - x^3/3! + x^5/5! - \dots] + \sin x [x^2/2! - x^4/4! + x^6/6! - \dots],$$

or  $\cos x \sin x + \sin x (-\cos x + 1)$ ;

therefore  $\int \cos x dx = \sin x$ .

The elementary integrals  $\int dx/(1+x^2)$ ,  $\int dx/\sqrt{1-x^2}$  are obtained at once by the assumption in the first case  $x = \tan \theta$ , in the second  $x = \sin \theta$  or  $\cos \theta$ .

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Solutions (I.) by Lt.-Col. ALLAN CUNNINGHAM, R.E.; (II.) by D. BIDDLE; (III.) by ROBERT W. D. CHRISTIE.

(I.) Let  $m > n$ ; then  $N$  is of form  $N = \lambda mn + \mu m + a$ . Now let  $m \equiv m_0 \pmod{n}$ , and  $a \equiv a_0 \pmod{n}$ . Then

$$N \equiv \mu m + a \equiv \mu m_0 + a_0 \equiv b \pmod{n} \text{ or } m_0 \mu \equiv b - a_0 \pmod{n}.$$

Since  $m_0, b, a_0$  are known, this congruence suffices to give  $\mu$ . Hence

$$N \equiv \mu m + a \pmod{mn}.$$

(II.) Let  $m > n$ , and  $N \equiv x \pmod{mn}$ , then  $x < mn$ ,  $x \equiv a \pmod{m}$ ;  $\equiv b \pmod{n}$ . Let  $x = my + a = nz + b$ , then  $y = \{nz - (a-b)\}/m$  and  $z = \{my + a - b\}/n$ ; whence

$$(m-n)y \equiv b-a \pmod{n} \text{ and } (m-n)z \equiv b-a \pmod{m}.$$

Here  $y$  and  $z$  are the only unknown quantities; moreover,  $y < n$ ,  $z < m$ . Consequently  $y, z$  can be found by trial with comparative ease. Where  $m = \mu n + \kappa$ ,  $(m-n)y \equiv b-a \pmod{n}$  reduces to  $\kappa y \equiv b-a \pmod{n}$ .

$$\begin{aligned} \text{(III.) } x &= my + a = nx + b \dots\dots\dots(1) \\ &= mnv + (cm + a) = mnw + (dn + b), \end{aligned}$$

by ordinary division by factors; therefore  $cm + a = dn + b$ , i.e.,

$$dn - cm = a - b \dots\dots\dots(2),$$

where  $m, n, a, b$  are given. Now, solving  $dn - cm = 1$  by G.C.M. of  $m, n$ , and then multiplying throughout by  $(a-b)$  given, we get the values of  $c, d$  (eliminating  $m$  and  $n$  when necessary), and the required remainder is either  $cm + a$  or  $dn + b$ .

Note.—The following particular case shows the method which the PROPOSER would have used:—Let some number divided by 43 and then by 29 leave partial remainders 14 and  $x$ ; and when by 29 and 43, 20 and  $y$ . Then the complete remainder when divided by 43 and 29 is

$$43x + 14 = 29y + 20, \text{ whence } y = x + \frac{1}{29}(14x - 6);$$

therefore  $\frac{1}{29}(28x - 12)$  or  $x - \frac{1}{29}(x + 12)$  is integral.  $x = 29t - 12$ . Least value is 17. Complete remainder is  $43 \times 17 + 14 = 745$ .

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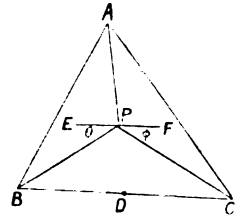
- (1)  $\Sigma(PA)$  = a minimum, (2)  $\Sigma(PA)^2$  = a minimum.

Let P be the point; draw EPF perpendicular to PA, and let D be the middle of BC. Then PA is evidently a minimum to EF, and (1) the minimum PB + PC requires

$$\theta = \phi;$$

therefore APB = APC, ...;

(2) the minimum PB<sup>2</sup> + PC<sup>2</sup> requires DP to be a minimum, or DP to be perpendicular to EF; therefore APD is a median, &c.



**15078.** (Professor HUDSON, M.A.)—If a uniform chain of given length be fastened to two points at a given distance apart in the same horizontal line, and be acted on by vertical forces such that the force acting on a length  $ds$  is  $mgds + \mu g dx$ , prove that the horizontal tension is approximately  $(m + \mu)g \{x^3/6(s-x)\}^{1/2}$ , and that the sag at the middle point is  $\{3x(s-x)\}^{1/2}$ , assuming that  $(s-x)/x$  is small.

Solutions (I.) by the PROPOSER; (II.) by J. PRESCOTT, B.A.

(I.) Let C be the constant horizontal tension,  $\phi$  the angle which the tangent at  $(x, y)$  makes with the horizon,  $s$  the length of the arc from the middle point of the chain to  $(x, y)$ . Then

$$d/ds (C dy/dx) = mg + \mu g dx/ds,$$

$$\begin{aligned} \text{whence } ds/d\phi &= C/g \cos^2 \phi (m + \mu \cos \phi), \\ dx/d\phi &= C/g \cos \phi (m + \mu \cos \phi) &= C/g (m + \mu) \\ d(s-x)/d\phi &= C(1 - \cos \phi)/g \cos \phi (m + \mu \cos \phi) &= C\phi^2/2g (m + \mu) \\ dy/d\phi &= C \sin \phi/g \cos^2 \phi (m + \mu \cos \phi) &= C\phi/g (m + \mu) \end{aligned} \left. \vphantom{\begin{aligned} ds/d\phi \\ dx/d\phi \\ d(s-x)/d\phi \\ dy/d\phi \end{aligned}} \right\} \text{approximately.}$$

Integrating, since  $x, y, s, \phi$  vanish together,

$$x = C\phi/g (m + \mu), \quad (s-x) = C\phi^3/6g (m + \mu), \quad y = C\phi^2/2g (m + \mu);$$

from which  $C = (m + \mu)g \{x^3/6(s-x)\}^{1/2}$ ,  $y = \{3x(s-x)\}^{1/2}$ .

(II.) Let T be the constant horizontal tension,  $\psi$  the angle which the tangent to the chain at any point makes with the horizontal. Let  $2s_0$  be the length of the chain,  $2x_0$  the distance between the ends,  $l$  the sag at the middle. Then

$$T \tan \psi = \int mg ds + \int \mu g dx = mgs + \mu gx \dots\dots\dots(i.),$$

if  $s$  and  $x$  are measured from the lowest point. Hence, neglecting the difference between  $s$  and  $x$ ,

$$T^2 \tan^2 \psi = x^2 (mg + \mu g)^2, \text{ i.e., } T^2 \{ (ds/dx)^2 - 1 \} = x^2 (mg + \mu g)^2 \dots(ii.).$$

Put  $s = x + \theta$ , where  $\theta$  is small compared with  $x$ . Then

$$ds/dx = 1 + d\theta/dx.$$

Hence (ii.) becomes

$$T^2 \{ (1 + d\theta/dx)^2 - 1 \} = x^2 (mg + \mu g)^2 \text{ or } T^2 \{ 2 d\theta/dx \} = x^2 (mg + \mu g)^2 \dots(iii.),$$

neglecting  $(d\theta/dx)^2$ , since  $d\theta/dx$  is a small quantity. Integrating (iii.),

$$2T^2\theta = \frac{1}{3}x_0^3 (mg + \mu g)^2 \text{ or } T = (mg + \mu g) \{x_0^3/6(s_0 - x_0)\}^{1/2} \dots(iv.).$$

Again, neglecting  $\theta$ , (i.) may be written

$$T \tan \psi = mgs + \mu gs.$$

Differentiating with respect to  $\psi$ ,

$$T \sec^2 \psi = (mg + \mu g)(ds/d\psi) = (mg + \mu g) \rho.$$

But  $2\rho = \lim x^2/y$ . Hence, at the middle point  $2\rho = x_0^2/l$  approximately, and  $\sec^2 \psi = 1$ ; therefore  $T = (mg + \mu g)(x_0^2/2l)$ .

Substituting for T in (iv.), we get

$$\{x_0^3/6(s_0 - x_0)\}^{1/2} = x_0^2/2l; \text{ therefore } l = \{3x_0(s_0 - x_0)\}^{1/2}.$$

**14801.** (R. F. MUIRHEAD, M.A., B.Sc.)—Show that, if the sum of any number of quantities = 0, then the sum of their cubics is three times the sum of their products taken three at a time.

Solutions (I.) by ALETROP; (II.) by H. W. CURJEL, M.A., and LIONEL E. REAY, B.A.; (III.) by Professor SANJANA, M.A., and others; (IV.) by V. DANIEL, B.Sc.

(I.) Soit  $x^m + A_1 x^{m-1} + A_2 x^{m-2} + \dots + A_m = 0$  l'équation qui a pour racines les  $m$  quantités  $a_1, a_2, \dots, a_m$ , dont la somme  $S_1 = 0$ . En égard de cette valeur dans les relations connues  $S_1 = -A_1, S_3 = -A_1^3 + 3A_1A_2 - 3A_3$ , il vient  $S_3 = -3A_3$ ; d'où la proposition.

(II.)  $\Sigma a^3 - 3\Sigma abc = \Sigma (a^2 - ab) = 0$ .  
Hence  $\Sigma a^3 = 3\Sigma abc$ .

(III.) Let the theorem be true for the  $k$  quantities  $a_1, a_2, a_3, \dots, a_k$ ; so that,  $a_1 + a_2 + a_3 \dots + a_k$  being zero, we have  
 $a_1^3 + a_2^3 + a_3^3 \dots + a_k^3 = 3\Sigma (a_1 a_2 a_3 \dots a_k)_3$ .

Now let  $a_1 = a_1 + a_2$ ; then  
 $a_1^3 + a_2^3 + a_3^3 + \dots + a_k^3 = 3\Sigma [(a_1 + a_2) a_2 a_3 \dots a_k]_3 - 3a_1 a_2 (a_1 + a_2)$   
 $= 3\Sigma [(a_1 + a_2) a_2 a_3 \dots a_k]_3 + 3a_1 a_2 (a_2 + a_3 \dots + a_k)$   
 $= 3\Sigma (a_1 a_2 a_3 \dots a_k)_3$ .

But the theorem is true for three quantities; hence, it is true for 4, 5, ... or any number of them.

(IV.) Let  $a, b, c, d, \dots$  be any number of quantities, and  $x$  an infinitesimal in comparison with the least. We have the identity

$\{(1+ax)(1+bx)(1+cx)(1+dx) \dots\} = 1 + x\Sigma a + x^2\Sigma ab + x^3\Sigma abc + \dots$ ,  
which, when  $\Sigma a = 0$ , becomes  
 $\{(1+ax)(1+bx)(1+cx)(1+dx) \dots\} = 1 + x^2\Sigma ab + x^3\Sigma abc + \dots$

Taking logarithms of both sides, and expanding, the coefficient of  $x^3$  on the left is  $\frac{1}{3}\Sigma a^3$ , and on the right is  $\Sigma abc$ . Hence, with the given condition,  
 $\Sigma a^3 = 3\Sigma abc$ .

14820. (Professor LANGHORNE ORCHARD, M.A., B.Sc.)—Find the product of the two series

$0 + 24 + 216 + 960 + 3000 + \dots$ , to  $n$  terms,  
 $2 + 40 + 270 + 1088 + 3250 + \dots$ , to  $n$  terms.

Solutions (I.) by Rev. C. V. DURELL, M.A., Rev. T. ROACH, M.A., and others; (II.) by JOHN ORCHARD, M.A.

(I.)  $S_1 = 0 + 24 + 216 + 960 + 3000 + \dots$  to  $n$  terms  
 $= (1^5 - 1^3) + (2^5 - 2^3) + (3^5 - 3^3) + \dots$  to  $n$  terms  $= \Sigma n^5 - \Sigma n^3$ ,  
 $S_2 = 2 + 40 + 270 + 1088 + 3250 + \dots$  to  $n$  terms  
 $= (1^5 + 1^3) + (2^5 + 2^3) + (3^5 + 3^3) + \dots$  to  $n$  terms  $= \Sigma n^5 + \Sigma n^3$ ;

therefore  $S_1 S_2 = (\Sigma n^5)^2 - (\Sigma n^3)^2$ ,  
 $\Sigma n^3 = \frac{1}{4} \{n^2(n+1)^2\}$  and  $\Sigma n^5 = \frac{1}{12} \{n^2(n+1)^2\} (2n^2 + 2n - 1)$ ;  
therefore  $S_1 S_2 = \frac{1}{144} \{n^4(n+1)^4\} \{(2n^2 + 2n - 1)^2 - 9\}$   
 $= \frac{1}{36} \{n^4(n+1)^4\} (n^2 + n + 1)(n^2 + n - 2)$   
 $= \frac{1}{36} \{n^4(n+1)^4(n+2)(n^3 - 1)\}$ .

(II.)  $S_1 = 0 + 24 + 216 + 960 + 3000 + \dots$  to  $n$  terms,  
 $S_2 = 2 + 40 + 270 + 1088 + 3250 + \dots$  to  $n$  terms:  
 $\frac{1}{2}(S_2 - S_1) = \frac{1}{2} \Sigma n^3, \quad \frac{1}{2}(S_1 + S_2) = \frac{1}{2} \Sigma n^5$ ;

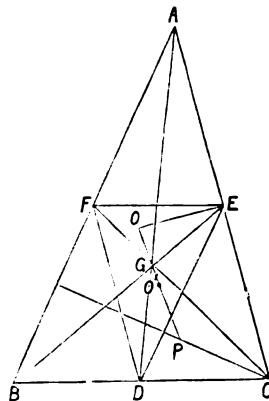
therefore  $S_1 S_2 = \left[\frac{1}{2} \Sigma n^5\right]^2 - \left[\frac{1}{2} \Sigma n^3\right]^2 = \dots$

15045. (E. V. HUNTINGTON, Ph.D.)—The centre of gravity of the equally weighted vertices and ortho-centre of any triangle is the centre of the nine-point circle of that triangle.

Solution by J. H. TAYLOR.

A proof of this problem follows readily from the fact that the ortho-centre and the centroid of a triangle are the centres of direct and inverse similitude of the circumscribed circle and the nine-point circle of the triangle. (*Pitt Press Euclid*, pp. 448, 449.)

For, if ABC be a triangle, D, E, F the middle points of the sides, G the centroid, P the ortho-centre, O the centre of the circle ABC, O' the centre of the circle



DEF, then  $OG = 2O'G$   
and  $OP = 2O'P$ ;  
whence  $3GO' = O'P$ .

14947. (R. TUCKER, M.A.)—PQ, a chord of a parabola, passes through a fixed point O, on the axis: the normals at P, Q intersect in R. Show that the locus of R, for varying positions of PQ, is a parabola, and also that the envelope of these parabolas, for varying positions of O, is the evolute of the primitive parabola.

Solutions (I.) by the PROPOSER, A. M. NESBITT, M.A., and many others; (II.) by R. KNOWLES.

(I.) The equation to PQ is  $y(m+m') - 2x = 2amm'$ ; therefore, if  $AO = h$ ,  $h = -amm'$ .....(i).

Normals at P, Q are

$mx + y = am^3 + 2am, \quad m'x + y = am'^3 + 2am'$ ;  
hence coordinates of R are  $X = a(m^2 + mm' + m'^2 + 2)$ ,  
i.e.,  $X - 2a + h = a(m^2 + m'^2)$  and  $y = h(m + m')$ ;  
therefore locus of R is  $ay^2 = h^2(x - 2a - h)$ .

The envelope is formed by eliminating  $h$  between

$h^3 + h^2(2a - x) + ay^2 = 0$  and  $3h = 2(x - 2a)$ ,  
i.e., it is  $27ay^2 = 4(x - 2a)^3$ .

(II.) Let  $y^2 = 4ax$  be the equation of the parabola;  $h, k$  coordinates of the pole of PQ:  $m, 0$  those of O; then  $h = -m$ , and the coordinates of R are  
 $x = 2a + k^2/a + m, \quad y = mk/a$ .....(1, 2).

Eliminating  $k$  from (1), (2), the locus of R is the parabola

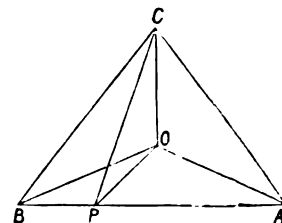
$u = ay^2 - m^2x + 2am^2 + m^3 = 0$ .....(3).

From  $du/dm = 0$ ,  $m$  is found  $= \frac{2}{3}(x - 2a)$ , and, substituting in (3), the equation to the envelope is  $27ay^2 = 4(x - 2a)^3$ , the equation to the evolute of the primitive parabola.

Proof of Euclid Book XI., Prop. 4. By the late Professor R. B. CLAYTON.

Let OC be perpendicular to OA, OB, and let OP be any line through O in the plane AOB; then OC is perpendicular to OP. Through P draw APB perpendicular to OP. Then

$AC^2 - BC^2 = AO^2 - BO^2 = AP^2 - BP^2$ ;  
therefore CP is perpendicular to AB;  
 $\therefore CP^2 + BP^2 = CB^2 = CO^2 + BO^2$ ;  
 $\therefore CP^2 - CO^2 = BO^2 - BP^2 = PO^2$ ;  
therefore COP is a right angle.



8796. (Professor BYOMAKESA CHAKRAVARTI, M.A.)—If OP, OQ be the arcs of a curve and of its circle of curvature intercepted between a point O and a neighbouring subtense perpendicular to the tangent, prove that OQ - OP is ultimately equal to  $OQ^4 \cdot 8\rho^3 \cdot dp/ds$ ,  $s$  being the arc of the curve measured from a fixed point up to O and  $\rho$  the radius of curvature at O.

Solutions (I.) by Professor NANSON; (II.) by A. M. NESBITT, M.A.

(I.) Differentiating the equation  $ds/dx = \sec \psi$  three times, we find, when  $\psi = 0$ ,  $ds/dx = 1, d^2s/dx^2 = 0, d^3s/dx^3 = 1/\rho^2, d^4s/dx^4 = -3/\rho^3 \cdot dp/ds$ . Hence  $OP = x + \frac{1}{6}(x^3/\rho^2) - \frac{1}{24}(dp/ds) \cdot x^4/\rho^3, OQ = x + \frac{1}{6}(x^3/\rho^2)$ ; and therefore  $OQ - OP = \frac{1}{24}(dp/ds) \cdot x^4/\rho^3 = \frac{1}{24}(OQ^4/\rho^3) dp/ds$  to fourth order.

(II.) Since  $s$  is a function of  $x$ , we may expand  $s$  by MACLAURIN'S theorem:

$s = s_0 + s_0'x + \frac{s_0''}{2!}x^2 + \dots$ ,

where accents denote differentiation for  $x$ , and  $s_0, s_0', \dots$  are the values of  $s, s', \dots$ , when  $x = 0$ . Now

$s' = \sec \psi$  and  $\psi' = 1/\rho \cdot s'$ ;

therefore  $s'' = \sec^2 \psi \tan \psi \cdot 1/\rho$ ,

$s''' = 2 \sec^3 \psi \tan^2 \psi \cdot 1/\rho^2 + \sec^5 \psi \cdot 1/\rho^2 - (\sec^2 \psi \tan \psi \cdot \rho')/\rho$ .

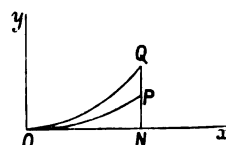
These all hold for the circle except that  $\rho'$  is here zero, and the term in which it occurs vanishes when  $x = 0$ ; so that we must proceed to a fourth differentiation. The only term in  $s_0''''$  which will not disappear will arise from differentiating  $1/\rho^2$  in the second term and  $\tan \psi$  in the last term of  $s'''$ . Thus

$s_0'''' = -[3 \sec^5 \psi \cdot \rho^3 \cdot \rho']_0 = -(3/\rho^3)(dp/ds)$ ,

which in the circle will vanish. Hence

$OQ - OP = \frac{x^4}{4!} \frac{3}{\rho^3} \frac{dp}{ds} = \frac{OQ^4}{8\rho^3} \frac{dp}{ds}$  ultimately.

15061. (J. PRESCOTT.)—From the fact that the inverse of a plane is a sphere through the centre of inversion, deduce that the inverse of a circle, with respect to a point not in its plane, is a circle.



Another Solution by R. F. WHITEHEAD.

The inverse of the meet of a sphere with a plane [or indeed of two spheres] is the meet of the two inverse spheres, and is therefore a circle.

QUESTIONS FOR SOLUTION.

15106. (Professor HUDSON, M.A.)—A string, length  $2l$ , the rate of mass of which at a distance  $s$  from the middle is  $m \cosh s/a$ , has it ends fixed at two points in a horizontal line, distant apart  $a (\Delta \tan^{-1} e^{l/a} - \pi)$ ; prove that it hangs in a catenary of equal strength.

15107. (I. ARNOLD.)—There are two opposite inclined planes each inclined to the horizon at an angle of  $15^\circ$ : viz., AB and BC; and touching each other at B. The planes are 100 feet long each; and a perfectly smooth metallic ball rolls down AB and then ascends BC. In what time will the ball come to rest between the two planes?

15108. (ROBERT W. D. CHRISTIE.)—Prove by two distinct methods the theorem  $2^n \equiv 1 \pmod{\frac{1}{2}(\mu-1)}$ , when  $\mu$  is a prime of form  $4m-1$  and  $n$  the number of its primitive roots.

15109. (Lt.-Col. ALLAN CUNNINGHAM, R.E.)—Find the least solution in positive integers of  $x^3 + y^3 = mz^3$ , where  $m = (3\mu-1)$ , a positive integer  $> 2$ , and  $x \neq y$ ; and  $x, y, z$  have no common factor.

15110. (Professor SANJANA, M.A.)—Prove that the solution in rational numbers (integral or fractional) of the equation  $Mx^2 - 2xN^2 = x^2 - 1$  will serve to factorize quantities of the form  $N_1^4 + N_2^4$ ; and show that  $x$ , supposed a positive integer, will always be of the form  $4y^2 + 1$ .

15111. (Professor NANSON.)—If  $a, b, c, f, g, h, r$ , where  $r = 1, 2, 3$ , are the coordinates of three lines each of which intersects the other two, prove that of the two arrays

$$\begin{matrix} (agh) & (bgh) & (cgh) & (fbc) & (gbc) & (hbc) \\ (ahf) & (bhf) & (chf) & (fca) & (gca) & (hca) \\ (afg) & (bfg) & (cfg) & (fab) & (gab) & (hab) \end{matrix}$$

one is symmetric and the other skew-symmetric.

15112. (G. H. HARDY, B.A.)—Prove that, if  $p, q > 1, a > 0$ ,

$$\int_{-1}^1 \frac{(1-\mu^2)^{a-1} d\mu}{(p-\mu)^x (q-\mu)^y} = 2 \int_0^{\infty} \frac{dt}{\sqrt{m_1 (t^2-1)^{a+\frac{1}{2}}}}$$

and deduce that, if  $\Theta_n(\mu, a)$  is the coefficient of  $\mu^n$  in  $(1-2\mu h + h^2)^{-a}$ , then  $\int_{-1}^1 (1-\mu^2)^{a-1} \Theta_n(\mu, a) d\mu = \frac{2a(2a+1)\dots(2a+n-1)}{1.2\dots n} \frac{1}{a+n}$ .

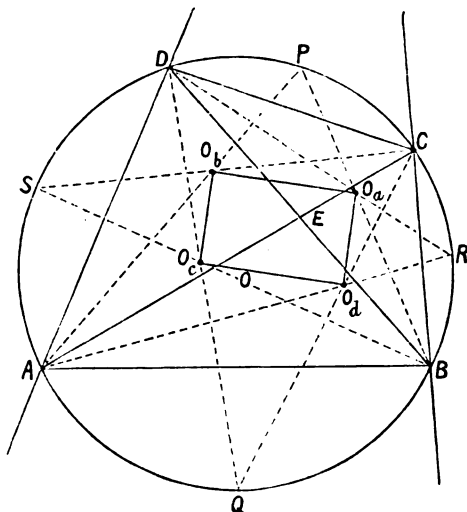
15113. (R. KNOWLES.)—(Suggested by Quest. 13375.) If

$$F_x/(1-x)^n = 1 + 3^{n-1}x + 5^{n-1}x^2 + \dots + (2r+1)^{n-1}x^r + \dots,$$

prove that  $F_x$  is a symmetrical function of the degree  $(n-1)$  in  $x$ , the sum of whose coefficients is the factorial of  $(n-1)2^{n-1}$ .

15114. (A. M. NESHITT, M.A.)—If  $a, b, c$  be real and positive, prove that  $a/(b+c) + b/(c+a) + c/(a+b) \geq \frac{3}{2}$ .

15115. (R. TUCKER, M.A.)—ABCD is a cyclic quadrilateral. ( $O_a, r_a$ ), ( $O_b, r_b$ ), ( $O_c, r_c$ ), ( $O_d, r_d$ ) are the in-centres and the in-radii of the tri-



angles BCD, CDA, DAB, ABC respectively. Prove that  $O_a O_b O_c O_d$  is a rectangle and  $r_a + r_c = r_b + r_d$ . Find also  $\Sigma(OO_a^2)$  where  $O$  is the circum-centre.

15116. (C. E. YOUNGMAN, M.A.)—If  $H$  be the orthocentre of ABC, and DEF any transversal, perpendiculars from A, B, C, H on HD, HE,

HF, DEF will meet at P. If this be still true when H is simply a fixed point in the plane, find the locus of P and the envelope of DEF.

15117. (D. BIDDLE.)—Prove that in a plane triangle the square of the distance of any vertex from the in-centre is in inverse proportion to the distance of the opposite side from the mid-point of the corresponding arc of the circum-circle.

15118. (Professor NEUBERG.)—On mène à deux cercles donnés A, B des tangentes  $a, b$  telles que la bissectrice de l'angle  $ab$  soit parallèle à une droite donnée  $m$ . Trouver le lieu du point de rencontre C des droites  $a, b$ , et construire la tangente à ce lieu au point C.

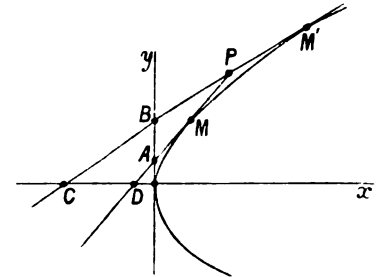
15119. (H. BATEMAN.)— $\xi, \eta, \zeta$  are the distances of a point from the angular points of a triangle. Prove that the two points for which  $\xi^l \eta^m \zeta^n$  is a maximum are the foci of the ellipse whose areal equation is  $\sqrt{(lx)} + \sqrt{(my)} + \sqrt{(nz)} = 0$ .

15120. (Professor COCHEZ.)

—On considère la parabole

$$y^2 = 2px.$$

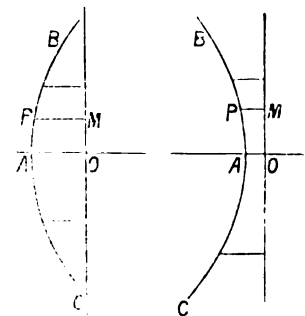
Lieu des points P tels que, menant les tangentes PM, PM' rencontrant les axes en A, D, B, C, le quadrilatère ABCD soit circonscriptible.



15121. (R. KNOWLES.)—Two tangents are drawn to meet a rectangular hyperbola centre C; a third tangent meets those in M, N; O is the mid-point of MN; F, G are the projections of O on the asymptotes; O' is the mid-point of FG. Prove that (1) the points O, O', C are collinear; (2) if H is the projection of C on FG, the angle HCO is bisected by the axes.

15122. (Professor SANJANA, M.A.)

—With points on an arc of a circle BAC as centres, and the perpendiculars from them on a given straight line OM as radii, circles are described. Investigate the equation of the envelope: and examine its form near the axis AO of the arc, when the straight line approaches very near to the arc. Also, solve the problem when BAC is a parabolic arc.



15123. (S. F. S. HILL.)—The condition that the seven poristic equations between  $a\beta, \beta\gamma, \gamma\delta, \delta\epsilon, \epsilon\eta, \eta\zeta, \zeta a$  of type  $(\cos a \cos \beta) / a + (\sin a \sin \beta) / b = 1/c$

$$\Sigma (c^2 + a^2 - b^2)^4 (a^2 + b^2 - c^2)^4 - 2 (b^2 + c^2 - a^2)^2 (c^2 + a^2 - b^2)^2 (a^2 + b^2 - c^2)^2 = k,$$

where  $k = (a^2 + b^2 + c^2)^2 + 8abc(a+b+c)$ .

Hence deduce the condition for porism of seven of type

$$a \cos a \cos \beta + b \sin a \sin \beta + h \sin (a + \beta) = c.$$

15124. (Professor UMES CHANDRA GHOSH.)—(Suggested by Quest. 14012.) If  $\alpha + \beta + \gamma = s$ , prove the identities

$$\begin{aligned} (1) & 64 \{ \sin^2(\beta - \gamma) \sin(7s - 5\alpha) + \sin^2(\gamma - \alpha) \sin(7s - 5\beta) \\ & + \sin^2(\alpha - \beta) \sin(7s - 5\gamma) \} - \{ \sin(\beta - \gamma) \sin(s + 13\alpha) \\ & + \sin(\gamma - \alpha) \sin(s + 13\beta) + \sin(\alpha - \beta) \sin(s + 13\gamma) \} \\ & = -28 \sin(\alpha - \beta) \sin(\beta - \gamma) \sin(\gamma - \alpha) [ 3 \{ \sin(4s + \alpha) + \sin(4s + \beta) \\ & + \sin(4s + \gamma) \} - 2 \{ \sin 2(3s - \alpha) + \sin 2(3s - \beta) + \sin 2(3s - \gamma) \} ]. \\ (2) & -64 \{ \sin^2(\beta - \gamma) \cos(7s - 5\alpha) + \sin^2(\gamma - \alpha) \cos(7s - 5\beta) \\ & + \sin^2(\alpha - \beta) \cos(7s - 5\gamma) \} + \sin(\beta - \gamma) \cos(s + 13\alpha) \\ & + \sin(\gamma - \alpha) \cos(s + 13\beta) + \sin(\alpha - \beta) \cos(s + 13\gamma) \\ & = 28 \sin(\alpha - \beta) \sin(\beta - \gamma) \sin(\gamma - \alpha) [ 3 \{ \cos 4(s + \alpha) + \cos 4(s + \beta) \\ & + \cos 4(s + \gamma) \} - 2 \{ \cos 2(3s - \alpha) + \cos 2(3s - \beta) + \cos 2(3s - \gamma) \} ]. \end{aligned}$$

15081. (D. BIDDLE.)—[The Proposer wishes to add to the data in this question the SIMSON-line in respect of the point on the circum-circle determined by producing the lines joining the two centres.—EDITOR.]

OLD QUESTIONS AS YET UNSOLVED (IN OUR COLUMNS).

9382. (Professor HAUGHTON, F.R.S.)—FRESNEL made, in 1815, the following observations on the external fringes produced by a wire interposed in the path of a beam of light proceeding from a point:— $a$  = distance from light to wire;  $b$  = distance from wire to screen;

$x$  = distance between the first exterior fringes on both sides less the width of the geometrical shadow:—calculate these from  $\log(1/2\lambda)$ :—

No.	$a$	$b$	$x$
	m.	m.	m.
1	1.49	0.385	0.00138
2	1.49	1.107	0.00285
3	1.49	4.186	0.00789

**9388.** (Professor NASH, M.A.)—Show that (1) the foci of the conic  $la^2 + m\beta^2 + n\gamma^2 = 0$  are given by the equations  $laA = m\beta B = n\gamma C$ , where  $A = \beta\gamma + \alpha(\beta \cos B + \gamma \cos C - \alpha \cos A)$ , &c.;

and hence (2) if the conic touch four fixed straight lines, the locus of the foci is a circular cubic passing through the six vertices of the quadrilateral formed by the lines, and also through the feet of the perpendiculars of the harmonic triangle of the quadrilateral; and (3) if the conic pass through four fixed points, the locus of the foci is a bicircular sextic having double points at the vertices (acnodes), and at the feet of the perpendiculars (crunodes) of the harmonic triangle of the quadrangle.

[The foci can, of course, be obtained as the intersection of two conics, instead of two circular cubics, but apparently not in a symmetrical form.]

**9475.** (F. R. J. HERVEY.)—Prove that, if four concyclic points are projected, two and two, by parallels, upon the asymptotes of any hyperbola passing through them, the projections are concyclic; and, conversely, if the projections of four points upon certain axes, taken as above in any order, are concyclic, the given points are the intersections of a circle with a hyperbola having the given axes for asymptotes.

**9507.** (Professor SCHOUTE.)—Given four points A, B, C, D in a plane, find the locus of (1) the vertices, and (2) the centre, and (3) the envelope of the diagonals of a rhombus, the sides  $a, b, c, d$  of which pass successively through A, B, C, D.

**9526.** (Rev. T. C. SIMMONS, M.A.)—Show that the solution of Quest. 3619 ("Given the sides of three squares inscribed in a triangle, determine the triangle") can be made to depend on the solution of the equations

$mn(\sin A + \sin B \sin C) = nl(\sin B + \sin C \sin A) = lm(\sin C + \sin A \sin B)$ , where  $A + B + C = 180^\circ$ ; and hence, if possible, solve the former.

**9543.** (Professor SWAMINATHA AIYAR, B.A.)—Find the number of permutations of the first  $n$  natural numbers taken all together, subject to the condition that no number is immediately followed or preceded by the next higher number.

**9584.** (Professor SWAMINATHA AIYAR, B.A.)—G is the centroid of a triangle ABC, P its orthocentre, and Q a point in PG produced, such that  $GQ = 2GP$ . The angles  $a, b, c$  (equal respectively to A, B, C) of another triangle move on the sides BC, CA, AB; the circum-circle of  $abc$  cuts the sides of ABC again in D, E, F, and  $def$  is the ortho-centric triangle of  $abc$ . Show that (1) the centre of similitude of  $abc$  and ABC moves on the circle on GP as diameter, (2) the centre of similitude of  $def$  and DEF moves on the circle on GQ as diameter.

#### NOTICES TO CORRESPONDENTS.

It is requested that all Mathematical communications should be sent to the Mathematical Editor,

Miss CONSTANCE I. MARKS, B.A., 10 Matheson Rd., West Kensington, W.

*Vol. I. (New Series) of the "Mathematical Reprint" is now ready, and may be had of the Publisher, FRANCIS HODGSON, 89 Farringdon Street, E.C. Price, to Subscribers, 5s.; to Non-Subscribers, 6s. 6d.*

#### THE LONDON MATHEMATICAL SOCIETY.

Thursday, April 10th, 1902.—Dr. Hobson, President, in the Chair. Eleven members present.

Prof. C. J. Joly, Dunsink Observatory, Gamesh Prasad, D.Sc. Christ's College, Cambridge, and Miss Lilian Whitley, B.A., Westfield College, Hampstead, were elected members.

The President (Dr. J. Larmor *pro tem.* in the Chair) communicated a note "On Divergent Series." Prof. Love next gave results he had arrived at in connexion with "Stress and Strain in Two-dimensional Elastic Systems." Discussions followed on both communications in which the President and Messrs. Larmor and Love took part.

The President read the titles of the following papers:—

"Further Applications of Matrix Notation to Integration Problems." Dr. H. F. Baker.

"On the Convergence of Series which represent a Potential." Prof. Bromwich.

"On the Groups defined for an Arbitrary Field by the Multiplication Tables of certain Finite Groups." Dr. L. E. Dickson.

#### MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.

A MEETING of the Council was held at the College, Bloomsbury Square, on April 19. Present: Dr. Wormell, Vice-President, in the Chair; Mr. Bidlake, Mr. Bowen, Mr. Butler, Miss Dawes, Mr. Eve, Mr. Kelland, Mr. Ladell, Mr. Millar Inglis, Mr. Montgomery, Mr. Pinches, Mr. Rule, Rev. Dr. Scott, Rev. J. Stewart, Rev. J. E. Symms, and Mr. Walmsley.

The minutes of the last meeting were read and confirmed.

The Government Education Bill was considered, and it was resolved that steps should be taken to introduce an amendment with regard to requiring the consent of the Board of Education before application could be made for fresh rating powers by Local Authorities.

The Diploma of Associate was granted to Mr. J. S. Rathbone, who had passed the required examination.

The Report of the Finance Committee was adopted, and direction was given to remove from the members' list the names of a number of members whose subscriptions were in arrear.

Mr. J. L. Holland, B.A., 19 Tollington Place, N., was elected a member of the Council.

The following persons were elected members of the College:—

Mr. W. Clarke, A.C.P., Collegiate School, Lapford, N. Devon.

Miss F. E. S. Collins, A.C.P., 1 Norfolk Road, Horsham.

Mr. J. Lister, L.C.P., Sibson's House, Great Broughton, Cocker-mouth.

Mr. F. Pritchard, B.A. Camb., L.C.P., Myrtle Terrace, Dalton-in-Furness.

Mr. H. R. Yates, M.A. Camb., L.C.P., 1 West Cliff Mansions, Eastbourne.

The following books had been presented to the Library since the last meeting of the Council:—

By the AGENT-GENERAL FOR NEW SOUTH WALES.—Annual Report of the Department of Mines, New South Wales, 1900.

By the REGISTRAR OF THE GENERAL MEDICAL COUNCIL.—The Medical Register and the Dentists' Register, 1902.

By BLACKIE & SON.—Blackie's Reversible Copy Books, Nos. 1, 2, 3, and 4; Blackie's Picture Shakespeare (King Richard II.); Harrison's Junior Chemistry and Physics; Smart's Selections from Musset; Wall's La Fontaine's Longer Fables.

By the CLARENDON PRESS.—Barnard's Companion to English History (Middle Ages).

By W. B. CLIVE.—Allcroft's Caesar's Civil War, Book I.

By J. M. DENT & Co.—The Temple Moliere (L'Avare, Le Bourgeois Gentilhomme, Les Fourberies de Scapin, Le Meecin malgré lui, Les Précieuses Ridicules); Alge's De Pressensac's Une Joyeuse Nichee; Alge and Rippmann's Dent's First French Book, Dent's Second French Book, and Dent's German Reader; Clarke and Murray's School Grammar of Modern French; Duhamel's Revel's Nouvelles Normandes; Dutoit's French Language-Drill, Part I.; Frazier's Asinette, Heine's Buch der Lieder; Kron's French Daily Life; Minssen's Book of French Song; Ninet's Souvenir's La Vieille Cousine, &c.; Rippmann's Hints on Teaching French; Spencer's Moliere's Le Bourgeois Gentilhomme and Les Précieuses Ridicules.

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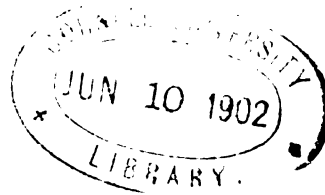
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**COLLEGE OF PRECEPTORS.—EXAMINATIONS, 1902.**

1. **DIPLOMAS.**—The next Examination of Teachers for the Diplomas of the College will commence on the 8th of July, 1902.—At the *Midsummer* Examination, persons who have previously passed in Theory and Practice of Education at the Diploma Examination may be examined practically for Certificates of Ability to Teach.

2. **CERTIFICATE EXAMINATIONS.**—The Midsummer Examination for Certificates will commence on the 1st of July, 1902.

3. **LOWER FORMS EXAMINATIONS.**—The Midsummer Examination will commence on the 1st of July, 1902.

4. **PROFESSIONAL PRELIMINARY EXAMINATIONS.**—These Examinations are held in March and September. The next Examination will commence on the 2nd of September, 1902.

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## CONTENTS.

	Page		Page
The Multiplication of Universities .....	241	The New President of Columbia .....	253
Notes .....	242	American Universities. By Prof. Knight, LL.D. ....	255
The Education Bill—Second Reading; Commentaries and Criticisms. —An Interdenominational Theological School in London.—Latin at London University Matriculation.—The Mansion House Meeting (University College, London).—Liverpool Secondary Education.— Archdeacon Wilson on Teachers and Teaching.—The Birmingham Faculty of Commerce.—Bilingual Teaching in Belgium.—Nature Knowledge (Mr. W. M. Webb).—The British Association and School Hygiene.—Education in Ontario.		Meeting of the Council of the College of Preceptors .....	257
Summary of the Month .....	245	Early Lessons in Science .....	257
Current Events .....	249	Slipshod English .....	257
Fixtures: Endowments; Honorary Degrees; Scholarships; Ap- pointments; Literary Items; General.		Reviews .....	258
Correspondence .....	252	The Oxford Iliad.—The New Volumes of the Encyclopædia Britan- nica (I. and II.).—Maximilian I., Holy Roman Emperor.—Grieb's English-German Dictionary.—Webster's International English Dictionary.—The Cultivation of the Mathematical Imagination.— The Girl from St. Agneta's.	
The Training of Secondary Teachers.—Secondary Teachers and the Registration Fee.—Registration Regulations.		General Notices .....	261
		First Glances .....	264
		Mathematics .....	265

## The Educational Times.

### The Multiplication of Universities.

THE creation of the University of Birmingham has led to a very natural movement on the part of Liverpool and Manchester to break up the Victoria University and to establish separate Universities for themselves. The true solution of the problem thus raised is not easy. Perhaps it is worth while to begin by considering the difference between a University and a College. The most obvious distinction is that a University can grant degrees—can “brand its own herrings,” to use a cant phrase—and a College cannot. But there are Colleges and Colleges. The Colleges of Oxford and Cambridge originally stood, as far as the students were concerned, in much the same relation to the University as the boarding-houses of Eton or Rugby stand to those schools. Gradually the teaching functions of the University passed, to a considerable extent, to the Colleges; so much so that some fifty years ago Cambridge, for example, in order to provide work for the professors, required passmen to attend a professor's lectures as one condition of proceeding to their degree. The higher teaching had practically passed out of the hands of the University, and the only way in which an Honour student came into contact with it was through its examinations. In recent years the movement has been in the opposite direction. No doubt a large portion of the teaching is still done by the Colleges, and the “coach” has plenty of employment; but the institution of inter-collegiate lectures and the formation of Boards of Studies presided over by the professors have organized a great deal of the higher work on a University basis, so that competent teaching under University control is supplied not only in each subject but in each department of a subject. Thus the variety of courses distinguishing a German University and the personal relation of teacher and pupil which has always characterized the Colleges of Oxford and Cambridge are combined.

The Colleges of which University College, London, is the prototype are of quite a different character. Putting aside the question of residence, they have had, from the beginning, to discharge towards their students all the functions of a University, except that of examining them and conferring degrees. They have been obliged, and that with inadequate

resources, to offer a complete curriculum both for honours men and for passmen. The whole teaching of a subject has, as a rule, been in the hands of a single professor, with rarely more than one assistant, often with none at all, while the examinations for which their students were prepared were conducted by examiners not necessarily in touch with them. Nor have the professors been placed under the most favourable conditions for an important function of a University, that of adding to the stock of human knowledge, though there are brilliant examples to the contrary.

The ideal University, then, it seems, requires a large staff of teachers, among whom there should be several representatives of each subject, each with his special department. All teachers should have some leisure for research work, and it should be possible for some of them, at intervals, to give the greater part of their time to it. Those who have read the preface to Dr. Frazer's “Pausanias,” in which he expresses his gratitude to Trinity College, Cambridge, for renewing his Fellowship, will appreciate this point of view.

Again, the teachers should be in close touch with each other and with the examiners, not merely in formal University meetings, but, what is at least as important, in informal intercourse. If they can be dispersed in separate institutions, each with a life of its own, but all within reach of each other, so much the better. The *esprit de corps* of subdivisions is an important element in forming the *esprit de corps* of the whole, both as regards teachers and as regards students. It is important to stimulate the personal interest of a comparatively small group of teachers in a comparatively small group of students. One of the great charms of Oxford and Cambridge is that, by means of the Colleges, men following the most divergent lines of study are thrown into close intercourse. As to examinations, a University ought to be at once self-sufficing and willing to borrow some help from outside. Some think that a teacher should but rarely take part in the examination of his own pupils, inasmuch as few can hit the happy mean between following too closely the lines of their own teaching and (from conscientious motives) deviating too widely from it; and that a member of a group of teachers animated by a common aim is likely to be a better examiner of the work of his colleagues than any one of them would be of his own. A very successful plan is seen in operation in the degree

examinations of the Scottish Universities, where an external examiner in each group of subjects is associated with the professors.

Thus the question for the Northern towns and for the Privy Council to consider is whether they have a prospect in the present or the immediate future of developing their Colleges into a University, with a staff adequate alike for elaborate division of labour and for the formation of a healthy public opinion. It may well be that the stimulus of local patriotism will, to a certain extent, compensate for the want of a sufficiently large academic society. At any rate, it is difficult for such a society to exist in a federated University like Victoria; the time of professors is too valuable to be wasted in frequent railway journeys, and such journeys can do but little to promote informal intercourse and to produce solidarity of interests. Still less is there any real community of interests among the students of widely separated colleges.

One difficulty raised by the opponents of separate Universities for the three towns may be lightly dismissed. It is argued that they may be tempted to bid against each other for students by lowering the standard of their degrees. Probably the danger, if any, is in the other direction, as Mr. Haldane has pointed out. The London standard for pass degrees is certainly not lower than that of Oxford or Cambridge, nor has Victoria University taken any downward step. It is scarcely likely that, with their reputation to make, and a strong public opinion bearing upon them, the proposed new Universities will practically cut their own throats. Moreover, it would be easy for them to adopt a common standard, as is done in Scotland. One cannot help being amused at the fears expressed by some graduates of Victoria, that the worth of their own degrees will be lowered, as if one could estimate the value of a pass degree to two places of decimals. It is one more example of the intense desire of some people to create vested interests on the slenderest grounds. No doubt the Manchester, Liverpool, and Leeds graduates of Victoria will be allowed, if they wish it, to form the nucleus of the list of graduates of their respective Universities.

### NOTES.

THE Education Bill passed the second reading by the strong majority of 237. But even this bold figure falls short of the majority of 267 attained by the Bill of 1896, and it remains to be seen whether the present Bill will escape a like fate. The amendments set down for Committee are numerous and important, and the list will continue to grow. The debate was characterized by conspicuous ability and earnestness, with a most laudable absence of bitterness, and even of heated alarms and excursions. It did not, however, develop any arguments that had not already been urged on many platforms and in many journals. It was simply a formal joinder of issue. Plainly the Bill cannot get through the House of Commons without very prolonged discussion, unless the closure be applied somewhat remorselessly; and that, too, will raise deep questions. Everything will depend upon the promptitude of the Government in

cutting away all such elements of the Bill as they do not seriously mean to stand by. There can be no doubt that Mr. Bryce spoke the mind of the Opposition when he said "there has been, and there is, a universal and hearty wish to reorganize the schools and to spend more money upon them, if we are sure that the money will be usefully spent." This temper opens out a fair opportunity. But it must be met by more direct argument and more conciliation than were offered on the second reading.

THE Education Bill has naturally evoked a gush of literary commentary and criticism. Dr. Macnamara's pamphlet (Swan Sonnenschein) is a conspicuously pointed and level-headed examination of the whole scheme. As for secondary education, the Bill, he thinks, "can as it stands do but very little for this branch of the work." He calls the reference of a higher rate than 2d. to the Local Government Board "sheer nonsense." On the "terribly thorny problem" of the religious question, he avers that he has "worked in and about the Board school as pupil, pupil-teacher, assistant teacher, head teacher, and School Board member for the last thirty years, and never met such a case" as a parent that objected to the Bible teaching. This is a very striking declaration. Is there any experience to the contrary? If not, the practical conclusion is obvious and most important. Dr. Macnamara concludes his acute and temperate survey with a list of fifteen emendations that would, in his opinion, "vastly improve the Bill as an educational instrument, and would certainly facilitate its passing through the Houses of Parliament." "The Education of the People and the Bill of 1902" (King) takes a wider scope historically, and is well worth reading. Mr. Henry Smith writes "A Common-Sense Catechism" (Watts), whereby he hopes to show the way to "an end of the denominational controversy." Would that he could!

PROF. ADENEY makes a "bold suggestion"—but an eminently sensible one (if the money were forthcoming)—in the *Christian World* (May 8), for "the establishment of a great inter-denominational theological school in London" under the wing of the University. The University preserves a religious neutrality, and each of the theological colleges wishes to preserve its distinctive character; and, of course, Dr. Adeney has no desire to interfere with the one or the other. What he would like is "a teaching school voluntarily originated, organized, and equipped," with "no theological tests," dealing on common lines with a common curriculum; for "we have come to perceive that by far the larger part of the whole round of theological instruction is altogether independent of sects and parties." The different centres multiply the experts, but the expense presses on the colleges. Prof. Adeney is encouraged by the harmonious working of representatives of various denominations on the Board of Studies that has shaped the curriculum for the London degrees in Divinity.

THE action of the University of London in making Latin optional for the Matriculation Examination raises venerable controversies. The extreme step might, perhaps, have been obviated by decreeing a more rational style of examination

paper. Still it is but an option, and the teaching of Latin in schools will probably suffer less discouragement than is anticipated in some quarters.

THE public appeal for adequate support of the University work of London was prosperously launched at the Mansion House meeting, and it has been supported strongly by journals of every shade throughout the kingdom. The pecuniary basis of the incorporation of University College in the University of London is happily assured; but then the million remains to be found. The general assumption is that it should be found without difficulty. This is natural enough in the richest city in the world. "If our merchants and manufacturers appreciated the importance, as a factor in our national commercial success, of the higher education of the people of London," says *Nature* (May 1), "there would be no difficulty in obtaining the sum required by the Council of University College." True; but business men, even if satisfied with the general proposition, are not likely to give sums miscellaneously, and need to see clearly the connexion between cause and effect. To enable them to do so is a practical problem of much delicacy and complexity, and it requires time and tact. There are, however, large moneyed classes that owe a heavy debt to University College, and it should not take these any long time to make up their minds to lead the way. The millionaire cannot be expected to stand in first.

LIVERPOOL has discovered that it has practically no endowment for secondary education, while Birmingham has endowments equivalent to a rate of nearly 4d. in the £. Liverpool has £385 a year; Birmingham has £37,997. Not only does secondary education in Liverpool lack funds; it lacks also reorganization. With excellent elementary education and the prospect of a University, Liverpool must overhaul the middle stage, and bring it up to the times. A sub-Committee of the City Council has inquired and reported, and, no doubt, the educational fervour that now possesses the citizens will soon bring them abreast of Birmingham even in secondary education. Does not Liverpool claim to be the Second City of the Empire?

ARCHDEACON WILSON'S address on "The Profession of Teaching" to Kendal teachers, school managers, and parents is fresh, direct, and breezy, and ought to reach a wider audience. "I cannot exaggerate the loss to our secondary and technical schools," he says, "from the want either of method or of knowledge or of both; from the lack of training of teachers, the lack of a high standard of knowledge and of the value of research, and the lack of intelligent co-ordination." Why this multiplied lack? "No one, no Minister of Education in England, has arisen to grasp and mould and unify the education of the country as a whole." The Archdeacon was speaking three days before the introduction of the Education Bill, and it would be interesting to know whether this opinion still holds good. His own suggestion of the dominant aim of educators is substantially Wilhelm von Humboldt's: "Whatever we wish to see characteristic of our nation we must first implant in our schools." Mr. Wilson says:

Germany had then, and still has, the notion that seems to us so strange, so unaccountable, that it is best to follow the guidance of those who have made education their study, and not that of the man in the street. We have no educational ideals, because we have no educated authority with leisure to construct and power to impose them.

This is only too true. But it may be noted that the London County Council, in its educational sphere, has acted on the German principle; and its example may have wider influence yet. The great object, in Mr. Wilson's view, is "to prepare for life"—life in leisure (if any) as well as in activity; to develop, first of all, physical health (as to which we hope his suggestion of a record of facts will not remain barren), music and art, and "the observant eye," then history and literature, as well as technical knowledge of Nature. He does not emphasize the rather important consideration that "to prepare for life" includes preparation for making a living—the difficult basis of all.

THE Faculty of Commerce at Birmingham University will start work on October 1, and Prof. Ashley has already issued an account of "its purpose and programme."

Its object is the education, not of the rank and file, but of the officers, of the industrial and commercial army—of those who, as principals, directors, managers, secretaries, heads of departments, &c., will ultimately guide the business activity of the country.

The academic teacher cannot pretend to supply commercial brains or business experience any more than a medical school can create a great physician or surgeon. What he can do, however, is "to gather, arrange, and present the lessons of practical experience," and explain the interrelation of isolated conclusions in practical affairs, so as to afford a wider and instructed outlook, and "to enable the young man of business to profit by his early experience more rapidly and less painfully than is commonly the case." The curriculum of three years for the degree of Bachelor of Commerce (B.Com.) includes mainly (1) languages and history ("adequate equipment in two modern languages"), (2) accounting, (3) applied science and business technique, and (4) commerce—the last group being "intended to be the most characteristic feature of the Birmingham plan." Prof. Ashley sets out an admirable scheme of work, which ought to tell effectively in the long run.

It was a good idea to send a Welsh teacher to study the "Bilingual (Flemish and French) Teaching in Belgian Schools" on the spot. Mr. T. R. Dawes, Head Master of Pembroke Dock County School, as Gilchrist Travelling Student of the University of Wales, spent some thirteen weeks in Belgium in 1899, "visited elementary schools, secondary schools of various types, normal schools, and Universities," and "had interviews with inspectors, journalists, business men, professors, and schoolmasters"; and his "Report" (Cambridge University Press), though concise, is very pointed and instructive. The struggle for predominance is settling down into a sensible acceptance of bilingualism. Elementary education is free, but not compulsory; "it is not surprising, therefore, to find that as regards elementary education Belgium falls far behind most European countries." In the secondary schools the "constant linguistic training must have a great influence in producing the remarkable ease with which Belgians, more especially Flemings, acquire modern

languages"; but, on the modern side, "the tendency to leave the schools too early is continually deplored." "There are no pupil-teachers in Belgium." Both in the secondary and in the normal schools modern English stories—by Dickens, Stanley Weyman, F. Anstey, Conan Doyle, Kingston—are freely used as text-books. The pupils "who have gained the Leaving Certificate" of the secondary schools "have a good knowledge of two languages, and are able to converse in one or two others." This suggests comparisons. Yet in Belgium the direct method of teaching languages "is at present but imperfectly understood and only partially adopted." Still there is something to be learned from little Belgium.

THE current (April) number of the *Record* contains an elaborate article by Mr. Wilfred Mark Webb, F.L.S., on "Nature-Knowledge: its Progress and Interpretation." The Pestalozzians claim to have been teaching Nature-knowledge in this country for half a century or more, but the more immediate influence has been the enthusiastic exposition and practice of Prof. Bailey, of Cornell. What is the Cornell idea of "Nature-study"? Prof. Bailey says:

It is a point of view. It is the acquirement of sympathy with Nature, which means sympathy with what is. As a pedagogical ideal, nature-study is teaching the youth to see and know the thing nearest at hand, to the end that his life may be fuller and richer.

The purpose is to foster observation and deduction, as opposed to the storing up of dry facts imparted verbally. The method "is to be wholly informal," for Nature-study is not the study of a science, the study of the systematic relationships of the objects; and the subject is not to be "made a stated part of the curriculum," for in that case "its purpose would be defeated." In this country there is a considerable tendency, however, to give the subject its "fixed time and place" in the school work; and Principal Hall, of Wye College (*Journal of Education*, September, 1900), has stood out for the old didactic lines as against the heuristic method. The Board of Education takes the best of the American ideas, and tells teachers that "work of this kind is not of the nature of an additional study, but rather a change in the contents of lessons in the ordinary subjects." Yet this attitude tends to ultimate divergence from the Cornell type.

How is the teacher to be trained for this special work? Two types arise. If all the teachers of a district are to be appealed to at one and the same time, circulate among them leaflets and specimens illustrating object-lessons. If selected or individual teachers are taken, give them courses; "and it is with these we have principally to deal, for to their organization by far the most energy has been directed by the County Councils." Mr. Webb devotes much space to an instructive analysis of the courses given in three-fourths of the counties of England, setting forth syllabuses, notes of lessons, examples of the children's compositions and drawings, &c. Mr. Webb says:

It will be evident that, while hints, ideas, and additions to general knowledge can be gained from any good course, it is chiefly to the long ones that we must look for the giving of a systematic training in a definite science bearing upon "Nature-knowledge," although it would surprise many educationalists to learn how much in the way of principles can be imparted in two or three weeks of regular and practical work, if a single subject be adhered to.

The more scientific knowledge the teachers can eventually

assimilate the better. But the first thing is to get enough information to go on with.

MR. WEBB selects judiciously the following points for special emphasis:—

1. That those who are to train teachers should be broad-minded persons, who will do their best to put themselves into the place of the teacher and to appreciate his or her practical difficulties.

2. That the lecturer should present his object-lessons to the teachers in the same way in which the latter are in turn to give them to their pupils in school.

3. That, agricultural and horticultural schools being convenient places for the holding of courses, the industrial side should not be brought in unduly.

4. That in the case of rambles there should always, if possible, be some definite object to be studied, which is made known beforehand to those taking part in the excursion.

Teachers interested in this movement for a better system of rural education will study the article in the *Record* at first hand.

IN our last issue we enumerated various inquiries that have been undertaken by sub-committees of the British Association in connexion with schools and scholars, and invited the co-operation of teachers in rendering the inquiries fruitful. Since then we have received a circular from the sub-committee specially charged with inquiries as to "the practical knowledge of hygiene possessed by school teachers." The points of importance are set out in the following questions addressed to school managers:—

1. Are any certificates in hygiene for teachers recognized in your schools?

2. What certificates in hygiene have you found most suitable to the requirements of teachers?

3. If the teachers with whom you are connected have not been prepared for any special certificate in hygiene, have they received any instruction in it, or dealt with the subject at all, and, if so, in what manner?

4. To what extent are teachers required to exercise their knowledge of the subject—(a) in the management of the school buildings; (b) in arranging the curriculum and in the methods adopted for teaching; (c) in the scheme of physical training and drill; (d) in methodical observations of pupils' health, growth, eyesight, &c.?

5. What opportunities and encouragements are afforded to the teachers for the study of mental and moral as well as of physical hygiene?

"Copies of any curricula of study or courses of training in hygiene for teachers would be very acceptable." We hope that teachers will themselves respond to this appeal, and that too as promptly as possible. Information should be addressed to Mr. E. White Wallis, F.S.S., 72 Margaret Street, London, W.

THE report of the Minister of Education in Ontario for last year is marked by specific educational aspirations and breadth of view. The Minister affirms most truly that "the success of democratic institutions cannot be assured unless education holds a front place among topics of public interest"; and he states that "people have become so interested in school questions that the discussion of our educational system at a public meeting is almost sure to secure the presence of a large number of interested citizens," and regards it as "hopeful to find young people, especially, taking an interest in topics that affect so widely the national weal." "Education," he holds, "must continue to be subject to public control," though "there may be differences of opinion as to whether this public control should be by the Province or by the locality." He seems to lean to "decentralization in some directions," in accordance with the "Declaration of

Principles" of the National Educational Association of the United States. With open mind to suggestions for the solution of pressing problems, he exhibits a judicious practical caution. The question of consolidation of educational authorities is engaging attention in Ontario as well as here, but in the meantime the Minister concludes that, as "separate Boards have worked exceedingly well in some parts of the Province," while united Boards have also worked well in other parts, "it is better to give full freedom in the future, as in the past, to localities to settle the matter for themselves." At the same time, "to improve the status of the teacher should still be regarded as the most important question for future consideration."

THE "Regulations of the Ontario Education Department" contain the following provisions on the subject of religious instruction:—

97. Every public and high school shall be opened with the Lord's Prayer and closed with the reading of the Scriptures and the Lord's Prayer, or the prayer authorized by the Department of Education. . . .

98. The Scriptures shall be read daily and systematically; the portions used may be taken from the book of selections adopted by the Department for that purpose, or from the Bible, as the Trustees by resolution may direct. Trustees may also order the reading of the Bible or the authorized Scripture selections by both pupils and teachers at the opening and closing of the school, and the repeating of the Ten Commandments at least once a week.

99. No pupil shall be required to take part in any religious exercises objected to by his parents or guardians. . . .

100. The clergy of any denomination, or their authorized representatives, shall have the right to give religious instruction to the pupils of their own church, in each school house, at least once a week, after the hour of closing the school in the afternoon. . . . Emblems of a denominational character shall not be exhibited in a public school during regular school hours.

## SUMMARY OF THE MONTH.

THE second reading of the Education Bill was debated in the House of Commons for four days (May 5-8). Mr. Bryce moved the rejection of the Bill. He said with confidence there was a universal hearty wish on his side of the House to reorganize the schools and to spend more money on them if they were sure the money would be usefully spent. If the Government had omitted from the Bill "one element of political, or rather of ecclesiastical, controversy," he believed that object might have been attained. But the faults of the Bill were numerous, and they lay in its essence; and he had little hope that the Government would alter them. He defended the School Boards, which "even by the admission of Ministers themselves have done admirable work for the education of the country"; and he adhered to the recommendations of the Royal Commission of seven years ago. But a single Authority that is good for elementary education is not good for secondary education; and even this single Authority the Bill fails to provide. There are, in fact, four Authorities—the Board of Education, the County and Borough Councils, the Education Committees, and the local managers. The scheme was "replete with confusion, fertile of jarring claims, and interminable in controversies." Next was the question of educational improvements. Secondary education "is admittedly the greatest and most urgent of our educational problems," and "the Bill promises to do nothing for secondary education." It is purely permissive. "It is extremely probable that the large cost which elementary education will entail will greatly delay the additional rate for secondary education." In fact, secondary education should have had a Bill to itself; now it will probably go to the wall. Nor is there a word about training teachers. Mr. Balfour had said the Bill would put an end to barren ecclesiastical controversies and petty squabbles. "What he meant was that it will so rivet denominational schools on the educational system of the country that it will never hereafter be possible to disestablish them." "It is not an Education Bill, but a Voluntary Schools Bill"; "it is an absolute concession to clerical claims." "Sober judgment has already condemned it."

SIR JOHN GORST considered the present state of educational control "absolutely intolerable," and argued for a single Authority on the ground of preventing waste of money and deterioration of the education given. He had expressed his "strong approval and his strong admiration" of the work of School Boards in large towns, but he "could not be so complimentary to the School Boards in the country districts"—"they do not yet educate half the children in the county"; "their statutory authority is not clear"; and their districts "are wholly unsuitable areas for secondary education purposes." "To make the School Board the Education Authority would require a very great deal of very complicated legislation." "The Government think that an *ad hoc* Authority is an anachronism, and that to propose to revert to an *ad hoc* Authority is reactionary." Mr. Bryce's assertion that the Bill does nothing for secondary education "is a form of speech": the Bill creates an Authority, and provides that Authority with funds. "To a very large extent secondary education can be made self-supporting, and in many cases it is not so much a matter of money as of organization." Nothing for the provision of teachers? "Why, provision for teachers will be one of the first duties which the new Secondary Education Authority will have to consider. You cannot make teachers by Act of Parliament." The present unsatisfactoriness of our elementary schools arises, in the country districts, from want of money, and, in town districts, from "the neglect of the Education Authority, such as it is (the School Board), to properly supervise their schools; and, I think, in their desire to invade the field of secondary education they have neglected a considerable amount of their work as to elementary education." He would not enter upon the religious controversy; he would leave that to "the spread of common sense and Christian charity"; and he believed it existed "not in the schools themselves, but on the platform and in Parliament."

SIR WILLIAM HARCOURT attacked the finance of the Bill. "There is no more a single finance than there is a single Authority. Then there are four funds—the rates, the Government grant, the whisky money, and the voluntary subscriptions." The rate will be odious in the country districts, and the cause of education will be disliked: "the hatred of rates is stronger than the passion for education." Mr. Lloyd George urged the familiar arguments of the Nonconformists. In summing up the debate Sir H. Campbell-Bannerman and Mr. Balfour only emphasized previous arguments. The second reading was carried by 402 votes against 165—majority 237. At once a large number of amendments were handed in.

THE London School Board discussed the Education Bill on May 15 on a motion of approval. Mr. Lyulph Stanley moved an amendment setting forth that the Bill fails to secure an effective public Authority directly responsible to the electors; that it reduces the efficiency of elementary education by excluding scholars over fifteen from elementary day schools, by transferring evening schools to secondary education, and by preventing necessary training of pupil-teachers; that it gives no effective voice to parents or school authority; that it abolishes all obligation on the Board of Education to enforce on the Local Authority the making of due school provision; that it deprives the electors of the right of choosing women that should serve with the Education Authority; and that "by insisting on the appointment of managers for all schools, without giving the Education Authority the right to define the scope of their management, it impairs the efficiency which results from unity of direction, interferes with the power of promotion and transfer of teachers, diminishes the effective control of the Education Authority over the cost of the schools, and will lead to disputes which the Local Education Authority will be deprived of the power of deciding," and that therefore it should not become law. The amendment was carried by 29 votes against 24.

THE ARCHBISHOP OF CANTERBURY has sent the following letter to a correspondent:—

The Church has no desire to use the elementary schools for the purpose of making proselytes, but she requires her clergy to see that her own children are taught the Catechism, and taught the Catechism by men who believe it. Those who are taught by men who do not believe it are pretty sure to follow their teachers in not believing it. This is the ground for the action of the Church in this matter.

THE Bishop of Coventry, speaking at a dinner given (May 21) to the delegates of the School Board Clerks Association by the

Mayor of Bradford, where this body was holding its annual conference, said that, much as he admired the ancient Universities, he was in favour of multiplication of local Universities and free intercommunication between those Universities and elementary schools. He would have one senate or governing board of all Universities, clerks, or other representatives of elementary educational authorities. He contended that acquisition of knowledge was only part of education, and he insisted upon this, because he was pained beyond expression by certain words which fell from Dean Gregory in Convocation. He was quite sure of this, that School Boards had been a great moral and religious agency in this country. They had done a great religious work. While we had been annoyed with hooliganism and other conditions that had obtained in our great cities, fault was not to be laid at the door of the School Boards, but upon housing and other conditions under which children were brought up, and that every night of their lives undid the work that School Boards had been doing during the day. None of those that knew about it could deny that School Boards had been responsible for a great measure of moral and religious advance in this country.

MAY 14 was Presentation Day at the University of London. Lord Rosebery, the new Chancellor, occupied the Chair, and commemorated his predecessors. Principal Rücker stated that the number of entries for the examinations was larger than in any former year. There was no sign of falling off, for the entries for the matriculation examinations in June were about 10 per cent. greater than the maximum number previously recorded. It was determined to establish two Chairs of Chemistry at University College, one for general chemistry, which would be filled by Prof. Ramsay, the other for organic chemistry. In no subject had the difference between the completeness of English and foreign educational equipment been more marked than in chemistry. He believed that up to the present only two or three educational institutions in this country had more than one professor of chemistry, while in Germany even a university of the second class usually had several professors in that department. It was hoped that the chairs now established in University College would be the beginning of a great Chemical Department worthy of London. It was time that London should realize that it was not the want of men nor a dearth of intellectual effort which had hindered the University of London from taking its place as a great centre of teaching and research. Their needs were organization, which should make the results of the work of the teachers, their assistants, and students more fruitful and better known as results of which London might be proud, and funds to supply them with the materials for this work. The Chancellor then distributed the prizes and conferred the degrees on the successful candidates.

THE same day the Council and Principal of Bedford College for Women celebrated commemoration day at the college. There was a large attendance of visitors and friends of the students. During the past term there have been 190 students at the college, and 29 of them were successful in taking degrees at London University. The artistic work of the students was exhibited in one of the large rooms of the college.

THE mace of the University of London, presented to the University by Sir Henry Roscoe, on his retirement from the office of Vice-Chancellor, says the *Daily Graphic* (May 15), has a distinct character of its own, being evolved from a wand or staff of office. It is, therefore, larger and more elegant in form than the municipal mace, which has the ancient fighting weapon as its prototype. It is the work of Messrs. Ramsden & Carr, of Battersea. It is made entirely of hand-beaten, wrought, and *repoussé* silver, gilt, with panels of translucent *champ-levé* enamel. The head is surmounted by a royal crown, the orb of which is of lapis lazuli, carefully guarded by protecting bands of wrought metal. The crown is a new rendering of the old and traditional *motif* of alternating *fleurs-de-lys* and Maltese crosses. Inside the crown, fitting as a lid, incised in a line of mediæval character, are the royal arms, with the letters "E.R. VII." The head is formed by four crowned and winged figures, kneeling, and holding shields of *champ-levé* enamel. Two of these portray respectively the arms and the badge of the University, and the other two set forth the dates of its foundation (1836) and its reorganization (1900). Between the figures, which represent the triumph of light and education, rises the tree of knowledge, among the knotted roots of which the figures kneel. Immediately below is

a knot of struggling figures representing darkness and ignorance enslaved, and aspiring to light. All the figures are different, and portray different notes in the scale of pathetic woe. Among them swirl bands of wrought metal, typifying the rush and whirl of the present day.

The shaft, which is of great length, is divided into five unequal parts by four knots, each set with oblong panels of brilliant enamel, wherein fiery gleams of orange appear in conflict with dusky ruby. The panels are protected by wrought straps of metal. A pleasant grip is afforded to the shaft by its being overlaid with cables of twisted silver. Above the foot knob is a band of incised lettering, setting forth the gift of the mace, and underneath, in rich bold *repoussé*, are four renderings of the University badge, the crowned rose, with rays in all directions. These badges are displayed inverted, as at times this end is borne uppermost. The finial is completed by a solid spike for resting on the floor. The mace is enclosed in an oaken box, which is bound with hammered bronze mounts, and has a shield with the University arms in *repoussé*. Our contemporary figures as well as describes the mace.

THE Mansion House meeting (May 9) to make public the appeal of University College, London, for adequate funds, proved very successful. The Duke of Devonshire moved: "That this meeting is of opinion that the incorporation of University College, London, with the University of London will materially promote higher education and research in London, and that with this object a fund should be raised to equip and endow the College adequately for such education and research." He reviewed generally the necessities of the higher education, and explained the position of University College and the conditions of its incorporation in the University of London. Sir Michael Foster, M.P., seconded, and Principal Rücker supported, the resolution, which was duly carried. On the motion of Lord Brassey, seconded by Lord Avebury, and supported by Mr. Lionel Phillips (who promised, on behalf of his firm, £10,000), a further resolution was adopted urging upon the citizens of London the importance of a generous response for the million pounds necessary to equip and endow the University. Sir Richard Farrant (Treasurer) announced that £110,000 had been promised.

THE *Pall Mall Gazette* wrote (May 9): "A blow is struck today at London's self-complacency which is likely to leave her under a sense of shock." After discussing the needs of University College and the University of London, the writer concluded thus:

It is surely no remote or unlikely vision to see London, rich as she is, provided with a self-supporting University, to keep our teeming generations abreast of the time, in language and history, in science and in arts. Such a scheme implies a central group of colleges with subsidiary centres north, south, east, and west, with multiplied chairs on popular and essential subjects, and more exclusive studies relegated to the centre which proves most convenient. Such a University would be a true home of knowledge—knowledge which is not merely static and written and dealing with past times, but dynamic, full of the future, and rapidly accumulative. There would be adequate schools of research, rich in the proper appliances, to which our producers and manufacturers might apply for advice or assistance instead of referring, as they do now, to experimental schools abroad. And with a section of the Imperial Institute set apart for executive and secretarial purposes, as at present intended, one could hardly conceive a finer teaching centre than the completed fabric of University College, with its laboratories and libraries in full activity, its magnificent Edwards-Petrie collection for Egyptologists, its admirable pathological and other museums, and its providential nearness to the valuable records of the British Museum. We hope to-day's meeting will bring this ideal within practicable reach, and that before the century is very much older learning may be seated in our midst, as upon a seven-crested hill, honoured and giving honour.

THE recent annual report of King's College, London, recorded thoroughly satisfactory work in all departments of the college and school, and the maintenance of a large attendance. The college had closely associated itself with the re-organization of the teaching work of the University of London, and one of the new University Chairs of Engineering would be located at the college. There was again a deficiency on the year's working, due chiefly to the charge for interest on the college debt, and it would be necessary shortly to make an appeal not only for the extinction of the debt on the college, but for funds to provide for a considerable increase of expenditure in order that the continued



progress of the college might not be impeded and its usefulness as a school of the University crippled.

LIKE Cambridge, Oxford is striving for a more adequate recognition of economics. A petition, signed by nearly a hundred members of Convocation, and restricted to "residents engaged in teaching," has been forwarded to the Vice-Chancellor for presentation to the Hebdomadal Council. It suggests the establishment of "a new School of Economics and Political Science," "confined to such persons as have taken the degree of B.A. or B.Sc. or B.Litt., or have passed the examinations required for the degree of B.A." The idea differs from the Cambridge proposal in not asking for a complete curriculum forming a new and independent path to the degree of B.A. It aims really at a post-graduate course. But it marks the advance of economics and cognate subjects in academic appreciation.

SIR ALFRED L. JONES, "the energetic and Imperially-minded head of the great shipping firm of Elder, Dempster, & Co." (as the *Times* describes him, May 12), wrote to the *Times* (May 10):

As I consider the idea of the late Mr. Cecil Rhodes of granting scholarships to our colonies is a most excellent one, I have much pleasure in announcing that, with the object of aiding his scheme, I will agree to give a free passage backwards and forwards from any colonial port served by my firm's steamers to both Jamaican and Canadian scholars once a year during the tenure of their scholarships. I would also suggest that there should be a condition that the scholars enjoying this privilege should have a *bona fide* domicile in the colonies from which they hold their scholarships. Some of them might be qualified by colonial birth, but domiciled in this country while holding their scholarships. It would not, in that case, be reasonable for them to expect to secure a free passage to the colonies in which they are no longer domiciled. I trust that my example will be followed by ship-owners trading to other colonies, and I hope that it may thereby be made universal, so as to put all the Rhodes Scholarships from the colonies on an equal footing.

On this letter the *Times* wrote (May 12): "It is a small thing to ask of men so closely dependent on the welfare and solidarity of the Empire as steamship owners are, and it is a great thing to enable the colonial scholars brought to England by the Rhodes bequest to visit their distant homes almost as easily as an ordinary undergraduate goes home at the end of term. . . . If the example of Sir Alfred Jones were generally followed, its effect would be to enable every colonial scholar to devote himself to serious and sustained study at Oxford, without severing himself for three or four years from the colony in which he is domiciled and the home in which he has been nurtured."

MR. W. H. ALLEN, Chairman of Messrs. W. H. Allen & Co., Queen's Engineering Works, Bedford, wrote to the *Times* (May 15):

The offer from Sir A. L. Jones suggests to me that other methods to further the great ideas of Mr. Rhodes's will might be carried out. No doubt, many of those students leaving Oxford having a scientific turn of mind may desire practical training for an engineering life afterwards. This company would be prepared to take a Rhodes scholar to pass through the scientific and practical training at these works, where we have special opportunities for teaching, free of any fees, for a three years' course, at the rate of one per annum. I hope this suggestion may be of use to the trustees, and may at the same time give rise to others.

"OXONIENSIS" (*Times*, May 15) calls for an "Imperial-minded millionaire to provide for 'advanced studies in electricity' at Oxford, and for 'others' to 'follow the example [of Mr. Rhodes] in other directions'—in fact, for 'a new generation of liberal and pious founders inspired by the new Imperial idea.'"

THE Graduates' Defence Committee of the Victoria University have issued a pamphlet setting forth the case against disruption. It is urged that three small local Universities would not, from an educational point of view, be so efficient as one large associated University. It is estimated that for the three Universities there would be required £1,000,000 for Leeds, £750,000 for Liverpool, and £250,000 for Manchester, in addition to the money in hand; and the question is asked: Where is this £2,000,000 to come from? The Committee conclude thus:

There appear before us two alternatives. On the one hand a great federal University, strong already in attainment and prestige, and destined to become an educational Parliament, controlling and guiding the educational forces at work in the most populous districts of Eng-

land, and maintaining, equally with the older Universities, that breadth of outlook and that high standard of intellectual efficiency which ultimately affect both national and Imperial development.

On the other hand, it is proposed to create a number of small local Universities, owing their origin rather to so-called local patriotism than to broad educational ideals, with consequent narrowness of aim and a veritable anarchy of conflicting educational interests.

On these grounds, appeal is made to "all who have the true aims of education at heart" to use their influence to oppose the movement for disruption, "the ill effects of which, we believe, will be irreparable." These contentions will, no doubt, be promptly answered by the other side.

THE draft charter of the proposed University for Liverpool, settled by the Council of University College (May 13) gives large powers as to the conferment of degrees in all the recognized faculties, as well as in the Faculty of Commerce, which embraces the sciences of economics, geography, banking, and commercial law. It also gives powers to admit new constituent colleges; to recognize halls of residence for students; to establish new professorships and lectureships; and provides for the establishment of external examiners. The powers of the Senate and Convocation, and the rights and privileges of graduates, are dealt with on modern lines, and provision is made for the representation of the City Council on the governing body. Existing graduates of Victoria who have taken their degrees from University College may have conferred upon them an *ad eundem* degree of the Liverpool University.

WALES has evidently received a vigorous educational impulse. There is now on foot a movement to petition the Lord President of the Committee of Council on Education to make a grant towards the establishment of a Welsh national museum. Wales feels that she "is being neglected by the Government in museum matters," and thinks that "objects of the highest interest to the Cymry discovered in Wales" should be kept in Wales, and not stored in the British Museum. "This subject," says Mr. J. L. Wheatley, Town Clerk of Cardiff (*Western Mail*, May 13) "has, time after time, been debated in the House of Commons; but the Government have invariably shielded themselves by the want of agreement of the Welsh people on a recognized capital or distributing centre. This, however, is not the only point upon which Wales fails to be of one mind. Whilst many are in favour of one central museum at which objects should be collected for the whole country, and these objects, as far as possible, disseminated and circulated amongst the various museums and schools of art, educationalists whose opinions are entitled to the greatest respect urge that, having regard to the geographical and educational conditions of Wales, the purposes of the Museum grant would best be promoted by a distribution amongst the three University Colleges of Aberystwyth, Bangor, and Cardiff."

DR. E. H. GRIFFITHS, Principal of University College, Cardiff, has made an important offer to Wales. He considers it the duty of Welshmen to give opportunities for scientific research to the most promising students of the Universities of Wales, and regrets that such students have to forsake Wales for Germany or England to pursue their studies. He thinks that, if Welshmen are ever to make a name in science, the only hope is in the provision of a properly equipped laboratory dedicated solely to research. Accordingly he has generously offered his valuable collection of scientific apparatus to Cardiff provided a suitable home be procured. The collection has taken him fifteen years to construct and obtain. He estimates the cost of a suitable building at about £2,000, and suggests that it might form an appropriate memorial to the late Principal, and might fittingly be termed "The Viriamu Jones Research Laboratory." Students engaged in investigations might be maintained by a sustentation fund, and the investment would yield returns of academic and real commercial value. If Cardiff does not accept the offer, the collection will be presented to the National Physical Laboratory at Teddington.

THE Board of Education has intimated that, within reasonable limits, a teacher in receipt of a disablement allowance, under the Elementary School Teachers' Superannuation Act, may add to his, or her, income by undertaking some light employment other than teaching in school, and that the consent of the Board of Education is not necessary before undertaking such employment.

THE number of candidates that entered for the recent com-

mercial examinations of the Society of Arts was 16,344. The actual number of papers worked was 14,776, an increase on last year of 649. There are two grades, Preliminary and General. In both grades the most popular subject was book-keeping, for which there were in (Grade I. (Preliminary) 1,507 candidates, and in Grade II. 3,800. Shorthand comes next with 1,454 and 3,101 candidates. Of the other subjects there were, in Grade II., 795 candidates for typewriting, 544 in French, 270 in German, 222 in arithmetic, and 170 in Spanish. The numbers entering for the other commercial subjects were comparatively small. In Grade I. there were 471 in typewriting, 607 in French, 190 in German, and 276 in arithmetic.

THE American educational papers have been overflowing with memorial notices and eulogies of Colonel F. W. Parker, Director of the School of Education in the University of Chicago. Many bracket his name with that of Horace Mann. The *School Journal*, in a "Parker Memorial Number," calls him "the great apostle of primary education." "The whole history of American education," writes President Butler, "has never seen purer idealism or more sincere devotion than Colonel Parker's. He believed in democracy with all the fervour of his nature, and his love for the child and childhood knew no limits. As a great inspiring force, who was impatient of artificial trammels and of formulas when life and spirit were at stake, he has had no equal in our public school service."

IN connexion with the American University of Harriman, Tennessee, a College of Temperance is being organized as a monument to the memory of the late Dr. Frances E. Willard. There will be two years' teaching and training under specialists for such as desire to fit themselves for special temperance work. It is also intended to investigate specifically the effects of alcohol on the human system, and of the drink traffic on the public welfare and national prosperity. There will be two chairs endowed—to teach scientific temperance and political economy and prohibition.

IN Australia, New South Wales claims to lead in technical education. The work was successfully started by the formation of classes in one of the State-aided educational institutions in Sydney; then it was taken in hand by a Technical Education Board; and in 1889 it was handed over to the State Department of Public Instruction.

At this time there were 72 metropolitan classes, with an attendance of 2,077 students. In the same year the State purchased a block of land in one of the outlying portions of the city for about £30,000 on which to erect a technical college on an extensive scale, the completed building now forming one of the leading architectural features of Sydney. . . . The actual number of students during the third term of 1901 was: agriculture, 120; sheep and wool training, 79; chemistry and geology, 283; pharmacy, 24; mechanical engineering, 821; electrical engineering, 209; applied physics, 280; mathematics, 79; sanitation, 403; architecture, 371; art, 732; industrial and decorative art, 110; domestic economy, 130; separate classes, 454; total, 4,095. The number of students attending the colleges and branch schools was 9,267, as against 8,625 for the previous year, being an increase of 642. The weekly average attendance of individual students was 7,721. 4,225 candidates presented themselves for examination, of whom 3,126 passed. . . . The total expenditure on technical education during 1901 for the Sydney and branch colleges and branches was £23,076. 8s. 11d.; for technological museums, £4,597. 15s. 2d.; and for payment to teachers as part remuneration and purchase of chemicals and contingencies, £5,742. 12s. 7d.

### UNIVERSITIES.

(From our Correspondents.)

OXFORD has so long been inclined to consider herself the centre of creation that the Rhodes bequest, with its scheme for giving some practical basis for the belief, has, of course, served to foster the belief still more. But the chorus of approval which Mr. Rhodes's scheme seems to have received from outside critics has not been quite so hearty here. Two main difficulties suggest themselves. In the first place there is the question of finance. The popular and uninstructed world who are not Oxonians seem to imagine that Oxford has received a large bequest; this (excluding, of course, the provision for Oriel) is quite untrue. The Rhodes students will only pay the small University dues, and, if they are undergraduates, the college tuition fees. Now the fact is that, if it were not for endowments, neither the Universities nor the colleges could afford

to carry on their business. Indeed, the education given—whatever value, exaggerated or otherwise, we may assign to that education—is really provided at less than cost price; it was an Irishman who suggested, we believe, that the only way of making a profit under such circumstances would be to increase the business. Of course, it may be retorted that the same teaching staff will do for greater numbers; but this is not in reality true, for most colleges have now their full complement of undergraduates, and so must either reject more home competitors at their matriculation examination, or else make preparation to receive a larger number. Of course, the difficulty is not insuperable, we hope, but still it remains; and perhaps, had Mr. Rhodes known more of the inwardness of the question, he would have faced the position; as it is, we believe that it may still be open to the trustees of the will to do so. The second *crux* which the bequest creates is to be found in the status of the scholars themselves. They will not, of course, be "scholars" in the ordinary and accepted sense, but will, we imagine, either be undergraduate commoners or else post-graduate students who come with a degree from elsewhere, and proceed to read for one of our new research degrees. In the latter case, the position is simplified, though we do not fancy this is quite what Mr. Rhodes intended; in the former, we are at once faced by the question of the standard of admission. A writer in the *Oxford Magazine* has inclined to the belief that we shall interpret the University statutes and the requirements of Responsions "in a generous spirit." Needless to say, once the suggestion is in the air, the "old guard" stand to arms once more; it is really the question of Greek. Prof. Case has voiced the sentiments of the old guard in his recent eloquent defence of Greek as the best means of education, and there are doubtless many who, whether here or at Cambridge, will die with him in the last ditch. Oxford is so steadily tending towards specialized study that we shall soon have to decide between what is, or is held to be, the best education absolutely, and that which is likely to be commercially the most profitable. Of course, the promoters of the latter can point to Mr. Rhodes's views on a medical school; but, as a distinguished member of the University pointed out at Reading, Oxford can never aspire to give the practical and clinical instruction that the hospitals of a big town afford. The value of the Oxford Medical School must lie in the preliminary training, and we have little hesitation in saying that so much has been done for the equipment of Oxford science lately, and so able are the teachers, that the preliminary training will compare favourably with that of any other school in the world.

This is, perhaps, rather a lengthy dissertation on what has ceased already to be, outside of Oxford, a nine days' wonder; but the whole Rhodes bequest, and the terms in which it was framed, have caused so much discussion and difference here that an Oxford letter can hardly afford to disregard it.

The most recent topic of interest has been the University appeal, and that of many colleges, against the new "assessment" of University and college buildings. As at the moment of writing Mr. Lyttelton's judgment has not been made public, we can hardly venture to criticize the presentation of the case by the opposing sides. One or two points—not, perhaps, controversial—seem to emerge: for instance, that there is no real principle on which you can assess buildings used for teaching purposes. The idea of a faculty tax—familiar to students of Walker's "Political Economy"—was tentatively put forward—i.e., that the colleges should pay what they can afford to pay. A second, and somewhat amusing, point was the eagerness which University and college officials displayed in trying to demonstrate that their buildings should not be highly assessed, as being peculiarly unfitted for the purposes for which they were intended. Yet a third anomaly may be noticed—we hope without offence to the assessors—the chapel of Keble was more highly assessed than the rest of the college put together.

We have had for the first time an Honours Moderations list with four classes, and, though some profess themselves satisfied, others still maintain that the standard of the second and the third class should be raised still further. We are informed on good authority that the standard of the first remains as it was, and this is borne out by the numbers in the class, but that for the second the standard was raised to the requirement of twelve seconds, a first in any subject being equivalent to two seconds.

We have had lately quite a plethora of public lectures; and on May 21—surely owing to some want of foresight—those who go in for a fine assortment of mixed intellectual instruction could have had three consecutive discourses—Sir Hubert Parry, on "The Development of Music Style," in the Sheldonian, at 2.30

p.m.; the Slade Professor of Fine Art at the University Galleries, at 3.45 p.m.; and the Professor of Poetry at the Schools, on "Shakespeare's Theatre," at 5 p.m. Can it be that these distinguished men wished to be in Oxford for the first day of the Eights and the Australian match?

The Romanes Lecture on June 7 is to be delivered this year by Prof. Bryce, the subject being "The Relation of the Backward and Advanced Races of Mankind." A correspondent in the *Oxford Magazine* suggests that the subject borders too much on the political; and that, in view of Mr. Bryce's recent attitude, a discourse on "The Unholy British Empire" might have been even more suitable.

The new buildings in Oxford grow apace. Those of University are certainly effective, and will add, we think, to the appearance of the High. A bridge across Logic Lane is to connect the old and the new. University has thus been more successful than Hertford in obtaining permission for a bridge from the City Council; and Hertford must have an underground passage, in place of a bridge of sighs.

The weather has been so extremely wintry that both cricket and boating have been carried on in discomfort, though there has been the usual make-believe of summer by undergraduates in punts and Canadian canoes. Panama hats have made mock at the keen nor-easter.

The University Eleven—after much prophecy of a favourable kind—turns out to be miserably weak in bowling and unreliable in fielding, and made but a poor show against the Australians. On the river there was some exciting race for the headship between New College and University. The critics say unkind things of Oxford rowing; and the swing of the pendulum is certainly now just verging to Cambridge.

THE almanac says it is the May term, so we must believe it; but Cambridge for the last six weeks has combined the dullness of the Lent term with the rigours of November. Panama hats are fruitlessly exposed for sale, and a few adventurous youths wear them. The only consolation to be derived from the abnormal weather is that more work has been done than is usual at this time of the year.

University controversies are generally shelved in May till the Long Vacation is over; people have too much to do to trouble about fighting, though we have had a little skirmish on the subject of the Natural Science Tripos. At present a candidate that wishes to gain a first-class in Part II. has to show excellence in one subject and a competent knowledge of a second; the proposal of the Boards was to abolish the necessity for the second subject, and to give the class for knowledge of one subject only. The usual fly sheet war was waged, and one or two opposite remarks came from unexpected quarters. Mr. Pattison Muir remarked that there was no guarantee that the second subject chosen would be cognate to the first and leading subject; Mr. Darwin and Mr. Seward state boldly that the time is all too short for specializing in two subjects and that true specialization must be encouraged. Prof. Allbutt goes off on a side issue, but makes the extremely pertinent remark that the evils complained of in this and other Triposes are due to the inane scheme which put all the examinations in the busy and feverish May term instead of after the Long Vacation. In these notes the point has been reiterated that the change was due to considerations of the personal interests of examiners, and not of candidates. Great is the value of the last Long Vacation for consolidating and revising the work done in snatches and snippets during the busy terms; but this has been utterly sacrificed, and no gain has accrued in return. The Professor has done well in once more calling attention to the evil. The Senate adopted the proposal by the small majority of two.

The FitzWilliam Museum has been presented with a very valuable collection of Handel manuscripts—sixty-seven volumes, transcripts made by J. C. Smith. Handel's favourite amanuensis, have been presented by Mr. F. Barrett Lennard; and the whole collection is contained in a book-case once the property of Handel. Dr. James, the Director of the Museum, also calls attention to the fact that the late Mr. Pendlebury during the past twenty-five years made a present of about a thousand bound volumes of music annually, so that the collection is now one of surpassing interest and value.

Some little argument has taken place on the subject of buying more land from Downing for University purposes, but there is no doubt the bargain will be carried out. The western part of the college grounds is rapidly being covered with University

buildings, most of them rather unsightly in their present condition, and placed far too near the road: the importance of a southern aspect seems to have been forgotten by the architects. In a few years time we shall begin to feel the pinch caused by extra establishment expenses in connexion with this new brick-and-mortar craze of our rulers.

The great College of Caius has been very much in evidence this term. The "meat scandals," as they are called, have amused the readers of the paper, while "extraordinary revelations" have seemed far from extraordinary to those who know the business ways of colleges and their tradesmen. There is a sleek prosperity about everybody connected with the feeding of the undergraduate which is peculiarly exasperating to the hard-worked country parson who pinches himself to give his son a University education. The scandalous waste and extravagance of college management might be ended by an earthquake, but nothing less will shake the complacency of those that live and are happy upon a system that is scandalous and rotten. A pound a day is the average cost to the average undergraduate of his food, mental and physical, and, with all that, the coach, the pariah of academic life, can live as well as any of them. There is no use disguising the fact that Cambridge is run at present in the interests of the permanent staff. Things are inverted, and the parents outside are beginning to see the facts. With the exception of the largest colleges, the average pollman who reads, say, for medicine, cannot get the instruction he requires within his college walls, but must make extensive payments to the unrecognized teachers as well as still more extensive ones to the official teachers outside.

The races are fixed for June 4, and a great influx of Americans is expected for the fortnight's festivities, our humble entertainment being utilized as a mild preparation for the Coronation gaieties. Several of our leading residents are beginning to get fluttered at the thought of what the Coronation *Gazette* may bring forth for them: handles to a name are cherished possessions in democratic Cambridge.

## CURRENT EVENTS.

UNDER the management of the Readers' Board Fixtures. of the London Lay Helpers' Association, the twenty-second annual training course—"Summer School"—open to all duly licensed readers from any diocese, will be held at Keble College, Oxford, from July 26 to August 9. The Rev. J. O. F. Murray, M.A., Fellow and Dean of Emmanuel College, Cambridge, will again act as Principal.

A SUMMER school of Bible study, from August 27 to September 6, will be held at Cheshunt College, if at least fifty students offer. "The object is to help men who are Sunday-school teachers, and to combine a short course of systematic study with a holiday and the social intercourse belonging to college life." The Sunday School Union is co-operating. The lecturers will be the Rev. Principal Whitehouse on "Old Testament History and Literature in the light of Recent Discoveries," the Rev. Prof. H. T. Andrews on "The Life and Times of the Apostle Paul," the Rev. Prof. W. Johnston on "Moral Ideals in the Old and New Testaments," and Prof. E. W. Johnson on "Modern English Literature and Religious Thought."

THE annual exhibition of work executed in the Board schools of London will be held in the Examination Hall, Victoria Embankment, W.C. (adjoining Waterloo Bridge), on June 18-21. It will include specimens of drawings, colourwork, modelling, woodwork, wood carving, metalwork, needlework, infants' work, cookery, laundrywork, housewifery from the day and evening schools, work from the schools for the blind, deaf, and special instruction, work from the truant and industrial schools, and scientific apparatus constructed by the teachers and pupils. Lord Reay will open the exhibition on Wednesday, June 18, at 3 p.m.

A CONFERENCE of the British Child Study Association will

be held at Normansfield, Hampton Wick, on Tuesday, June 24, at 3 p.m., to be followed by a garden party. Apply for tickets (stamped and addressed envelope) to Miss K. Stevens, Carlisle House, Dartmouth Park Hill, N.W.

A CONFERENCE on Science Teaching and Nature Study, together with an exhibition of home-made and other simple apparatus, will be held at the Hartley College, Southampton, on June 14. The Committee invite exhibits from schools and colleges of all grades under any of the following groups:—(1) Apparatus for simple experiments in mechanics, physics, chemistry, or other subjects, to be home-made if possible; (2) apparatus for illustrating lessons in Nature study; (3) diagrams, models, and collections, including work done by pupils; (4) schemes of study and instruction; (5) pictorial illustrations; (6) reports, documents, and leaflets bearing upon the subjects of the meeting. There will be a separate section, arranged in another part of the building, for publishers and manufacturers of educational apparatus. The exhibition will be preliminary to the Nature Study Exhibition in London on July 23.

THE Rede Lecture at Cambridge will be delivered on June 10 by Prof. Osborne Reynolds, F.R.S., of Owens College. The subject is: "On the Inversion of Ideas as to the Structure of the Universe."

THE King's Scholarship Examination for 1902 will begin on December 16 next, not December 9.

THE appeal by the Governors of University College, Dundee, has already brought in over £24,000.

THE PRINCE OF WALES, Chancellor of the University of Wales, has made a donation of £100 to the fellowship fund of the University.

THE late Rev. Evan Penlyn Jones, Librarian of University College, Aberystwyth, has left his books and (on the death of Mrs. Jones) £100 to the College.

MR. LIONEL PHILLIPS has promised, on behalf of his firm, £10,000 towards the University College (London) endowment fund.

THE Council of Trinity College, London, or (as it will now be known) "Trinity College of Music," has voted out of its reserve funds a sum of £5,000 to the University of London, nominally "for the advancement of the art of music," but really to establish a Chair of Music at the University.

THE degree of M.A. has been conferred (May 20) by Decree of Convocation of the University of Oxford upon Mr. Andrew L. Herbertson, Ph.D. (Freiburg i. B.), and Mr. H. N. Dickson, B.Sc.

YALE UNIVERSITY has conferred the degree of LL.D. on Lord Kelvin.

DURHAM UNIVERSITY has conferred the honorary degree of D.C.L. on Sir W. S. Church, President of the Royal College of Physicians, London, and Prof. Annandale, of Edinburgh.

THE London County Council proposes, in connexion with the new Training College for Teachers, to offer 100 scholarships, to be awarded to candidates of either sex that are "ordinarily resident" within the administrative County of London, that

are qualified to hold King's Scholarships, and that have passed the London University Matriculation Examination. These scholarships will carry free admission to the three years' course of the Training College, and to three years' free instruction at one or other of the schools of the University.

UNIVERSITY COLLEGE, LONDON, offers the West Scholarship in English, £30 (open to women as well as to men); the Bucknill Scholarship, £30 a year for four years (entrance medical); and two exhibitions, 60 guineas each (medical); in September next. Apply to the Secretary.

ST. THOMAS'S HOSPITAL MEDICAL SCHOOL offers two entrance scholarships in science, £150 and £60, to candidates under twenty-four, in September next.

PEMBROKE COLLEGE, Oxford, offers four open classical scholarships, £90, £80, £70, £60. No limit of age. Examination, May 27. Apply to the Right Rev. the Master.

THE Governors of the Holborn Estate School for Girls offer three scholarships, consisting of exemption from tuition fees, together with not more than £5 in one year to any one girl, and tenable for three years. Candidates must have been three years in their present elementary school, and be not over thirteen. Examination at the school, June 21. Apply to the Head Mistress, 19 Houghton Street, Strand, W.C.

SIR ALFRED L. JONES has offered to guarantee twelve scholarships of £30 each at the University of Wales.

THE trustees of the late Sir Henry Tate have renewed for another twelve years the fund (originally established in 1890) to maintain the Tate Scholarship at the University College of North Wales. Two entrance scholarships—£20 and £15—will be offered, next December, to Welsh candidates taking scientific or technical courses.

MR. EDWARD GRANVILLE BROWNE, M.A., Appointments. M.B., Fellow of Pembroke College, has been appointed Professor of Arabic at Cambridge University, in succession to the late Prof. Rieu.

PROF. BARRETT WENDELL, of Harvard University, has been elected Clark Lecturer in English Literature at Trinity College, Cambridge, for the ensuing year.

MR. R. K. M'ELDERRY, M.A., Senior Classical Master at Campbell College, Belfast, has been appointed Professor of Greek in Queen's College, Galway, in succession to the late Prof. D'Arcy Thompson.

MR. DOUGLAS A. GILCHRIST, B.Sc., Professor of Agriculture and Director of the Agricultural Department at the College, Reading, has been appointed Professor of Agriculture at the Durham College of Science, Newcastle, in succession to Prof. T. H. Middleton, M.Sc., who was recently elected to the Chair of Agriculture in the University of Cambridge.

THE REV. W. H. HUTTON, B.D., Fellow, Tutor, and Lecturer of St. John's College, Oxford, has been elected Bampton Lecturer for next year.

THE REV. W. S. MACGOWAN, M.A., LL.D., assistant master in the Modern Department of Cheltenham College, has been appointed Principal of St. Andrew's College, Grahamstown.

DR. ALFRED PLUMMER has resigned the posts of Master of University College, Durham, and Sub-Warden of Durham

University, in order to obtain greater leisure for his literary work; and the Rev. Henry Gee, D.D., F.S.A., has been appointed to succeed him.

\* \* \*  
MR. HERBERT STANLEY JEVONS, son of the late Prof. Stanley Jevons, has been appointed to a lectureship in mineralogy at the University of Sydney, in New South Wales, the same city where his father began life as assayer of the Mint.

\* \* \*  
MR. GRAHAM BALFOUR, M.A., Assistant Secretary of the Oxford Examinations Delegacy, has been appointed Director of Technical Instruction under the Staffordshire County Council, in succession to Prof. Thomas Turner, recently elected to the Chair of Metallurgy at Birmingham.

Literary  
Items. To meet the wants of travellers Mr. Unwin is publishing a specially handy "Tourist" edition of some volumes of his "Story of the Nations" series. "Venice," "Switzerland," and "Florence" have just appeared. The volumes are bound (after the fashion of Baedeker's Guides) in red cloth, with rounded corners and marbled edges, and the price is the same as that of the ordinary cloth edition.

\* \* \*  
THE new volume of "The Story of the Nations" series is a history of "Mediæval Rome," by Mr. William Miller, M.A., who wrote the able volume on "The Balkans." The period covered (1073-1600) embraces many subjects of deep interest and importance. Mr. Fisher Unwin is the publisher.

\* \* \*  
MR. ENEAS MACKAY, of Stirling, will soon issue "A History of the Grammar and other Burgh Schools, now the High School of Stirling, with notices of Schools and Education in the Burgh from the Twelfth to the Twentieth Century," by Mr. A. F. Hutchison, M.A., Rector of the High School, 1866-96. The list of contents shows that the work, while describing "a typical Scottish grammar school of the olden time," will prove a valuable contribution to the history of education in Scotland.

\* \* \*  
THE current number of the *Modern Language Quarterly* (Nutt) commences a new volume (V.) with vigorous and varied contents. Every teacher ought to study this ably conducted journal.

\* \* \*  
THE first *Engineering Magazine* yet issued by an English University has just made its appearance at the University of Birmingham. It is proposed to publish the magazine twice each term.

\* \* \*  
MESSRS. A. & C. BLACK have commenced to issue the "Encyclopædia Biblica" in 16 monthly parts (5s. net each). The first part was published in mid-April. Three volumes—Aalar to Ararat—have now been issued, and the fourth, which completes the work, is in the press.

\* \* \*  
AFTER a good twenty years' work as Tutor and Lecturer at Corpus Christi, Oxford, Mr. Arthur Sidgwick has decided to release himself from teaching, and to devote his energies more exclusively to literary work. He proposes, for one thing, to write the life of his lamented brother, Prof. Henry Sidgwick.

\* \* \*  
MR. ALFRED LENGNICK, of Berners Street, announces the early publication by Simrock (Berlin) of certain posthumous works of Brahms—"Elf Choral-Vorspiele für Orgel, Op. 122." The Hungarian pianist Herr Ernst von Dohnanyi heralds them as "of immense value not only as technical studies, but also as music." Brahms's library is

now in the possession of the Gesellschaft der Musikfreunde, Vienna, of which the eminent composer was for some time president.

THE REV. C. R. CARTER, M.A., Dean of Divinity General. and Home Bursar of Magdalen College, Oxford, is taking over the preparatory school "Cordwaller," near Maidenhead. A "double honours man," as well as a "double blue," he is still well remembered at Wellington. He is an enthusiastic gardener.

\* \* \*  
THE PRINCE OF WALES was installed as Chancellor of the University of Wales (May 9) at Carnarvon amid "colossal demonstration."

\* \* \*  
THE PRINCE OF WALES has accepted the invitation to be patron of the fund that is being raised in connexion with the scheme for the incorporation of University College in the University of London, and for the endowment and equipment of advanced education and research at the college.

\* \* \*  
MR. C. T. RITCHIE, M.P., the Home Secretary, has been adopted as Unionist candidate for the Lord Rectorship of Aberdeen University. Mr. Asquith is the Liberal candidate.

\* \* \*  
A PROPOSAL is mooted for the affiliation of Queen's College, Birmingham, to the University.

\* \* \*  
THE Council of the Jews' College has applied for affiliation of the College to the University of London as a School of Semitic Languages, in connexion with the proposed degrees in Oriental studies.

\* \* \*  
MR. ALFRED MOSELY, C.M.G., has settled (with President Butler of Columbia University) the provisional itinerary of his commission of inquiry into American methods of education in their bearing on commercial and industrial efficiency. The prospect of an autumn Session of Parliament renders the date of starting still uncertain.

\* \* \*  
THE Council of the City and Guilds of London Institute spent £33,041. 19s. 4d. for the promotion of technical education in the past year. This year it is proposed to spend £34,045, exclusive of the balance of the initial cost of the extension of the Central Technical College.

\* \* \*  
NOTICE is given in the *London Gazette* that a petition has been presented to His Majesty in Council by the University College, Liverpool, praying for the granting of a charter incorporating a University in Liverpool. And, His Majesty having referred the said petition to a committee of the Lords of the Council, notice is further given that all petitions for or against such grant should be sent to the Privy Council Office, on or before the first day of July next.

\* \* \*  
WE are interested to learn that there is a girl at St. Anne's Soho School that "has made over 3,500 punctual attendances consecutively." She is just fourteen; so that since she was five "she has never been absent or even late," a remarkable eight years' record, especially for central London.

\* \* \*  
THE Board of Education have received through the Foreign Office an intimation that the Council of the University of Paris have decided to publish annually henceforth in the month of April a programme of the University lectures that will be delivered in the academic year beginning in the following November. This plan has been adopted in order to enable foreign students that may desire to attend the lectures to make their arrangements conveniently in advance. The

programme of courses for the academic year 1902-1903 can be seen at the Board of Education Library, St. Stephen's House, Cannon Row, Whitehall, S.W.

\* \* \*

Messrs. GILL & SONS have parted with their late representative Mr. F. A. Martin, and in future will be represented by Messrs. Slater, Knott, and Bartlett.

\* \* \*

MR. JOHN MURRAY has appointed Mr. F. A. Martin to represent him in visiting the great public and secondary schools.

\* \* \*

THE tercentenary of the Bodleian Library will be celebrated in October. It was on November 8, 1602, that the present library was thrown open. There was a great library at Oxford before the Bodleian. This was the collection founded by Humphrey, Duke of Gloucester, about 1450. After a century's existence, Duke Humphrey's collection was broken up and dispersed. The "University either could or would do nothing to repair the loss." So Sir Thomas Bodley undertook at his own expense to refill the shelves of Duke Humphrey's empty library, and to endow the institution.

\* \* \*

THE Franco-English Guild at Paris, which hitherto has restricted its services to women, is now opening a section for men. This new step has been taken on the suggestion, and with the active co-operation, of the "Comité de Patronage des Etudiants Etrangers à la Sorbonne," a committee that has M. Casimir-Périer for its President, and counts among its members most of the leading men at the Sorbonne. M. Léopold Sudre, Docteur-ès-Lettres, the distinguished philologist, is to be "Directeur des Etudes" of the men's section of the Guild. Englishmen will be able to obtain advice and information, not only about their studies, but about many other matters that concern foreigners in Paris, on application to the Secretary, the Franco-English Guild, 6 Rue de la Sorbonne, Paris.

## CORRESPONDENCE.

[We do not hold ourselves responsible for the opinions expressed by our correspondents.—Ed. E.T.]

### THE TRAINING OF SECONDARY TEACHERS.

*To the Editor of the Educational Times.*

SIR,—Among the many educational questions now before the public, not the least important is that of the training and registration of teachers in secondary schools—a matter on which the future success of English secondary education largely depends. Even the educational public may not, perhaps, realize the dangers ahead, and I would, therefore, beg for a few lines of your space to draw attention to the subject.

The Order in Council of March 6, 1902, contemplates, as we know, a double basis for a course of training for the young college graduate. Such a person may undergo a course of professional study at certain Universities or training colleges, or may become a student-teacher in a recognized school. The danger with the former plan is that the professional theory may be divorced from the best professional practice, and the training be, therefore, somewhat too academic. A more serious danger in the second method is the introduction of a veiled pupil-teachership, whereby needy schools may be tempted to employ an unfair proportion of such teachers, and thus injure the position of the staff and the work generally. It is to be hoped that the Registration Council may be able to safeguard the profession of teaching by securing, on the one hand, for training colleges and Universities adequate facilities for practice in the best schools, and, on the other hand, that the student-teacher system may not be made a cheap and easy option whereby students may, as it were, learn the mere tricks of the trade without any broad basis of philosophical study of education.

These dangers may be avoided if the schools and Universities would combine to evolve a method of training teachers analogous to the professional training of the best medical schools, and so secure professional efficiency, as the New Order in Council secures professional status.—I am, Sir, &c.,

Manchester High School,  
May 17, 1902.

SARA A. BURSTALL.

[This letter has already appeared in the daily journals. Writing to the *Birmingham Daily Post* (May 21), Mr. Thomas Allen, M.A., Woodbury, Malvern Link, made the following comments:—"No doubt, as your correspondent the Head Mistress of the Manchester High School states, the training of teachers in secondary schools is a very important question; but it seems to me she regards it rather from the side of the general public than from the side of the teacher. Of course a trained teacher is more valuable for teaching than a raw inexperienced one, but at whose expense is the training to be? As far as I can see, the expense must come out of the pocket of the teacher. The question at once arises—Does the trained teacher command more money than the untrained one, and will the trained teacher have reasonable security for the outlay? Accordingly, the training of teachers in secondary schools involves the very serious question of tenure. What that is in endowed secondary schools it is hoped that many of the readers of your valuable paper already grasp. But, for the benefit of those who do not yet understand the insecurity which at present exists, I would ask to be allowed to draw their attention to the following two sentences in paragraph 133 of Part III. of the Secondary Education Commission Report: 'One of our witnesses went so far as to urge the maintenance of the present system on the ground that "a school is a monarchical institution," nor would he give to the head the right of appeal which he refused to the assistant teacher. Admitting that there might have been cases in which the dismissed head master was in the right and the governing body in the wrong, he still maintained that in the long run it was better not to limit the latter's authority, as "hard cases make bad law." In other words, in cases of dismissal head teachers and governing bodies are not only infallible, but they are also invested—and that in free England—with unlimited powers. 'A monarchical institution!' If the British constitution were formed on the lines of the schemes of the Charity Commissioners, there would be something said and done. Fortunately, the majority of governing bodies and head teachers do not make use of their arbitrary powers.'"]

### SECONDARY TEACHERS AND THE REGISTRATION FEE.

*To the Editor of the Educational Times.*

SIR,—It appears that a guinea fee is to be levied on every secondary teacher coming on to the new Register. Might I suggest that, as salaries in secondary schools are often absurdly low, many of them falling below £100 a year, the Board of Education would be acting more justly to secondary teachers by authorizing a graduated fee—for example, a guinea on all salaries above £200 a year, 15s. on those between £150 and £200, half a guinea on those between £120 and £150, and so on?

An all-round fee to secondary teachers is scarcely fair, especially if, as it is reported, members of the N.U.T. are to come on to the Register free.—I am, &c.,

City of London School, May 17, 1902.

A. G. MUNRO.

### REGISTRATION REGULATIONS.

*To the Editor of the Educational Times.*

SIR,—I read with much interest your article, in the March number, on "The Registration of Teachers," and, whilst agreeing with some points of your criticism, I fancy that you take somewhat too pessimistic a view of the utility of these regulations. I notice that you take exception to the non-provision for the registration of secondary teachers on the sole ground of experience, and the non-recognition of minor certificates in the case of teachers in the lower forms. Now, Sir, in my humble opinion, both these classes are amply provided for by Clause 4; for, in the case of teachers whose pecuniary difficulties preclude them from a University education, an avenue to registration is opened by the F.C.P. and L.C.P. diplomas and the Oxford and Cambridge Higher Locals, which examinations represent a highly respectable standard of intellectual attainments. Again, a secondary teacher of long standing ought not to fear the ordeal of an examination in the theory and practice of education, as the subjects of examination constitute the underlying principles of the art of which he is professedly an exponent. Consequently I think the Education Department has acted wisely in

declining to recognize minor certificates, and in requiring a proof of advanced education from all engaged in the profession.

I very much doubt whether there will be any such influx of elementary teachers into secondary schools as you suggest, for two reasons: firstly, the salaries enjoyed by assistant masters in the smaller secondary schools are not on so munificent a scale as to allure the generally better paid assistant in a Board school; secondly, a teacher registered in Column A, unless possessed of the same qualifications as are necessary to secure admission to Column B, would be, in reality, unqualified to teach in a secondary school. With regard to the restriction of the supply of secondary teachers, I consider such a consummation eminently desirable; for the hitherto utterly inadequate salaries of such teachers must inevitably rise to something approaching a respectable level after the elimination of the ignorant and incompetent from their ranks. Official registration will prevent, in the future, the failures in other avocations from swelling the ranks of our profession, and will at last raise the social status of the schoolmaster to the level of the doctor or the lawyer.—I am, &c., REGINALD G. F. ROBERTS, A.C.P.  
Towcester Grammar School, May 19, 1902.

### THE NEW PRESIDENT OF COLUMBIA.

#### "THE TRUE UNIVERSITY'S IDEAL."

PROF. NICHOLAS MURRAY BUTLER, who was elected President of Columbia University on January 6, was formally installed on April 19. President Roosevelt made his first official visit to New York on the occasion; and it is 113 years since a President of the United States visited Columbia as an official guest. Mr. Carnegie and Lord Kelvin were also among those present. In his address, says the *New York Herald* (April 20), President Butler declared that the kindly and generous greetings he had received humbled as well as inspired him. They expressed a confidence and a hopefulness which it would tax human capacity to the utmost to justify, while they pictured a possible future for the University which fired the imagination and stirred the soul.

He traced the growth of education through the centuries, and explained the service of the University in Church and State. Great personalities, he said, made great Universities, and great personalities must be left free to grow and express themselves, each in his own way, if they are to reach a maximum of efficiency.

"What the future development of the great Universities is to be perhaps no one can foresee," he said. "But this much is certain: every city which, because of its size or wealth or position, aims to be a centre of enlightenment and a true world capital must be the home of a great University. Here students and teachers will throng by the mere force of intellectual gravitation, and here service will abound from the mere host of opportunities. The city, not in its corporate capacity, but as a spiritual entity, will be the main support of the University, and the University in turn will be the chief servant of the city's higher life. True citizens will vie with one another in strengthening the University for scholarship and for service. In doing so can say, with Horace, that they have builded themselves monuments more lasting than bronze, and loftier than the pyramids reared by kings—monuments which neither flood nor storm nor the long flight of years can overturn or destroy.

"Sir John de Balliol, doing a penance fixed by the Abbot of Durham; Walter de Merton, making over his manor house and estates to secure to others the advantages which he had not himself enjoyed; William of Wykeham, caring generously for New College and for Winchester School; John Harvard, leaving half his property and his library to the infant college by the Charles; and Elihu Yale, giving money and his books to the collegiate school in New Haven, have written their names on the roll of the immortals, and have conferred untold benefits upon the human race. Who were their wealthy, powerful, and high-born contemporaries? Where are they in the grateful esteem of the generations that have come after them? What service have they made possible? What now avails their wealth, their power, their high birth? Balliol, Merton, Harvard, Yale, are names known wherever the English language is spoken, and beyond. They signify high purpose, zeal for learning, opposition to philistinism and ignorance. They are closely interwoven with the social, the religious, the political, the literary history of our race. Where else are there monuments such as theirs?

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## AMERICAN UNIVERSITIES.

A JOINT MEETING of members of the College of Preceptors and of the Assistant Masters' Association was held at the College of Preceptors on May 21, when the Chair was taken by Prof. A. F. MURISON, and a paper entitled "Some Notes on American Universities" was read by Prof. KNIGHT, LL.D., of the University of St. Andrews.

### RICH ENDOWMENTS.

Prof. Knight said that American Universities had been richly endowed by wealthy commercial men who desired their names to be remembered by posterity. This desire on the part of men of the States to found colleges and endow them was one of the most hopeful omens for the future of that country. A new type of humanity would be developed and would react on the legislature. In the Universities of Europe they could trace the evolution of two radical types with the successive modifications they had undergone. Within the Universities there had been many ups and downs, but there had been a constant development, and scientific study had steadily advanced all along the line. Some of them were very inferior to others, but all of them had sprung up from a genuine love of knowledge, if not of wisdom, and from a desire for the diffusion of knowledge throughout society. The policy of Great Britain towards America, which had cost us and lost us so much, had been of great advantage to our cousins. It had led to the assimilation of European elements in the American race. A rapprochement between the two countries had begun, and would continue to grow, and from this the Anglo-Saxon race would be richer and stronger. It was difficult for an outside observer to be also a critic and competent adviser, but it should not be difficult to introduce a measure that should regulate the conferring of degrees by all the colleges. Some central authority was required to tell the nation what was the value of the education given, and of the degrees conferred. The Universities of America had started on a career of progress which had placed them on a footing of equality with those of Europe. They were relatively far wealthier than the Universities of Europe, and they had an assured future in the interest with which millionaires were subsidizing them.

### THE GOVERNING BODY.

It was a blessing to the nation that no University was a mere examining body. The primary function of the University was to bring teacher and taught into direct and vital relation. The most serious defect was the power of the trustees. It was an excellent plan for the Board of Trustees to appoint a President with almost autocratic power. He was responsible for selecting the staff of teachers and for securing the very best men he could get. He was not appointed as our Principals were; and he might be dismissed at any time by the trustees. In some of the colleges the President was expected to devote all his energies to obtaining fresh subscriptions and donations. This was not universal; but it had been made the ground of dismissal of several Presidents that they did not obtain money in sufficient quantities. The academical arrangements of the American colleges were more complicated than ours, and changed more rapidly. More subjects were required to be taken for the B.A. degree. The range and extent left us far behind. So in the case of women students the number of subjects selected was greatly in excess of those taken at Cambridge. In favour of this it might be said that it tended towards versatility. This was characteristic of American life.

### THE STUDENT SOCIETIES.

No influence on undergraduate life in America had been more powerful than that of the student-societies. These had influenced the destinies of every University. This was true to a certain extent of Universities in every country, but in America these student-societies had features peculiar to themselves, having elements of freemasonry in them. Many of them were secret societies and curiously named. Some were named after the letters of the Greek alphabet, and were known as the Greek

Letter Societies. They had usually a club house, with business rooms, and occasionally sleeping quarters. To obtain admission in early academic life was regarded as a great honour. As a social bond the influence was certainly very great. These societies were seen at their best at Amherst and Williams. Elsewhere they had occasionally a disturbing element, but everywhere they developed *esprit de corps*. There were thirteen of these societies at Amherst, and thirty members in each society. There was immense competition for entrance into them. In some of the colleges the societies were social rather than athletic or intellectual. None but gentlemen could be elected, and they must be fair scholars. It was a self-education to belong to one of these societies. The bond was stronger than that of the class room. These Greek letter societies had altogether a membership of a hundred thousand.

#### SOME GREAT UNIVERSITIES.

The Johns Hopkins University at Baltimore was founded about twenty-five years ago. Johns Hopkins came from the country as a poor boy to obtain the means of livelihood. He succeeded in acquiring a large fortune, and devoted it to founding a University and a hospital, two distinct foundations in different parts of the city. Three and a half million dollars were bequeathed to the University, and three million dollars to the hospital. The story of the University was a very striking one. It now had over three thousand students, twelve hundred of them being Marylanders, and many of them foreigners. The University of Pennsylvania had had a great career. In point of numbers it was more important than the Johns Hopkins. The Chicago University was founded in 1890 by John D. Rockefeller. Its growth was a record in the history of the world. There was an old institution in the city of Chicago which closed its work in 1886. Preliminary negotiations were carried on with the Baptist Society for the formation of a University. Six hundred thousand dollars were subscribed by Rockefeller, and four hundred thousand by the Baptists. Buildings were secured and trustees appointed, and at the first meeting of the Board, Prof. Harper, of Yale College, was elected President. He began work in 1891. Donations poured into the University coffers, and it was furnished with a chemical laboratory, an Oriental museum, and an observatory. It opened its doors to students in 1892, and obtained six hundred. In 1895 there were two thousand. It is now doing good work of an advanced character.

#### COLLEGES FOR WOMEN.

In America co-education was the rule in the greater number of the Universities and colleges; but there were also separate colleges exclusively for women, and there were annexes to the men's colleges where women were taught separately. Thus, there were three different arrangements for the education of women in America. During the twenty years following the Civil War four women's colleges received over 6,000,000 dol. in endowments and gifts. Beyond question, it was Mary Lyon's noble work which led the way to the higher education of women. Before her time all that was common to the sexes was the reading of the Bible and the Catechism. She was a singularly noble and devout woman, and her life has been described as an additional verse to the 11th chapter of the Epistle to the Hebrews. She succeeded in carrying out her idea against enormous opposition. A girl of remarkable power, she committed the Latin grammar to memory in three days. Her main idea was that education was the birthright of every woman. Owing to her work it came about that, two hundred years after the foundation of colleges for men, one for women was started in Massachusetts, called the Mount Holyoke Seminary. Miss Lyon tried to widen the interest in her college, to obtain teachers that would accept small salaries, and to introduce self-help among the teachers in order to promote economy. She abolished caste; she dignified labour and systematic work. 8,600 students have attended Mount Holyoke Seminary since its foundation, and 2,600 have graduated.

#### WELLESLEY.

Wellesley College for Women was founded in 1875 to "enable those young women who desire a liberal education to obtain the advantages which are enjoyed at similar institutions of the higher grade." It is undenominational, Sunday services being conducted by clergymen of various denominations successively. It has full power to grant degrees. It has eight hundred students, with ninety professors and instructors, while 198 courses of study are offered. The entrance examination includes three languages, and is very severe. Undergraduate life at this College is very different from that of most students. Girls do not select their

college as young men do, for the reason that their father or grandfather had been there before them. As a rule they go where they can get the best and hardest work to do. At Wellesley there are three ways in which women students might live. They might live at the Central College Hall, or in one of the houses in the extensive grounds, or they might board in the village of Wellesley. It is undoubtedly an advantage for the girls to be for the first years in the main building. They get a better insight into college life, and learn a standard of proportion which the quiet of the cottage could not give. There is not much opportunity for leisure and quiet. The cottages supply that afterwards; but any girl at Wellesley can see as much of society as is good for her. Athletics receive great attention at Wellesley. No other women's college in the world has such opportunities for athletics; it has three hundred and sixty acres of ground, including a golf course of eighteen holes.

#### INTERNATIONAL RECOGNITION.

The academic degrees of the Universities of America should be recognized in England, Scotland, and Ireland as qualifying for all our post-graduate work; and the possession of the B.Sc. in America should admit the student to the fullest post-graduate study for the D.Sc. The Universities themselves must make these arrangements, and this inter-University courtesy would do much to promote friendly relations amongst the Anglo-Saxon race.

Miss STEVENS said she had met many of the students and professors of American Universities, and it was most refreshing to see how true and earnest the American women graduates were. With them education seemed to be a sort of religion, to which everything else had to be subordinated.

Mr. G. W. ROWE said that he had no intention of making any remarks on his own account, but would like to give a rough *précis* of some articles that had appeared lately in the American monthly the *Forum*, by Professor G. T. Ladd, of Yale. Professor Ladd considered the true functions of a University to be three: (1) The highest mental and moral culture of its own students; (2) the advancement, by research and discovery, of science, scholarship, and philosophy; (3) the diffusion of the benefits of a liberal culture over the whole nation. The American Universities had failed to fulfil these functions, since (1) the nation was sorely suffering from the lack of trained leaders; (2) the great majority of the teachers and advanced pupils in the Universities had never themselves been trained so as to be interested in, or capable of, the higher kinds of research, discovery, and productive activity; and (3), with however good a will, the professor could not train his pupils, mentally or morally, if he was obliged to do his work in the midst of a loosely organized or disintegrating educational system. This disintegration was due to the "elective" curriculum in vogue in American Universities, whereby a student on entrance was allowed to choose a course of study covering any variety of subjects he might prefer. The value of the teacher was under-estimated, owing to the application of a too exclusively commercial standard to the results of higher education. In conclusion, the two sore spots in the administration of the Universities of the United States were (1) the intense competition for mere numbers, and (2) the relatively insignificant place given to the manhood of the teachers.

Mr. ORCHARD said that, while we had something to learn from the American Universities, they had also much to learn from us. It was desirable to have a closer relationship between the British and American Universities. Cecil Rhodes had done something to effect this, and it was to be hoped that some American millionaire would follow his example. The spirit of enterprise and activity of the American Universities, combined with the experience and wisdom of our British Universities, could not fail to produce valuable results.

The CHAIRMAN said he was glad they had an opportunity of hearing both sides of the question. He was inclined to think that, if the remarks of Professor Knight and those of Professor Ladd were carefully analysed, some means would be found of harmonizing the two. There was probably no essential difference, but only a difference in the point of view and in the selection of particulars for comment. There could be no doubt that these American institutions were of the highest importance to the country and full of promise for the future. Something had been said as to the insufficiency of the professors for their work. There might be immaturity here and there, but he thought it was planted in good soil and in a favourable atmosphere; it was the kind of fault that got mended every day, and perhaps it was not peculiar to America. He himself had been much impressed thirty years ago by the keenness of young American graduates he had met in Germany; and the stream of graduates from America for further study in Germany had swollen since then, and the results were making themselves apparent in the literary as well as in the purely academic work of the American Universities.

A vote of thanks to the lecturer concluded the proceedings.

### MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.

A MEETING of the Council was held at the College, Bloomsbury Square, on May 14. Present: Rev. J. Stewart, Vice-President, in the Chair; Mr. Barlet, Rev. J. O. Bevan, Rev. A. W. Boulden, Mr. Charles, Miss Day, Mr. Eve, Mr. Harris, Rev. Dr. Hiron, Miss Jebb, Mr. Kelland, Rev. R. Lee, Mr. Leatham, Mr. Milne, Mr. Pinches, and Rev. J. Twentyman.

The minutes of the last meeting were read and confirmed.

Saturday, July 19, was fixed as the date of the next ordinary General Meeting of the members of the College.

The report of the Examination Committee was adopted.

Mr. C. Nathan, B.Sc. Lond., A.C.P., was elected a member of the College.

The following books had been presented to the Library since the last meeting of the Council:—

By the AUTHOR.—An Old Westminster Endowment: A History of the Grey Coat Hospital. By Miss E. Day.

By the BUREAU OF EDUCATION, WASHINGTON, U.S.A.—Report of the Commissioner of Education, 1899-1900, Vol. II.

By A. & C. BLACK.—Black's Elementary Geography Readers, Nos. IV.A and IV.B: Black's Sir Walter Scott Continuous Readers (Kenilworth and Waverley); Finnemore's Men of Renown; Fowler's First Course of Essay-Writing; Herbertson's Descriptive Geography from Original Sources (Central and South America with West Indies); Kirkman's De Glouvet's France de Montorel; Ord's Shakespeare's Henry V., Part I.; Ormiston's The Old Semite and the New Monarchy; Taylor's Synthetical Maps (The South-Western District and Leinster).

By the CLARENDON PRESS.—Trechmann's Moliere's Les Facheux.

By K. & J. COOPER.—Macmillan's Simple Essays.

By MACMILLAN & CO.—Allpress's Schrader's Friedrich der Grosse, and Word and Phrase-book to the same; Ash's Zastrow's Wilhelm der Siegreiche, and Word and Phrase-book to the same; Bower and Gwynne-Vaughan's Practical Botany for Beginners.

By RIVINGTONS.—Morich's Deutsches Allerlei, and Selections from Hebel's Schatzkasten; Willis's Algebra, Part II, and Answers. Supplement to the R.U.I. Calendar for 1902.

### EARLY LESSONS IN SCIENCE.

#### MORE FREEDOM AND LESS RED TAPE.

PROF. H. E. ARMSTRONG, of the Central Technical College, London, addressed a large meeting of the Southampton and District Teachers' Guild in the hall of the Hartley Institution (May 10) on the question: "What is of chief importance in Early Lessons in Science?" Dr. S. W. Richardson, President of the Guild and Principal of the Hartley College, occupied the chair. Introducing Prof. Armstrong, he said he took it that the most important thing in education was the training of the mind. The mere acquisition of knowledge itself was comparatively unimportant, but, unfortunately, in our system of education we were apt to pay too much attention to the acquisition of knowledge, and not sufficient to the method whereby that knowledge was imparted. Teachers were very much bound down by syllabuses, examinations, and rules. It seemed desirable that more freedom should be given to teachers in that respect, and he hoped that the address of Prof. Armstrong would tend to develop a greater desire for that freedom.

Prof. Armstrong contended for greater liberty to teachers in the training of their pupils—for the introduction of methods that would make children think, and for more freedom to teachers in arranging and developing the course of study. Although it was generally held that the object they had in view was the training of the faculties rather than the mere communication of facts, and though it was true, as the Chairman had said, that more freedom in that matter was required by teachers, he imagined that they were not altogether clear as to what was meant by training the faculties; they had not got a clear idea of what faculties there were to be trained. Instruction in schools tended to develop one set of faculties, and to leave undeveloped to a very large extent what might be called the practical faculties. Coming to the immediate subject of his address, he spoke of the unfortunate use that was made of the word "science" in school teaching. What was needed in schools was the use and application of the adjective rather than of the noun in this matter—that scientific method should be introduced into the school, and should become the possession of everybody—that those particular habits which characterized the true worker in science should become general habits, with the object of developing the practice of the faculties. We could not help recognizing that, with one or two exceptions, all the work done in schools at the present day was what might be called desk work, and desk training must be a very incomplete preparation for life work.

Prof. Armstrong proceeded to insist on the importance of teaching the art of inquiry, and to deprecate the class system pursued in schools—the system of dividing the time of the scholars into certain periods. Tasks should be set children to

work out by practical methods that would appeal to them, that they could understand, and that would carry them on to greater knowledge. The choice of subject-matter depended on many circumstances—on districts, on the situation of the school, on the teacher's peculiarities and attainments—but it should take the form of object study. They should get rid of the time-table and give up the class system in schools altogether, and then they would begin to teach children to help themselves. The system of cutting time up into half-hours and other periods in school work was an absolutely false system in connexion with the work of the world. Prof. Armstrong contended that one of the most important results of working on the lines he advocated would be to educate the teachers themselves. Under the present system the teacher had no chance of improving, of making experiments, of developing, and they must give freedom for some change of this kind to be made if our teachers were to develop in the course of their work. He declared that the results achieved by two teachers equally trained and qualified, teaching the one under a system where payment by results, examinations, and inspectors prevailed, and the other under a system free from those restraints, would be extraordinarily in favour of the teacher adopting the latter system—a system that would turn out young people capable of helping themselves, of thinking for themselves. Many boys, he asserted, were being ruined by masters under the object-lesson system. Under the freer plan he advocated not only would the intelligence of the pupils be increased, but teaching would become a most interesting, instead of a most laborious, work. If we were to advance and make teachers a more important body than they are, it would be by leaving them to develop in every possible way new methods of dealing with old subjects. Prof. Armstrong, in conclusion, pointed out the conditions under which botany and chemistry should be taught in schools.

A short discussion followed, in which some of the speakers, following the lines of Prof. Armstrong's address, condemned the use of text-books in scientific teaching, it being urged that these books should be abolished entirely from schools, and everything be done from demonstration and written out afterwards.

### SLIPSHOD ENGLISH.

Two or three months back the *Pilot* lent its columns to an interesting correspondence on "Slipshod English." The subject is an attractive one: we all think that we can write good English, or, at least, know good English when it is written. Our head masters pen letters to the *Times* maintaining that to a classical scholar all other things, including a command of English, are added—letters that carry their own refutation. Self-taught geniuses like Cobbett and Mr. Moon, who knew no language but their own, expose with better reason the blunders of King's speeches and Dean's English. The subject, in fact, is a candle to which every moth instinctively flies, and most of them, we may add, singe their wings. Thus a learned and litigious Canon wrote to the *Pilot* to protest against the incorrect construction of "I bid him come," and a more learned Oxford professor gave a *catena* of instances from the "Anglo-Saxon Chronicle" down to Tennyson. "A Grandmother" took offence at "an avenue of trees on either side of the drive," and bade us substitute (or "to substitute," as Canon MacColl would have it) "each." Perhaps respect for years prevented any correspondent of the *Pilot* from pointing out that the correction implies at least six rows of trees, or that Byron has been heckled by every commentator for writing: "A palace and a prison on each hand."

"The lady doth protest too much, methinks," and the Canon likewise, yet we welcome any endeavour, however amateurish, to stem the torrent of slovenly English wherewith our cheap press and our half-educated scribblers threaten to deluge us. Nor is it only the halfpenny newspapers and penny dreadfuls that offend. We are grateful to Canon Lyttelton for mailing to the counter one pretentious absurdity from the *Times*: "Is there no spiritual purge to make the eye of a camel easier for a South African millionaire?"

Teachers are by no means infallible in this respect, and we are well aware that by exposing the errors of those in high places we may be laying ourselves open to retort. To his "Errors in the use of English" Dr. Hodgson might easily have added an appendix of examples taken from educational literature and the educational press. If we are not immaculate, however, we know our own failings, and, like Chaucer's parson, are no less ready to learn than to teach.

We take as the first sample to hand the "Special Report on the Rural Schools of France," to which we directed attention in a recent number. Excellent as far as method is concerned, it is as "regardless of English" as Barham's little Margate boy, and offends the least fastidious taste. We need not go beyond the first page for proofs of our charge. In his second sentence Mr. Brereton says: "There has been a tendency . . . to ignore this essential unity of any course of education, and to regard the latter as a more or less fortuitous aggregate of subjects." What is here "the former"? Even Mr. Sadler, whose English is generally beyond reproach, falls into this vulgar error, and writes in his introduction: "To each report is appended the name of its author, and it should be understood that the latter alone is responsible," &c. On the very same page of Mr. Brereton's report we read: "The wide extension given to the term [technical instruction] is due to the reason that the experiment has brought to light the vast ramifications of knowledge that lie at the root of every truly scientific training." It would be tedious to dissect this slipshod English. Our italics will suffice to show what is wrong.

We had marked several other passages for quotation, but can only find space for one. We give it the preference, not because it is worse than the others, but because it contains two instances of a construction that is coming in like a flood:—

I questioned a good many people in the matter, which is a very serious one, and the majority seemed to think that the real reason was not anything to do with a distaste for the work or owing to the profession becoming less attractive, but rather for economic reasons, brought about mainly by the ranks of the teachers being so encumbered.

Shades of Blair and Lindley Murray! Are Mr. Moon and Dr. Alexander Bain still living forces? A reason is "not anything to do with" something, but is for other reasons! But what of the participial construction? It is dangerous to maintain a universal negative, and we are well aware that Scott wrote "upon Nigel inquiring" when he should have written "Nigel's," and that Thackeray, a higher authority on English style than Scott, wrote: "These circumstances may lead to your ladyship quitting this house," though, had he been brought to book, we fancy he would not have defended himself, but would have quoted his own epigram: "Albert no doubt was in a hurry." It is quite true that we can hardly take up a newspaper without finding a similar instance. The last leader in the *Daily Chronicle* that we happen to have read had: "One of the reasons for the Boers remaining in the field." Mason, indeed, admits such cases as: "You will oblige me by *all leaving* the room." "I have my doubts as to *this being true*"; but a purist like Dr. Hodgson logically refuses to allow any such slovenly exceptions. It may be that before the end of the century the construction will be naturalized, and, clumsy and lazy as it is, receive the *imprimatur* of the grammarians. Usage, as Horace tells us, is the final court of appeal. Meanwhile Mr. Gladstone's challenge holds good, and we may with him protest against an ugly neologism, if not a solecism.

To pass on to undisputed matter, we find in the Report not only obvious slips, such as "a source derived from a body of notes," but Gallicisms on every page, as "children *deprived* of primary instruction" (obviously a rendering of *dépourvus*), "concordance between various curricula" (for "correlation of"), "in the respect of the progress" (for "in respect"), "schools conducted at such regardless expense," "delegates function regularly."

It has been maintained that no man can be really bilingual; if he acquires another language, so that he breathes it as his native element, he thereby loses the full use of his mother tongue. Max Müller, it is said, lost the power of writing idiomatic German, and Mr. Bodley, as the first edition of his "France" showed, has in part forgotten the English idiom. Mr. Cloudesley Brereton, we have no doubt, is a perfect French scholar.

Under the head of Gallicisms we may call attention to a few vulgar errors that still deface our novels and newspapers, though gross blunders such as "war à l'outrance," "*coûte qui coûte*," "*en deshabille*," have been scotched, if not killed. A *double entendre* may be defended as once good French, though now obsolete; but a *nom de plume* (when and where did the phrase originate?) never was and never will be French. *Embarras de richesses* may be good French, but it is rarely heard on the other side of the Channel. Littré knows it not, and we have searched in vain for an instance in a French author—except that we did light on one in Voltaire.

Our second whipping boy shall be a recent number of the *Author*, the official organ of the Incorporated Society of Authors. Of the participial construction whereon we have animadverted it contains at least a dozen examples, and one of "the latter" with-

out any "former"; and, not content with these achievements, it displays a crop of other blunders both common and peculiar. Among the former we find the *participium pendens*: "It is a curious fact, looking through the opinions as a whole, that many are still willing," &c.; the split infinitive; the confusion of "which" and "that," thus: "There are many contracts *which* have been entered into by the editor on behalf of the company *which* are binding at law and from *which* the contributors cannot retire." Among the latter, or idiosyncrasies, we notice "an altruistic spirit which is hardly *practicable* in this practical age"; "a precarious *though* unsatisfactory living"; "the company is registered under a different name to the magazine"; "owing to the misconstruction of certain writers, presumably of an idealistic tendency, of a letter, &c." All these blunders, and we might have added to the list, occur in the editorial portion of a magazine that professes to be the author's guide, philosopher, and friend. "Quis custodiet ipsos custodes?"

We have yet to note another type of slipshod English—the most offensive of all, because of its pretentiousness. Fine writing, or tall talk, our simple fathers called it; "the Corinthian order" it was christened by Mr. Matthew Arnold;

#### Chryselephantino berylus commista smaragdo

was the happy parody by the late Mr. E. E. Bowen of the style of our most popular living theologian. A recent article in the *Speaker* on Mr. G. K. Chesterton may serve the turn. The first canon of your fine writer is to pile up epithets and to use as many words as possible in a new and unnatural sense. "To join issue with Mr. Chesterton would appear but a *mournful* ingratitude"; "a doleful consummation"; "an effective ultimate triumph"; "a massacre of visible assassination"; and what may serve as a palmary instance of tautology—"so many innumerable human lives"; "to indurate into the brain"; "all perspective is levelled"; "all effort is effected"; "to crush into an inchoate mass": these are a few samples out of many that we might pick from this single article, of the abuse or misuse of words.

## REVIEWS.

### THE OXFORD ILIAD.

*Homeri Opera.* Recognoverunt brevique adnotatione critica instruxerunt David B. Monro et Thomas W. Allen. Tom. I. (Iliadis libros I.-XII. continens). Tom. II. (Iliadis libros XIII.-XXIV. continens). (Oxonii: e Typographeo Clarendoniano.)

To the twenty volumes of the "Oxford Classical Texts" ("Scriptorum Classicorum Bibliotheca Oxoniensis") already issued from the Clarendon Press Messrs. Monro and Allen have now added an extremely careful, laborious, and able recension of the "Iliad" in two handy volumes. Having formed their text with a masterful grasp of the materials and of scholarly methods, they have been able to confine their critical remarks to a very few lines at the bottom of the page. We do not know whether the printer followed the example of Foulis, of Glasgow, who fixed up his proofs at the gates of the University with an offer of half-a-crown for every correction; but, in any case, the volumes are beautiful and accurate examples of his art, a pleasure to eye and hand and mind.

In a "Praefatio" of a dozen pages Mr. Monro explains the method of editorial procedure. He does not explain why he has chosen to do so in Latin. English, it may be safely said, is nowadays quite capable of expressing his meaning; and he has long since proved himself capable of lucid exposition in English, even on Homeric subjects. His Latin, indeed, is fluent and piquant, and quite as good as if it had been made in Germany; but we should all have taken that for granted. Perhaps he wishes to speak across the Channel, and surmises that Latin will serve his purpose more effectively than the insular speech. The practice is traditional and picturesque, no doubt; yet not devoid of an element of incongruity. It is a scholarly performance, however, though not without a suspicion of diligent use of the file.

The construction of a critical text is a sufficiently arduous undertaking. The poet himself—final or original—stands far back in the mists of the past. But criticism was at work on the poems as early as the fifth century before the Christian era, though perhaps not to much purpose; the codices are numerous; and the Alexandrian grammarians, as well as recent discoverers, contribute a huge mass of material for sifting. Again, if it be

the fact, as Mr. Monro (with most other scholars) thinks is probable, that there was little or no literary use of writing in the time of Homer, and that the preservation and diffusion of poems depended not on the pens of copyists, but on the memories and tongues of singers and rhapsodes, there arises a double difficulty, from lapses of memory, and from arbitrary modifications, whether in matter or in dialect, on the part of the reciters. Thus there emerge three lines of investigation :

Primum danda est opera ut librorum testimonia colligantur atque rite aestimentur. Deinde ad antiquos convertendum, ac lectionis varietas e fragmentis doctrinae Alexandrinae iustauranda. Postremo, si de pristino epicorum sermone coniecturas capere libet, res est non in chartis papyrisque posita, sed in scientia linguarum cum Graecae tum cognatarum.

There is, perhaps, a fourth line, to some extent parallel with the third, but environed with greater perils than all the preliminary and indispensable three followed by Messrs. Monro and Allen in their quest for a text "si non optimum—ut qui ipsius poetae manum contingeret—attamen in optimis Graeciae saeculis vulgatum."

The codices of Homer are so numerous as to have proved a hindrance rather than a help: "arti criticae non tam instrumenta quam impedimenta." The editors have used about a hundred and thirty of them. In more than a hundred of these Mr. Allen either collated the whole text or else noted various readings of more or less promise; he also marshalled them in groups or families, which are here tabulated. The basis of this grouping must be sought elsewhere; yet the essential grounds of classification would have found an appropriate place here. We should also have liked a reasoned statement of the grounds of preference of one source over another. Dr. Leaf's London and Paris readings have been utilized, as well as those recorded in numerous fragmentary papyri recently discovered in Egypt. The remarkable thing is that such a wide comparison should yield such few and such unimportant variations. The vulgate is seen to have taken an early and persistent hold. Yet, as Prof. Platt has said, "no one in any degree acquainted with Homeric criticism can acquiesce contentedly in the vulgate." It is necessary to look farther afield.

There being no complete codex of earlier date than the tenth century, Mr. Monro turns to the old grammarians. Prince of these was Aristarchus. To his recension Giphanius, followed by F. A. Wolf, traced the text we have; but Mr. Monro gives ample reasons against this view. Moreover, he adopts Ludwig's conclusion that, while the old vulgate text, on which (as Sir Richard Jebb says) "the copies known to the Alexandrians must have rested," differed to some extent from the text of Aristarchus, it came nearer to our text ("eandem ad codices nostros propius accedere"), whose authority is thus enhanced by a hoarier antiquity. Still the early critics are not to be neglected. The line of recorded editors stretches down from Antimachus of Clarus, in Ionia, a contemporary of Socrates; there were the half-dozen so-called "civic editions," the "common" or "popular" editions, and others. There was thus a considerable quantity of materials for Homeric criticism in the Alexandrian library—at the least fifteen books, collected throughout Greece by the aid and advice of the most learned men: "instrumentum criticum vel hodie non contemnendum." Mr. Monro speaks highly of Aristarchus and his work, laying just stress on his discrimination of the quality of his codices and his reliance on the good ones. As to the newly found papyri, they in the main agree with the vulgate, but some of them interpolate verses whose origin is not yet clear. The date assigned to them is the second or third century before Christ, which makes them older than Aristarchus; so that, if they were known to him, they would fall into his less esteemed class of codices. The interpolated verses may, indeed, be a survival of rhapsodist additions, which the critics expelled from the vulgate.

On the question of dialect Mr. Monro becomes reserved ("paucam habeo quae dicam"). He mentions with honour Bentley's discovery of the latent *digamma*, and the labours of Bekker and Cobet on the lines of Bentley's suggestion. He estimates still more highly the achievement of Fick, "qui primus intellexit linguae epicae origines extra fines Ioniae quaerendas esse," but dissents from the view that the original dialect was Lesbian Æolic, holding that it was quite as closely related with Arcadian and Cyprian. Still he leaves his attitude to Fick rather vague—a contrast with Sir Richard Jebb's precise statement in just a few lines. After all, what does it matter for the present purpose? "Ceterum si concedendum est, quod plerique hodie concedunt,

Homeri carmina non Ionica primum cantata esse, sed ex antiqua Achaeorum dialecto a rhapsodis Ionibus tractata, quid ad nos de Homero edendo cogitantes?" Mr. Monro shrinks from a complete reconstruction, and consequently from all and any reconstruction, on that basis. He is content with a text "in optimis Graeciae saeculis vulgatum."

Assuming that he has recovered such a text, so far as it is recoverable from the accessible materials—admittedly a necessary and important achievement of scholarship—evidently this cannot be the last word on the text of Homer. The old editors and grammarians down in Alexandria or elsewhere did not know everything. They did not suspect the *digamma*, and the *digamma* conspicuously raises questions. Thus Messrs. Monro and Allen insert a *ν* *εφελευστικόν* in many places where previous editors left an apparent *hiatus* under the silent guardianship of the *digamma*. Presumably they have done so in accordance with the codices, and not merely on their own judgment; for they do not (so far as we have observed) give any special intimation on the point—a point that ought to have been made particularly clear. How much still remains to be attempted within the scope of Mr. Monro's third line of investigation may be inferred from Prof. Platt's courageous challenge in "The Cambridge Homer." We referred to a fourth line of procedure, having in view what may be called literary, rather than philological, considerations. The principle must probably work for long without trenching on the received text, by natural consequence of the differing acquirements and sensibilities of critics; but nevertheless it is to be worked. For example, our editors eject *ἡρίμησ'* (vulg.) from "Iliad" I. 11, and insert *ἡρίμασεν* (after five codices). In I. 95, in a summary repetition of the incident, we have *ἡρίμησ'*—necessary, indeed, by reason of the metre. But, if the two passages be taken together, and a literary test applied to the competing readings in 11, is it so certain that the vulgate reading should be ejected? Again, in I. 14, our editors give *στέμματ' ἔχων ἐν χερσίν* (without any indication of a various reading), and in I. 28, necessarily, *στέμμα θεοῖο*. Heyne and others give *στέμμα τ' ἔχων*. Not all the codices in the world—nothing short of Homer's own manuscript—would satisfy us that *στέμματ' ἔχων* is the true reading; and, even if Homer had written it, we should still protest that he had been nodding. We have pointedly recognized the perils of such a line of criticism, but still we are satisfied that they are worth facing by individual pioneers. Meantime the present edition may confidently be expected to hold the field for many a day as the received text on the basis of the traditional materials.

#### "A NEW LIBRARY OF REFERENCE."

*The New Volumes of the "Encyclopædia Britannica."* Vols. I. and II. (Vols. XXV. and XXVI. of the complete work.) (A. & C. Black, and the *Times*.)

The new series of volumes, two of which are now published, constitutes, in combination with the existing volumes of the ninth edition, practically the tenth edition of this celebrated and useful work, and supplies, as the title-page justly claims, "a new, distinctive, and independent library of reference, dealing with recent events and developments." The contrast between the original three quarto volumes of 1771 and the present shelfful of portly tomes is sufficiently striking, and the intervening history of the enterprise marks with unique distinction the house of Messrs. Black; while the copestone is honourably inscribed with the name and fame of the *Times*. The essence of the success of the mighty undertaking lies in the elevated conception of the work and in the consequent collaboration of the most eminent specialists in every subject; but, at the back of these forces are to be recognized the clear-sightedness, courage, and administrative capacity of the men of business. The great difficulty is to keep the work up to date; and we fancy the publishers, though justly proud of their achievement, are rather sanguine if they really expect that "the aim of the editors to make the new volumes so complete that no further edition will be required by the present generation" has actually been fulfilled. The world is still moving—as fast as it did a generation ago. But, no doubt, the future like the past, will effectively provide for its needs, and, in the meantime, and for any reasonable time to come, the editors have accomplished their work with conspicuous success. A book that is habitually used by half a million purchasers may look the future in the face with serene composure.

The first of the eleven volumes scarcely contains the letter A—Aachen to Australia. Whether we dip into the treatises on the

larger subjects (such as Acoustics, Aeronautics, Africa, Agriculture, Algebraic Forms, Anatomy, Archaeology, Architecture, Arbitration (International), Armies, Astronomy), or look at the short paragraphs of a dozen lines, we discern at once thorough care and balance of judgment, as well as the best and latest information. The second volume runs from Austria-Hungary to Chicaco, and presents similar features. It is introduced by a comprehensive "Survey of recent Political Progress" from the pen of Mr. Edward Dicey. The history and conditions of the various countries are amply and luminously treated; special studies (Bacteriology, Military Balloons, Banking, Barbizon School, Billiards, Boilers, Building Societies, Canals, Channel Tunnel, Chartered Companies, Chess, &c.) are thoroughly up to date; the biographies include Bagehot (by Sir R. Giffen), Bancroft (by Professor Sloane), Beaconsfield (by Mr. Frederick Greenwood), Bismarck and Beust (by Mr. J. W. Headlam), Browning (by Mr. Leslie Stephen), &c.; and the details are marked with vigilant care. The text of both volumes is liberally illustrated both by full-page plates and inset representations, sketch-maps, plans, diagrams, and figures. The sketch-map of the partition of Africa shows (among other things) the incorporation of the Boer Republics; Santos Dumont's balloon is figured in two aspects in a plate; other plates reproduce fine examples of the art of Sir L. Alma-Tadema, M. Barye, M. Jules Breton, M. J. B. Carpeaux, Mr. Ford Madox Brown, &c. There are several full-page maps, and the whole series will contain some 125 double-page coloured maps of minute detail. The difficult selection and treatment of eminent personages still living appear, by the examples in these two volumes, to have been managed judiciously. The freshness and vitality of the work are manifest. It should find a place in the school library, and for teachers its possession is not a question of advantage, but only of expense.

"A GERMAN OF THE GERMANS."

*Maximilian I., Holy Roman Emperor.* By R. W. Seton Watson. (Constable.)

It was a happy idea to break a sober record by inserting illustrations in a Stanhope Historical Essay. Mr. Seton Watson gives thirteen illustrations, most of them portraits, which enhance greatly the interest and value of his able and sympathetic sketch of "the last representative of the dying mediæval chivalry," "the last monarch of the ancient German stamp," "the first German patriot king of modern times." Not merely limits of space, but also a sound instinct, have led Mr. Watson to concentrate his main forces upon the personality of Maximilian, rather than to retell the history of the times his hero lived in. The general history is accessible elsewhere; the characteristics of Maximilian are well worth presentation in large relief. The fact is that the real Maximilian is all but lost in severe history, for he was more an idealist than a matter-of-fact man. Mr. Watson says:

His actual achievements in the hard concrete of facts are, from a national point of view, but small; but these are more than balanced by his activity in other and more abstract directions. It is in his relations to the budding thought of modern life that we can feel the real charm and fascination of Maximilian's character. For his was a nature which could never rest satisfied with the past, and aspired to ends which only the far distant future was destined to attain. . . . His greatest achievements lie outside the province of politics; indeed, regarded as a whole, his life is not so much a great historical drama as an epic poem of chivalry, rich in bright colours and romantic episodes, and crowded with the swift turns and surprises of fortune.

Mr. Watson traces concisely, but lucidly, "the tragi-comedy of Maximilian's political life"; and he confesses that "it is with a certain sense of relief" that he passes to his hero's real merits. He tells how Maximilian won almost universal favour "by his restless activity, his manly self-reliance, his wide and human sympathy with all ranks and classes of the people"; how, "above all, he identified himself with the struggling ideals of a new German national feeling, and with the growing opposition to France, to Italy, and to Rome, and, as a national hero, inspired the devotion alike of the scholar, the knight, and the peasant." This involves a sketch of the German Renaissance, with especial regard to Maximilian's relations to the leading Humanists—notably Wimpfeling, Brant, Holbein, Celtès, Peutingier, Pirckheimer, and Dürer—to his literary achievements, and to his encouragement of literature, science, and art. The volume will prove highly attractive, and may lead on to deeper study of the period.

AN AMERICAN "TEXT-BOOK IN CIVICS."

*The American Federal State.* By Roscoe Lewis Ashley, A.M. (Macmillan.)

Mr. Ashley describes his book as "a text-book in civics for high schools and academies," and says it is "intended not only to describe the organization and work of the different American Governments, but to make prominent the relation of the citizens to the Governments and to each other." He takes as his standpoint the State, meaning by the State "the whole body of citizens considered as an organized unit." Without inquiring into the nature of this organization, or into the distinction between the State and the Government, we note that Mr. Ashley is led by his principle to four steps:

First, to explain some of the more important principles of political science with practical applications; second, to show how the American Federal State became what it is; third, to describe the national, State (commonwealth), and local governments; and, fourth, to give some idea of the policies of the State in regard to great public questions, and of the problems that confront it.

The aim, then, is comprehensive. But the author is careful to keep his main purpose disentangled from the mass of supporting details. He gives no more history than is necessary as a framework to show the development of nationality; and he subordinates discussion on government and description of governmental machinery to explanation of the real character and actual working of the governments. At the beginning of each chapter he places a judiciously chosen list of books of reference, and at the end of each chapter he marshals the matters it contains under the main headings, and propounds testing questions (with more references in detail) after the manner of Prof. Fiske. The whole of the field is surveyed in orderly and lucid fashion; and, even if the references were wholly neglected, the student would yet gain from the text a vivid understanding of the working of United States institutions. It is a great pity that the book, as a whole, does not fit into our school system. But it ought to be within the reach of the more enterprising students, and parts of it might be communicated with advantage by teachers to more advanced pupils. For such as have an eye to studies in constitutional history and political institutions, Mr. Ashley's work will be found a valuable and trustworthy guide. At all points, whether in the formation and working of the constitution, in the various departments of national and State Government, in municipal administration, party organization, taxation, commerce and industry, and foreign affairs, the main considerations are judiciously selected and clearly set out. Cuba and the Philippines receive attention; the final chapter sums up "the duties of citizenship"; and important constitutional documents are printed in appendices.

THE REJUVENATION OF "GRIEB."

*Grieb's Englisch-Deutsches and Deutsch-Englisches Wörterbuch.* Zwei Bände. Vol. I. *English and German.* Tenth Edition. By Arnold Schröer, Ph.D. (Frowde.)

Perhaps there is no German dictionary that has had more vogue in England than Grieb's; and, now that Mr. Frowde has taken it in charge, it is assured of a still wider popularity, which the new edition amply deserves. Dr. Schröer, who is Professor of English Philology in the University of Freiburg i.B., has laboured hard to bring the work up to the mark: there are four years between the date of his "Vorwort" and the date of his "Nachwort," and his elaborate re-arrangement, revision, and enlargement of the book testify to true German thoroughness. He has given very particular attention to pronunciation and etymology. For English students the pronunciation is a subordinate matter; but Dr. Schröer has had his difficulties in representing it to his countrymen—difficulties that he has very fairly overcome. The same remark applies generally to the etymology, though in that department he has had large and efficient assistance from English works. He lays special stress on the etymologies as the starting-point for an orderly development of the meanings. In this department the improvement is signally marked. The problem of selection of the vocabulary has been rather trying. Completeness is impossible; even the "Oxford Dictionary," "the grandest lexicographical undertaking of our century," is not, and will not be, complete. Dr. Schröer has in view a practical book, a handbook, with large print and good paper, and yet at a moderate price, and so he must make a selection of vocables. He leaves aside Old and Middle English, except in so far as important writers, from Spenser at least, compel attention; and he cannot exhaust the terms of trade and commerce,

or of the technological departments of recent development. A handbook "has no room for such ballast"; a technical or literary glossary is the place for it. What is wanted is living English. Yet suppose we open the volume at a venture: we find "restore (noun), restority, restrainer, resty (restive), ret, rete, rection, rethor, rethorick." Once more: "gazon (French = rasen), geal (irdisch), geason, geat, ged (Scot.), gemman (gentleman), gendarme, genio (Ital.), geniting, geniton, genteelize." Evidently, then, a good deal of space might have been saved by refusing to take on board "such ballast"; and it might have been more profitably occupied by idioms and phrases, though there is very reasonable provision of these notwithstanding. There is an expected example under "owl": "to take owl, übel nehmen." But probably this "owl" has strayed from "ill." Dr. Schröer's indefatigable persistence appears vividly in his "Nachträge." Here he presents such classical gems as "boss, boulder, corny (betrunken), crib (die gute anstellung od. stelle), fluke, oof, &c." In the body of the work he records "spatchcock" (marking it, indeed, as "familiär"), and even a variety of that famous word—"spitchcock." But the editor's zeal is pervasive, and the result is a thoroughly practical, useful, and handy dictionary. The print is good, and the binding is made for wear. The German-English volume, we understand, will follow presently.

#### "WEBSTER."

*Webster's International Dictionary of the English Language.*  
New Edition. (Bell.)

"Webster" has achieved such a position of authority as a single-volume dictionary that it needs no recommendation or criticism. The distinctive feature of the new edition is a supplement of 238 pages (three columns a page), containing 25,000 new words, phrases, and definitions, so as to bring the work abreast of the varied progress of recent years in all departments of activity, mental and physical. "The aim has been," says Dr. W. T. Harris, the accomplished editor-in-chief (United States Commissioner of Education), "to gather the fruitage of the language during the past decade on the same principles that were applied in the great revision of Webster—the International of 1890." The definitions in the various sciences have been contributed by specialists, most of whom are distinguished occupants of Chairs in American Universities or of posts directly involving exceptional knowledge of particular branches. The department of Etymology has been supplied from Harvard. A special feature is "the rich contribution of words and meanings peculiar to Australasia," which "has been prepared with great care and thoroughness by gentlemen qualified both by Australasian residence and by scholarly equipment." The editor-in-chief has himself taken in hand the definitions in Philosophy and Psychology. The presence of "automobile" and "motor-car" shows that "Webster" moves with the times. "Ping-pong," we daresay, is already noted down for the next revision. In all respects a pre-eminently capable and useful work, which should be found in every school library and at the elbow of every teacher and writer. The binding, we should add, has been specially adapted to stand the inevitable strain on so heavy a volume.

#### IMAGINATION IN MATHEMATICS.

*The Cultivation of the Mathematical Imagination.* By Mary Everest Boole. (Colchester: Benham & Co.)

This interesting little treatise, written at the suggestion of Prof. John Perry, is divided into two parts. The first part, on "The Cultivation of the Mathematical Imagination," develops the idea that a mind already in possession of some sound general knowledge of the truths connected with a subject is better fitted than one not so prepared to derive full benefit from systematic instruction in, and careful study of, that subject. The second part is devoted to demonstrating that, from a hygienic point of view, it is unwise to teach new processes in connexion with unfamiliar ideas, and *vice versa*. To these fundamental propositions nobody will take exception, but there will be considerable hesitation in accepting as a practical working scheme the system of preliminary training that the author shadows forth for mathematics in particular, but that is equally applicable to all scientific subjects. It must always be borne in mind that a child or student, on commencing the serious study of any subject, it better without *any* previous knowledge of it than with *erroneous* ideas, and hence it becomes one of the essentials for the perfect success of the proposed ideal education that all children should constantly, from the earliest infancy, be under the guidance of

able preparatory teachers, not only to some extent specialists in their respective branches, but also well-read in subjects generally. The difficulty of such attainment is self-evident. Again, though the best education is admitted to be such a training as draws out from the pupil the elements that are to be combined to produce knowledge, there is grave reason to question whether any advantage can be derived from letting a child dwell on any difficult point, however important, to the extent that induces a feeling approaching hopeless bewilderment and stupidity. It must also be remembered that the natural bent of the individual mind is an important factor in determining how far that mind can rediscover the details of any particular subject. The little book will do work of great value if it increase in teachers the sense of their share in the responsibility of making their labours effective—if it deepen the feeling that they must be thoroughly conversant with the subjects they teach, and that they must do their utmost not to limit their instruction to going over the facts given in text-books. To seek to fill lessons with a living interest, to draw out ideas, to suggest analogies and appeal to concrete illustrations, to show (as far as is practicable) the reasons for using particular processes—these are some of the elements of the desired success. There are a few misprints, one or two of which are important—one on page 18, where the quadratic equation appears as  $x^2 + 10 = 2x$ , and one on page 20, in the discussion of finite straight lines.

#### A NOVEL OF THE SCHOOL.

*The Girl from St. Agneta's.* By J. H. Yoxall, M.P. (Ralph, Holland, & Co.)

Mr. Yoxall displays alertness and versatility in his new rôle of novelist. The vaguely suggestive sub-title, "A Fantasia on a Fugue," though more applicable to the part played by the minor character it originates with than to the story of the heroine, may, perhaps, be taken to deprecate the expectation of a sober-grey treatment of ordinary conditions of school-life. It so happens, indeed, that the characters are mainly teachers at work or on holiday, or in perplexities; but the real interest lies more in the personal relations than in the professional circumstances. "The Girl" is a good girl, a good daughter and sister, and a good teacher; and, of course, she is the heroine. But she is overshadowed by the hero, as was all but inevitable with a forcible, not to say impetuous, author. One cannot help thinking that Mr. Yoxall altered his original conception of the Principal after the earlier chapters; at any rate, that important character develops in an unexpected and very satisfactory fashion. Mrs. Chetwyndham, the rectress of Studley Walton, who raises the question of reasonable tenure and rational treatment, may be drawn from life for aught we know; but, as a type of any considerable class, she rather impresses one as a caricature. Her arbitrary and foolish conduct does not seem likely to impress the real difficulties of teachers in national schools. Her daughter, a "Girthing" girl, is responsible for a bit of a mystery, and for a romantic escapade, under motives by no means improbable. The episodes in England are varied by an expedition to the Holiday School of Languages at Caen, which widens the scope for incident and description. "The course of true love never did run smooth," nor does it run smooth for "the Girl from St. Agneta's"; still, it runs. The story is brisk and bustling, with touches of humour and dashes of virile criticism. At the same time it displays an impatient facility, somewhat readily running into extravagance, and essentially antagonistic to solid and enduring achievement. Mr. Yoxall should provide himself with a knife and a file, and apply them with his accustomed vigour.

## GENERAL NOTICES.

### CLASSICS.

"University Tutorial Series."—*Tacitus: Histories III.* Edited by W. H. Balgarnie, M.A. (Clive.)

Besides a general account of Tacitus and his works, and a summary of the book in hand, Mr. Balgarnie's introduction sketches the main features of the Imperial government and the development of the Roman military organization. The notes are judicious, and often vigorous; the incidental translations are independent and suggestive, and occasional parallels, classical and English, are very pertinent. If "the perfect force entirely disappears in the potential subjunctive"—"*haudfacile disceverim, I find it very hard to decide*" (iii. 28)—its disappearance had better be traced. In iii. 70 *Martialis* is said to be *e primipilaribus*, and Mr. Balgarnie translates "once a senior centurion." Mr. Spooner has not insisted in vain; yet there is room for a demonstra-

tion of the position. Messrs. Church and Brodribb's "a centurion of the first rank," here and elsewhere, seems still more in need of demonstration. Mr. Balgarnie has done his work with ability and discretion.

"Black's Historical Latin Readers."—*The Old Senate and the New Monarchy*. By F. M. Ormiston.

The third and final volume of the series. It consists of 42 extracts, mainly from Cæsar, Velleius Paterculus, Florus, Cicero, and Suetonius, occasionally modified a little for simplicity. The collection forms a continuous account of the main points in Roman history between B.C. 60 and A.D. 14. Each extract—a passage of about 20 or 30 lines—is prefaced by a brief explanation of the situation described or illustrated in the text, and of its relation to what precedes. The language "is about equal in difficulty to an average chapter of Cæsar." The extracts should have been assigned to their several authors: has Miss Ormiston had regard to Long's estimate of Florus ("Decl. of the Rom. Rep.," I. 33, 121)? The notes are slight, intentionally; they will be serviceable as far as they go. Only *iudicare* (xxxix. 13) does not mean "to pronounce judgment"; and the technical phrase *aqua et igni interdicti* (x. 7) should have been more precisely explained. On *conservata patriæ pretium* (x. 9) Miss Ormiston says "the participle is equivalent to a gerundive, but it is used of a completed action." There seems to be somewhat of a confusion in this: better keep the gerundive out of the question. The reference to Roby (ii., § 1,406) cannot justify "equivalent to a gerundive." Similarity (cf. Livy, "Præf.": "ante conditam condendamve urbem") is not equivalence. The vocabulary is well done, but the pupils ought to have a dictionary. "No attempt has been made," says Miss Ormiston, "to render a dictionary unnecessary." Why, then, the vocabulary at all? The illustrations are good and useful. The volume is, on the whole, a good idea well executed.

"University Tutorial Series."—*Euthyphro and Menæxenus* (Plato).

Edited by T. R. Mills, M.A. (Clive.)

The introduction borrows from a previous volume of the series a sketch of Plato's life and an arrangement of the dialogues in a supposed order of development. The latter part seems rather premature, and, in any case, somewhat condensed. Mr. Mills adds a concise account of the early philosophers and the sophists, an adequate sketch of the life and teaching of Socrates, and a lucid analysis of the two dialogues in hand. The text is based on Schanz's edition, and the notes are accurate, suitable, and sufficient. The Greek is printed in excellent type. A very serviceable school edition.

*Latin Passages for Translation*. Selected by M. Alford. (Macmillan.)

Miss Alford has evidently expended much care on the selection and arrangement of her materials. She gives no fewer than 250 extracts, "an abundance of the best Latin prose" (1-132), and also a considerable quantity of good Latin verse (133-250). Endorsing the opinion of Ascham, she has chosen some of the pieces "especially as suitable for retranslation." The aim of the book not being critical, she has, in some cases, adopted "an easier reading, if backed by fair authority, in preference to one which was better supported." This does not seem to matter much; but was it worth while? Miss Alford acknowledges two emendations of her own. In a passage (105) from Tacitus, "Annals," XV. 44, she alters "multi crucibus adfixi aut flamma usti, alique, ubi . . ." to "aut crucibus adfixi aut palis reservarentur flammandi atque ubi . . ." "I have inserted two words," she says, "intended to give the general sense of what Tacitus wrote, as nearly as I could arrive at it." But the insertion of the two words involves other modifications, and it is difficult to see why the text should be altered at all, both sense and construction appearing to be perfectly plain. Again, in Cæsar, "De Bello Civili," III. 8, Miss Alford gives "reliquos posse deterreri sperans," adding *posse* to get over the difficulty with *deterreri* (present for future). But does *posse* mend the matter? And is there, in fact, any matter to mend? Besides, is not the common reading *terreri*? However, these are trifles—marks of exaggerated carefulness. It is a capital collection "for the use of higher forms in schools and of students working for pass degrees"; and we hope the author will be encouraged to publish her renderings of the passages "for the use of teachers and private students."

#### ENGLISH LANGUAGE AND LITERATURE.

*The Complete Works of Geoffrey Chaucer*. By Rev. Walter Skeat, Litt. D. (Clarendon Press.)

Who now reads Chaucer? If we may venture to adapt some well known lines of Pope, we may say that "if he pleases yet," it is through the pious labours of the present editor. What English teacher has not been grateful for the editions of some of the "Canterbury Tales," with their introductions on the grammar and versification of Chaucer, which first made the music of this sweet singer audible to his ears? Prof. Skeat has done well to publish this volume. It is not the good fortune of all to possess his great six-volume edition published by the Oxford Press, and it will be a great convenience to many to possess in a handy form an edition that excludes the many poems now known not to be Chaucer's that other editions still include. The only exception is the inclusion of the three extant fragments of the translation of "Le Roman

de la Rose," of which Prof. Skeat writes: "only the first of them can be reconciled with Chaucer's usual diction and grammar." There are valuable glossarial indices and an introduction containing a life of Chaucer, a list of his stanzas, and "grammatical hints"—a summarized but singularly clear "minimum of information" necessary to the student.

*Shakespeare's Macbeth and the Ruin of Souls*. By William Miller, C.I.E., D.D., LL.D. (Natesan.)

Dr. Miller, the well known Principal of the Madras Christian College, and Vice-Chancellor of the University of Madras, follows up his exposition of the lessons of "King Lear" with a similar analysis of the moral teaching of "Macbeth." "It is as a supreme example" of the strife that "rages endlessly and everywhere on earth between the kingdom of heaven and the kingdom of hell," says Dr. Miller, "that 'Macbeth' holds the place of the most solemnly instructive of the gifts of literature to the generations of weak humanity." He challenges the opinion of such critics as represent that Macbeth was lacking in courage: "of no character described in poetry can it be said more truly than of Macbeth that he is brave to the innermost recesses of his being." Again, he reads Lady Macbeth very differently from most critics, and supports his view with marked ability. Both the literary and the moral handling must be acknowledged as extremely capable.

"Blackwoods' English Classics."—*Milton: Samson Agonistes*. By E. H. Blakeney, M.A.

Mr. Blakeney substantially adopts Masson's text, collating it with Mr. Beeching's Oxford "Milton," and punctuating at his proper peril. The introduction (32 pages) gives a fresh and sympathetic account of Milton's life and work, with a special section on the "Samson Agonistes." Mr. Blakeney writes simply and attractively, with command of the subject, and with firm control in point of selection. The notes (70 pages) are very full and instructive, both on matter and on manner; they indicate a thoroughly equipped mind and a well-balanced judgment. Mr. Blakeney confesses that Milton is the poet "whom, of all poets, I love best." They will be very dull pupils that fail, on study of this edition, to become inspired by a like feeling. There is a literary touch, restrained yet efficient, that cannot but work excellent results.

"The Warwick Shakespeare."—*Much Ado about Nothing*. Edited by J. C. Smith, M.A. (Blackie.)

A careful piece of work that well maintains the high standard of the previous volumes of this series. A somewhat difficult chapter "On the Text" seems rather out of keeping with the otherwise simple character of the notes and criticisms; and we cannot but think that, instead of printing a list of references to the play in later works, it would have been more profitable to have pointed out more fully than is done the indebtedness of Shakespeare to Lyly in his treatment of the Watchman and in the euphuistic "wit combats" of Benedick and Beatrice.

"Sir Walter Scott Continuous Readers."—*Waverley*. Edited by E. E. Smith. (Black.)

Miss Smith has cut down the novel to the required length, preserving the story. Her introduction sketches the historical conditions of the time and place, with remarks on the author, mainly in reference to the particular book. "He seems," she thinks, "to have put more of himself into this, his first novel, than into many of the later ones." Well, this is a risky line of speculation, and not very much in place here. The notes will be helpful to some extent; but they should have been severely revised, and perhaps extended, at headquarters. "Conniving at a crime" is an amazing explanation of "composition of felony." A Scots farmer has "stirks" that are not "heifers" or "young cows," and he would be rather surprised to learn that a "stot" is a "three-year-old bull." "A hantle siller" is not "a good handful," though to a poor fellow "a good handful" might be a "hantle." There is no philological relation between the words, and no Scot would think of "handful" in connexion with "hantle." "Insight plenishing"—a sufficiently remarkable expression—is explained as "indoor furniture"; and, sure enough, there is "insight" in the text (page 56)—a mere blunder for "inside," the true and obvious reading. To explain "fendy" as "careful" is to miss the essential meaning. Why, "haggis" itself is only "a national Scotch pudding"! The editors, particular and general, must be very Sassenachs. Anyhow, this won't do.

*Advanced Dictation Sentences and Spelling*. (Relfe.)

Lists of words (with meanings) are given, and sentences embodying the words follow, words of similar sound having the prominence of thick type "to appeal to the eye." Interspersed among the exercises are lists of "the most awkward words in the English language"—a challenge to the pupils' courage. But then there is the promised reward of virtue: "pupils may rely upon a thorough mastery of English orthography by working carefully through this little book." It is positively cruel to suggest an omission, but we have not met with "analogous," which is both common and commonly misspelt. "Movable" is given; would "moveable" be considered wrong? But this is a terrible collection—more formidable than a dictionary complete, because unrelieved in severity. Are the pupils supposed to be in training for printers, or proof-readers, or spelling-bee com-



petitors? Perhaps, however, teachers that use it will have bowels of compassion—unless when they apply it as an instrument of disciplinary infliction.

#### MODERN LANGUAGES.

*Grands Prosateurs du dix-septième siècle.* Edited by Louis Brandin. (Black.)

Mr. Kirkman's series is growing rapidly, which may be taken as a sign that it is supplying a want. Certainly the volume before us will prove very useful: it will serve our University students, and may even be read in the highest forms of our schools. We have no hesitation in commending the selection made by M. Brandin. Pascal is represented by three "Lettres Provinciales," Mme. de Sévigné by eight of her lively letters, La Rochefoucauld by the "Portrait de lui-même" and by some of his maxims, Bossuet by a large extract from the "Discours sur l'Histoire Universelle" (but there is no specimen of his oratory), La Bruyère by extracts from the "Caractères," Fénelon by a portion of his "Lettre à l'Académie," and—apparently an after-thought—Descartes by some pages from the "Discours de la Méthode." The editor has added short biographies, which give all essentials, and useful notes, which explain difficulties in the text very briefly or suggest variations from modern usage, or English renderings. Mr. Kirkman has prefixed a short introduction on French literature in the seventeenth century and a useful chronological table. There are also portraits of the authors. We observe a few small blunders, mostly misprints, but they are mere trifles in a book that merits praise for careful editing and printing.

*A Selection from the Comedies of Marivaux.* Edited by E. W. Olmsted, Ph.D. (Macmillan.)

There is a large circle of readers that will appreciate the dainty comedies of Marivaux, and will be grateful to Prof. Olmsted, of Cornell University, for enabling them to read three of his best plays, namely, "Le Jeu de l'Amour et du Hasard," "Le Legs," and "Les Fausses Confidences," which will undoubtedly make them desire a still closer acquaintance with their kindly author, an excellent account of whose life is given by way of introduction. The notes are very short, and will not interfere with the enjoyment of the text, which is clearly and carefully printed. We have noted only one or two mistakes: Page 24, last line, read *voilà*; page 62, line 12, and page 63, line 8, there should be signs of interrogation; page 71, line 14, *Il* omitted; page 102, line 4, no comma after *voilà*.

*La Tâche du Petit Pierre* (Jeanne Mairet). Edited by O. B. Super, Ph.D. (Heath.)

The tale is well known, as it forms the greater part of "Dent's Second French Book." The edition before us is not in any way noteworthy. The preface promises "unusually full" notes; four pages and a half to eighty pages of text does not seem an "unusually full" allowance. The vocabulary is practically complete; but the principal parts of verbs should be given in a book "intended for use in very elementary classes." A few pages of sentences, based on the text, for retranslation, are given at the end.

*Les Histoires de Tante* (R. d'Alissas). Edited by the Authors (M. and K. Roget), under the direction of F. F. Roget. (Macmillan.)

This little collection of eight short stories makes an admirable reader for elementary classes. The French is simple and fluent, the matter is varied, and the pictures, though not of uniform merit, are, on the whole, satisfactory. In the notes, all is explained that can possibly give difficulty; there are good renderings into English and grammatical notes, which are often couched in such technical language as to be positively forbidding. The vocabulary is complete.

#### MATHEMATICS.

*Solutions of the Problems and Theorems in Smith and Bryant's Geometry.* By Charles Smith, M.A. (Macmillan.)

A valuable book of reference, whose publication very many engaged in teaching will no doubt welcome. The solutions of the more difficult problems and theorems are, moreover, likely to make the volume interesting as well as useful to a number of readers. The name of the author should create the greatest confidence in the methods adopted and in the results obtained.

*A Second Arithmetic.* By Dr. W. T. Knight. (Relfe.)

Dr. Knight's "Second Arithmetic" is a sequel to his "First Arithmetic," which appeared last year. He has adhered to the plan of attacking difficulties singly. The reasons for the rules given are introduced to a far greater extent than in the previous volume; at the same time the author recognizes that in the instruction of junior students the burden of explanation must ultimately fall on the teacher. The number of exercises and of miscellaneous questions from examination papers is large. If the attempts of examination candidates afford a test, the mastery of problems in stocks usually gives special trouble to pupils; hence it may be well to mention that there are many excellent examples on the subject in Dr. Knight's book, though it would be an additional advantage if the consideration of brokerage entered into a larger proportion of them. The answers to Exercises and Problems are not included in the present volume, but have been issued separately.

*Original Investigation; or How to attack an Exercise in Geometry.*

By Elisha S. Loomis, Ph.D. (Ginn.)

It is to be supposed that there are many teachers and students already thoroughly familiar with the details of the subject discussed in this very useful and interesting little treatise; nevertheless they may still find a pleasure in reading it. To those, on the other hand, that are not yet acquainted with the principles developed by the author, the benefit to be derived from a careful study of its pages can scarcely be over-estimated. The aim of the work is to show in connexion with mathematical investigation what processes are essential, and the proper places that each should occupy. Too often synthetic or deductive methods are alone employed, whereas every theorem or problem ought in the first place to be submitted to analysis, if it is to be approached with any degree of confidence on the part of the investigator. When induction has led to the determination of the general truths on which the particular demonstration or solution depends, then and only then is it time to appeal to synthesis in order to frame the formal proof in the usual manner. Problems are broadly classified as "determinate," "indeterminate," "over-determinate," and "impossible"; and the writer gives most valuable information as to the means of discovering whether the solution of a problem lies within the range of Euclidean geometry or not. From such theorems or problems as are specially suitable for the purpose of illustrating the various leading methods of treatment Dr. Loomis has made selections, and has discussed very fully and carefully the propositions chosen.

"Oliver and Boyd's Educational Series."—*The Tweeddale Arithmetics.* (Edinburgh: Oliver & Boyd. London: Simpkin, Marshall, & Co.)

This series will be complete in six small volumes, of which the last (the "Merit" volume) appears to be still in the press. The explanation of rules is intended to be given orally; and, in the hands of competent teachers, "The Tweeddale Arithmetics" will be found very suitable for class purposes. Each book is arranged so as to cover a year's work, and consists mainly of a large collection of graduated exercises, many typical cases being fully worked in the later volumes, so as to show the best methods of dealing with them. There is a very limited quantity of text, including tables and such facts as require to be committed to memory. It will be found that rules considered at the close of one book are treated again at the commencement of the succeeding one, the exercises being of a more advanced character. Book V. contains some useful pages on the decimal coinage and the metric system. The answers to the exercises are not given.

#### PHYSICS.

*Introduction to the Study of Physics.* Vol. I., *General Physical Measurements.* By A. F. Walden, M.A., and J. J. Manley. (Black.)

A practical guide to demonstrations in mechanics, hydrostatics, and pneumatics. A striking feature is the simplicity of some of the apparatus recommended; for instance, directions are given for constructing a sensitive spring balance from a clock-spring and some curve paper, and for making a reliable seconds pendulum from a bob, thread, needle, corks, and retort stand. Minute instructions are given whereby accuracy may be secured. The book furnishes a good training in scientific method and physical manipulation.

*Practical Exercises on Sound, Light, and Heat.*

By Joseph S. Dexter, B.Sc. (Longmans.)

The plan generally adopted here is to prescribe how the apparatus should be arranged and the experiment conducted, and then to suggest questions on what is observed and what inferences are drawn by the student. The answers to these questions are not always given or suggested, but a capable instructor would be able to provide them easily enough. This method is highly instructive when carefully carried out.

*Practical Science.* By J. H. Leonard, B.Sc. (Murray.)

A very elementary school course of experiments on mechanics, hydrostatics, and heat. So far as it goes, it is exceedingly thorough. Not only are the exercises well selected and completely described, but they are also fully discussed, so as to draw nearly every possible lesson from them. They should teach familiarity with the rule, the balance, and the thermometer, and at the same time develop the habit of neat work and careful observation. Great stress is properly laid on the transcription of processes and results in a note-book.

#### MISCELLANEOUS.

*The Commercial Law of England.* A Handbook for Business Men and Advanced Classes in Schools. By J. A. Slater, B.A., LL.B. (Pitman.)

The design of this handbook of English commercial law, as stated by its author in a prefatory note, is "for the service of advanced classes in schools; but it has been designed in an equally important degree as a constant desk companion to the modern man of business." Advanced students in our existing schools do not make any branch of English law a subject of serious study, nor are they likely to do so under the present conditions of entering on a business career. Boys leave school for business between the ages of fourteen and sixteen, and, that being so, commercial law can form no part of their educational outfit. With regard to the modern man of business, we scarcely believe that he

will betake himself to the study of legal text-books in the intervals of his work. He will, doubtless, follow the well established practice of putting himself in the hands of a legal expert when overtaken in a lawsuit or in the entanglements that might lead to one. The time may come when the average man of business will be so fully informed as to his legal rights and obligations as to be able to dispense with expert advice; but that time is not yet. It does not, however, detract from the merits of the little book before us that it may not be as widely useful as its author hopes. The book is carefully written. Owing to the multiplicity of subjects dealt with—contracts, bills of exchange, partnership, insurance, patents, bankruptcy, &c.—the treatment is necessarily general; but we have not found it confused or inaccurate. The definitions are based on judicial decisions, or adopted from standard text writers. In short, a good deal of well arranged legal information will be found in this compendium of commercial law, and its perusal will well repay either the student preparing for a commercial career or the man actually immersed in business.

"Monographs on Artists." Edited by H. Knackfuss.—VI. *Botticelli*. By Ernst Steinmann. Translated by Campbell Dodgson. (Grevell.)

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MATHEMATICS.

9133. (W. J. GREENSTREET, M.A.)—Prove that there are

$$(p-1) \{(p^2+1)^n - 1\} / p^2$$

integers less than  $(p^2+1)^n$  which are divisible by  $p$  and not by  $p^2$  ( $n$  and  $p$  integral).

Solutions (I.) by Lt.-Col. ALLAN CUNNINGHAM, R.E.; (II.) by R. CHARTRES, and others.

(I.) Let  $s'$  = number of numbers ( $< N$ ) containing  $p$ ,  
 $s''$  = " " " ( $< N$ ) " "  $p^2$ ,

$E(x)$  = integer part of the number  $x$ .

$$s' = E[(N-1)/p], \quad s'' = E[(N-1)/p^2].$$

Then Let  $N = (p^2+1)^n$ ; then every term of  $(N-1)$  contains both  $p$  and  $p^2$ . Hence, in this case

$$s' = [(p^2+1)^n - 1] / p, \quad s'' = [(p^2+1)^n - 1] / p^2,$$

and the number sought =  $s' - s'' = (1/p - 1/p^2) [(p^2+1)^n - 1]$ , which reduces to the form given.

(II.)  $(p^2+1)^n - 1 \equiv Ap^2$  numbers to be considered, of which the favourable cases are  $p, 2p, \dots, (p+1)p, (p+2)p, \dots = (p-1)p^2$  of the above.

14917. (A. M. NESBITT, M.A.)—Three conics  $S_1, S_2, S_3$  have a common point  $O$ . The remaining intersections of  $S_2S_3$  are the vertices of a triangle  $\Delta_1$ , those of  $S_3S_1$  of a triangle  $\Delta_2$ , and those of  $S_1S_2$  of a triangle  $\Delta_3$ . Prove that the nine sides of these three triangles all touch the same conic  $U$ . Or, reciprocally: Given three parabolas, their common tangents, taking the curves in pairs, will form three triangles (one for each pair) whose nine vertices lie on a conic.

Solutions (I.) by Professor MORLEY; (II.) by Professor NANSON; (III.) by Professor JAN DE VRIES; (IV.) by the PROPOSER.

(I.) Consider the more general theorem: the three common four-lines of three conics  $S_1, S_2, S_3$ , taken in pairs, are inscribed in a cubic curve. For let the triangle of reference be three lines each touching two conics. The conics are then

- (1)  $\xi_1^2 + l_1 \xi_2 \xi_3 + m_1 \xi_2 \xi_1 + n_1 \xi_1 \xi_2 = 0$ ,
- (2)  $\xi_2^2 + l_2 \xi_2 \xi_3 + m_2 \xi_3 \xi_1 + n_2 \xi_1 \xi_2 = 0$ ,
- (3)  $\xi_3^2 + l_3 \xi_2 \xi_3 + m_3 \xi_3 \xi_1 + n_3 \xi_1 \xi_2 = 0$ .

Eliminating  $\xi_1$  from (2) and (3), we have

$$n_3 \xi_2^3 - m_2 \xi_3^3 + \text{terms in both } \xi_2, \xi_3 = 0.$$

Hence a cubic, whose cube terms are  $l_1 x^3 + m_2 x_2^3 + n_3 x_3^3$ , can pass through those vertices of the three four-lines which lie on the triangle of reference. (A) That is, these nine points are the basis-points of a pencil of cubics.

Draw a cubic through three points of one four-line which are not on a line, and through three points of each of the other four-lines which are on a line. By (A), the cubic contains all points of the first four-line. Now take other collinear points of the second four-line; we have again a cubic meeting the former in ten points, therefore the same cubic. Thus the theorem is proved.

If, now the conics have a common line, nine of the eighteen points are on it, and the cubic breaks up into a line and a conic through the other nine points, which is Mr. NESBITT's theorem. If the conics have two lines in common, we have in reciprocal form the theorem that the radical axes of three circles meet.

(II.) The envelope of the degenerate conics of the system  $l_1 S_1 + l_2 S_2 + l_3 S_3$  is a class cubic which when  $S_1, S_2, S_3$  have a common point  $O$  degenerates into the point  $O$  and a conic touching the sides of  $\Delta_1, \Delta_2, \Delta_3$ .

[The rest in Vol.]

14765. (Professor JAN DE VRIES.)—The equation

$$a_{11}x^2 + 2a_{12}xy + a_{22}y^2 + b_1x + b_2y = 0$$

being referred to rectangular axes, the axes are supposed to turn about the origin. Prove that the function  $I = (a_{11} - a_{22})b_1b_2 - a_{12}(b_1^2 - b_2^2)$  does not undergo change of form. What is the proper geometric meaning of  $I = 0$ ?

Solution (I.) by the PROPOSER; (II.) by CONSTANCE I. MARKS, B.A., and Professor SANJANA, M.A.

Using known symbols, we put

$$a_{11}x^2 + 2a_{12}xy + a_{22}y^2 = (a_1x_1 + a_2x_2)^2 = a_x^2.$$

The axes being turned through an angle  $\phi$ , we have, denoting the new coordinates by  $\xi_1, \xi_2$ ,  $x_1 = \xi_1 \cos \phi + \xi_2 \sin \phi$ ,  $x_2 = -\xi_1 \sin \phi + \xi_2 \cos \phi$ .

Then  $a_x = a_1x_1 + a_2x_2 = (a_1 \cos \phi - a_2 \sin \phi) \xi_1 + (a_1 \sin \phi + a_2 \cos \phi) \xi_2 = a_1\xi_1 + a_2\xi_2$ .

Hence  $a_1 = a_1 \cos \phi - a_2 \sin \phi$ ,  $a_2 = a_1 \sin \phi + a_2 \cos \phi$ .

Since  $\xi_1 = x_1 \cos \phi - x_2 \sin \phi$ ,  $\xi_2 = x_1 \sin \phi + x_2 \cos \phi$ ,

the symbolical coefficients  $a_1, a_2$  are transformed by the same substitution as the variables.

If  $b_1, b_2$  denote a new set of symbolical coefficients, it is easily proved that the functions  $a_1b_1 + a_2b_2$  and  $a_1b_2 - a_2b_1$  are orthogonal invariants. Hence we get the invariant

$$I = (a_1b_1 + a_2b_2)(a_1b_2 - a_2b_1).$$

Or, writing  $a_{11}, a_{12}$ , and  $a_{22}$  instead of  $a_1^2, a_1a_2$ , and  $a_2^2$ .

$$I = (a_{11} - a_{22})b_1b_2 - a_{12}(b_1^2 - b_2^2).$$

In order to find the geometric meaning of  $I = 0$ , take the tangent of the conic at the origin as axis  $OY$ . Then the conic will be represented by an equation of the form  $a_{11}\xi^2 + 2a_{12}\xi\eta + a_{22}\eta^2 + \beta_1\xi = 0$ , and  $I = -a_{12}\beta_1^2 = 0$ , or  $a_{12} = 0$ . Hence it follows that the origin is a vertex of the conic. [Sol. II. in Vol.]

14800. (R. F. DAVIS, M.A.)—Prove that the equations  $xy = ac + bu, yz = bd + cv, zu = ce + dx, uv = da + ey, vx = eb + az$  are not independent, and that, giving any three, the other two follow.

Solutions (I.) by H. W. CURJEL, M.A., J. H. TAYLOR, M.A., and others; (II.) by ALEBROP; (III.) by Professor SANJANA, M.A.

(I.) The symmetry of the equations shows that it is immaterial which three are considered as given. If the first three are given, then

$$cix = xyz - xbd = acz + buz - xbd = acz + bce$$

and  $cuv = uyz - bdu = cey + dxy - bdu = cey + cda$ ;

therefore  $vx = eb + az$  and  $uv = da + ey$ , unless  $c = 0$ . If  $c = 0$ , then of the first three equations two only are independent, for they may be written  $u/x = y/b = d/z$ , and from these with one of the remaining two the remaining equation follows.

(II.) Démontrons, par exemple, que (4) et (5) sont conséquences de (1), (2) et (3). En divisant (2) par (3), on trouve  $c(uv - ey) = d(xy - bu)$ . En y introduisant la valeur de  $xy$  donné par (1), il vient  $uv - ey = da$ , qui n'est autre que (4). Maintenant, on déduit de même (5) de (2), (3) et (4). On pourrait aussi s'appuyer sur ce qu'on peut supposer que  $a, b, c, d, e$  soient les côtés d'un pentagone cyclique et  $x, y, z, u, v$  les diagonales joignant les sommets de deux en deux.

(III.) Let the first three be given

$$y \cdot x - c \cdot a - b \cdot u = 0, \quad y \cdot z - c \cdot v - b \cdot d = 0, \quad zu = ce + dx \dots (1, 2, 3).$$

From (1) and (2) by cross multiplication

$$\frac{y}{ad - uv} = \frac{b}{-xv + az} = \frac{c}{-uz + dx} = \frac{c}{-ce} \quad [\text{by (3)}] = -\frac{1}{e}.$$

Hence  $ye + ad = uv \dots \dots \dots (4)$   
 and  $eb + az = vx \dots \dots \dots (5)$ .

10198. (JOHN GRIFFITHS, M.A.)—The coordinates  $x, y, z$  being proportional to the perpendicular distances from the sides of a triangle  $ABC$ , prove that (1) the locus of a point  $(x, y, z)$  such that its pedal circle (i.e., the circle which passes through the feet of the perpendiculars drawn from the point in question upon the sides of the triangle) touches the nine-point circle is the cubic

$$x(y^2 - z^2) \cos A + y(z^2 - x^2) \cos B + z(x^2 - y^2) \cos C = 0;$$

and (2) trace this curve.

Solution by W. H. BLYTHE, M.A.

It may be shown that the radical axis of the circum-circle with that of the pedal circle is

$$\begin{aligned} \lambda a + \mu b + \nu \gamma &= 0, \\ \text{where} \\ \lambda &= (pbc + qca + rab) \\ &\quad + a^2 + b^2 + c^2 \\ &= bc(1 + p \cos A \\ &\quad + \cos^2 A), \end{aligned}$$

with similar expressions for  $\mu$  and  $\nu$ , and where

$$p\gamma z = y^2 + z^2,$$

with similar expressions for  $q$  and  $r$ .

(See FERRERS, *Trilinear Cons.*, pp. 85-93.)

Now the radical axis of the nine-points and circum-circle is

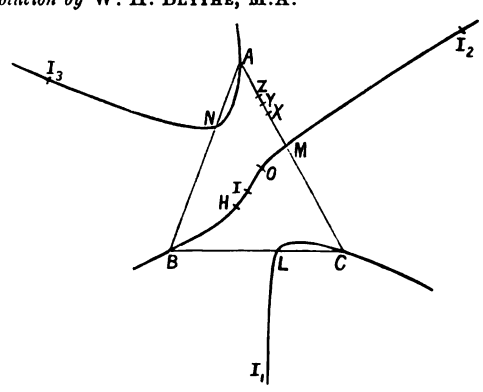
$$\frac{1}{2} (a \cos A + \beta \cos B + \gamma \cos C) = 0;$$

therefore the equation of the radical axis of the nine-points circle with the pedal circle is

$$2(\lambda a + \mu b + \nu \gamma) = a \cos A + \beta \cos B + \gamma \cos C.$$

Eliminate  $a$  between this equation and that of the nine-points circle, and express the condition that the resulting expression may be a complete square: we find

$$(p^2 - 4) \cos^2 A - 2(qr - 2p) \cos B \cos C + \text{similar terms} = 0.$$



This then is the condition that the circles touch one another. Multiply by  $x^2y^2z^2$  and substitute values of  $p, q, r$ : the result is the square of  $x(y^2-z^2)\cos A + y(z^2-x^2)\cos B + z(x^2-y^2)\cos C = 0$ .

(2) To trace the curve, we notice that  $x, y, z$  is the focus of a conic touching the sides of the triangle, the auxiliary circle of which touches the nine-points circle.

The curve passes through  $A, B, C, H, O, L, M, N, I, I_1, I_2, I_3$ , namely, the angular points of the triangle, the ortho-centre, circum-centre, the points at which  $AO, BO, CO$  meet the opposite sides, the in-centre, and four escribed centres. Also  $HA, HB, HC, HO$  are the tangents drawn from  $H$ , and  $OI, OI_1, OI_2, OI_3$  the tangents from  $O$ .

This is sufficient to determine the curve, which is a cubic having three real asymptotes; one serpentine branch touches one asymptote and contains an angular point, the ortho-centre, in-centre, circum-centre, cuts the opposite side at a known point, and passes on to the opposite escribed centre.

When the curve cuts the circum-circle, which it does at three points besides  $A, B, C$ , the point of intersection is the focus of a parabola which touches the sides, and the direction of the axis of this parabola must give the direction of an asymptote; for the inverse point, which is also on the curve, is at infinity.

Suppose the angle  $A$  in the figure to move along  $AC$ , the positions of  $B$  and  $C$  being unchanged. If at  $Z$  the angle  $ZBC = ZCB$ , the curve degenerates into a straight line  $ZO$  and a hyperbola the transverse axis of which is  $ZO$ , and which passes through  $BN_1, CM_1, HB$  and  $HC$  being tangents.

If  $A$  still continues to move along  $AC$  between  $Z$  and  $Y$ , we find that the serpentine branch passes through  $A$ . At  $Y$ , where the angle  $CAB = CBA$ , the curve again degenerates into a straight line  $CO$  and the corresponding hyperbola.

Between  $Y$  and  $X$  the serpentine passes through  $C$  till we obtain the final change, when the angle  $BAC = BCA$ , and the serpentine again passes through  $B$ .

If the triangle be equilateral, the curve degenerates into the three straight lines  $AO, BO, CO$ .

Note.—Join  $HA, HB, HC$ : then both  $O$  and  $I$  will be found in one of the triangles  $HAB, HBC, HCA$ . Since the curve can only cross the lines  $HA, HB, HC$  at  $H$  or at  $A, B, C$ , the serpentine branch must cut the base of the triangle in which  $O$  and  $I$  lie.

[Quest. 14975 (H. BATEMAN) may be treated on the same lines, its equation being  $x(y^2-z^2)\sin A + \dots = 0$ .]

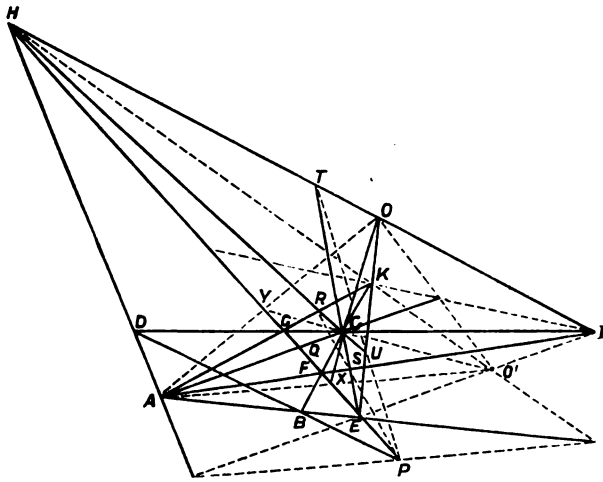
[Mr. R. TUCKER, M.A., calls attention to a Question almost identical with Quest. 14975 set by Mr. F. D. THOMSON and solved geometrically by Dr. HIRST (*v. Educational Times*, Oct., 1864, and *Reprint*, Vol. II., p. 57).—EDITOR.]

10049. (J. LEMAIRE.)—Soit un quadrilatère  $ABCD$  et une droite parallèle à la diagonale  $BD$ . Cette droite rencontre  $AB, BC, CD, DA$  respectivement en  $E, F, G, H$ ;  $AF$  et  $AG$  coupent  $CD$  et  $BC$  en  $I$  et  $K$ . Enfin  $EK$  et  $HI$  se rencontrent en  $O$ . Démontrer que la droite  $CO$  passe par le milieu de  $EH$ .

Solutions (I.) by C. E. HILLYER, M.A.; (II.) by D. BIDDLE.

(I.) First, let  $EH$  be any transversal meeting  $BD$  in  $P$  and  $AC$  in  $Q$ . Let  $OC$  meet  $EH$  in  $X$ ; then  $X$  shall be the harmonic conjugate of  $P$  with respect to  $E$  and  $H$ .

Let  $AK, CH$  meet in  $R$ , and  $AI, CE$  in  $S$ . Then, from the quadrilateral  $ABCD$ , we have  $P, E, F, Q, G, H$  in involution; therefore  $P$  is also in the diagonal  $RS$  of the quadrilateral  $ASCR$ , i.e.,  $RS, EH, BD$  are concurrent.



Again, let  $CE, HI$  meet in  $T$ , and  $CH, EK$  in  $U$ . Then we have  $(EFGH) = (I.EFGH) = (ESCT)$ ;

and again,  $(EFGH) = (K.EFGH) = (UCRH) = (HRCU)$ .

Therefore  $(ESCT) = (HRCU)$ .

Therefore  $TU$  passes through  $P$ . Therefore, from the quadrilateral  $CUOT$ ,  $X$  is the harmonic conjugate of  $P$  with respect to  $E$  and  $H$ .

Now, when  $EH$  is parallel to  $BD$ ,  $P$  is at an infinite distance, and  $X$  becomes the mid-point of  $EH$ .

Remarks.—The following are some additional points of interest in connexion with the figure:—

(1) If  $EI, HK$  meet in  $O'$ ,  $OO', AC, KI$  are concurrent in the harmonic conjugate of  $Q$  with respect to  $A$  and  $C$ .

(2)  $OA$  passes through  $X$ , and  $OA, O'C$  also meet in a point  $Y$  in  $HE$ , and the intersection of  $OO'$  and  $HE$  is the harmonic conjugate of  $Q$  with respect to  $X$  and  $Y$ .

(3) The intersection of  $HK$  with  $AB$  and the intersection of  $EI$  with  $AD$  are collinear with  $P$ .

(4) If  $KI$  meets  $EH$  in  $V$ , then  $CV$  meets  $BD$  in the third diagonal of the quadrilateral  $ABCD$ . [Sol. II. in Vol.]

15001. (A. M. NESBITT, M.A.)—Two conics  $U$  and  $V$  intersect in  $ABC$ , and through  $O$  two arbitrary straight lines  $OP, OQ$  are drawn:  $OP$  cuts  $U$  in  $P$  and  $V$  in  $Q'$ ;  $OQ$  cuts  $U$  in  $P'$  and  $V$  in  $Q$ . Prove that the four straight lines  $OP, OQ, PP', QQ'$  and the three sides of the triangle  $ABC$  all touch one and the same conic.

Solutions (I.) by R. F. DAVIS, M.A., and the PROPOSER;

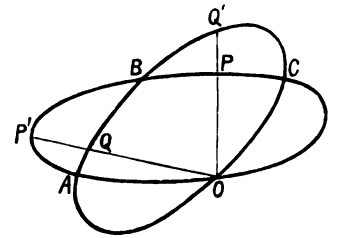
(II.) by Professor NANSON; (III.) by LIONEL E. REAY, B.A.

(I.) Projecting the figure so that  $B, C$  become the foci, the theorem becomes:—If two circles  $U, V$  intersect in  $O, A$ , and through  $O$  two secants  $POQ', QOP'$  are drawn ( $P, P'$  lying on  $U$ ), then a parabola can be described with  $A$  as focus so as to touch  $POQ', QOP', PP'$  and  $QQ'$ . This is obvious since the SIMSON lines of  $A$  with respect to the triangles  $OPP', OQQ'$  are coincident.

(II.) The envelope of a line cut in involution by three conics  $S_1, S_2, S_3$  is a class cubic which when  $S_1, S_2, S_3$  have a common point  $O$  reduces to the point  $O$  and a conic  $\Sigma$ . If, then,  $\Delta_r$  be the triangle formed by the remaining intersections of  $S_p, S_q$ , where  $p, q, r = 1, 2, 3$ , the sides of the three triangles  $\Delta_r$  touch  $\Sigma$ . Taking now  $S_1, S_2, S_3$  to be  $U, V$ , and the line pair  $OP, OQ$ , the three triangles  $\Delta_r$  are  $ABC, OPP', OQQ'$ . Therefore, &c.

(III.)  $ABC$  and  $OPP'$  are two triangles whose vertices lie on a conic; therefore their sides touch a conic, that is,  $PP'$  touches the conic determined by the five tangents  $AB, BC, CA, OP, OQ$ .

Similarly, if any other conic through  $OABC$  cuts  $OP$  and  $OQ$  at  $Q'$  and  $Q$ , then  $QQ'$  touches this same conic.



14079. (REV. T. ROACH, M.A.)—Prove geometrically

$$\sin^{-1} \frac{2}{3} + \sin^{-1} \frac{1}{3} + \sin^{-1} \frac{1}{6} = \frac{1}{2}\pi.$$

Solutions (I.) by R. TUCKER, M.A., and LIONEL E. REAY, B.A.;

(II.) by the PROPOSER.

(I.) Take a circle, diameter

$$AB = 65,$$

$$BC = BE = 52, AF = BD = 16;$$

$$\text{then } AE = 39, AD = BF = 63.$$

Now  $ABEF$  is a quadrilateral in the circle; therefore

$$AB \cdot EF + AF \cdot BE = AE \cdot BF,$$

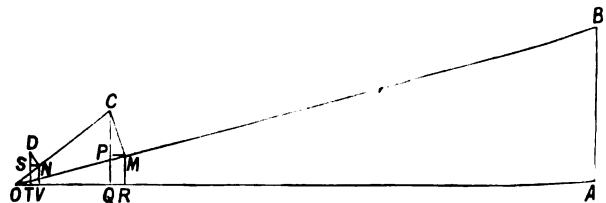
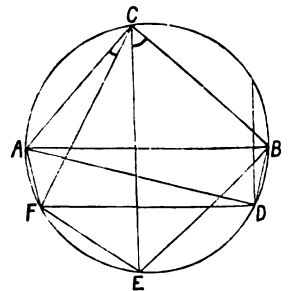
$$\text{i.e., } 65EF = 39 \cdot 63 - 16 \cdot 52,$$

$$\text{or } 5EF = 189 - 64 = 125;$$

$$\text{therefore } EF = 25;$$

hence right angle  $ACB = \&c$ .

(II.) Take  $OA = 63, AB$ , perpendicular = 16; therefore  $OB = 65, BOA = \sin^{-1} \frac{16}{65}$ . In  $OB$  take  $OM = 12, MC$ , perpendicular = 5; therefore  $OC = 13, COB = \sin^{-1} \frac{5}{13}$ . Draw  $CPQ$  on  $MR$  perpendicular to  $OA$ ;



then  $CQ = CP + MR = 5 \times \frac{2}{3} + 12 \times \frac{1}{3} = \frac{25}{3}$  and  $OQ = \frac{52}{3}$ . In  $OC$  take

ON = 3, ND, perpendicular = 4; then OD = 5, DOC =  $\sin^{-1} \frac{3}{5}$ . If OD is not perpendicular to OA, let it take up some position as in figure, and draw DST and NV perpendicular to OA; then

$$DT = DN + NV = 4 \times \frac{3}{5} + 13 + 3 \times \frac{3}{5} + 13 = 5 = OD;$$

therefore DOT must equal  $\frac{1}{2}\pi$ .

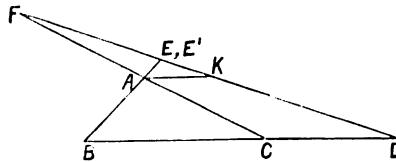
**14888.** (D. BIDDLE.)—ABC being a plane triangle having  $a > b > c$ , produce BC to D, BA to E, CA to F; and prove that, if  $CD = ab/(a-b)$ ,  $BE = ac/(a-c)$ , and  $AF = bc/(b-c)$ , then D, E, F are collinear.

Solutions (I.) by H. W. CURJEL, M.A., A. W. POOLE, and H. DEW :  
(II.) by Rev. T. WIGGINS, B.A.

$$(I.) \quad DB = a^2/(a-b), \quad AE = c^2/(a-c), \quad FC = b^2/(b-c);$$

therefore  $(EA \cdot FC \cdot DB)/(EB \cdot FA \cdot DC) = (a^2 \cdot b^2 \cdot c^2)/(ac \cdot bc \cdot ab) = 1$  ;  
therefore D, E, F are collinear.

(II.) Take AF and CD the given lengths. Produce BA to meet FD in E'. Then, if  $AE' = c^2/(a-c)$ , E' coincides with E and F, E, D are collinear. Draw AK parallel to BD; therefore



$$FA/AK = FC/CD \quad \text{and} \quad AK/AE' = BD/BE';$$

$$\text{therefore} \quad FA/AE' = (FC \cdot BD)/(CD \cdot BE');$$

$$\text{therefore} \quad \frac{BE'}{AE'} = \frac{FC \cdot BD}{CD \cdot FA} = \frac{[b + bc/(b-c)][a + ab/(a-b)]}{[ab/(a-b)][bc/(b-c)]} = a/c;$$

$$\text{therefore} \quad (c + AE')/AE' = a/c, \quad \text{whence} \quad AE' = c^2/(a-c) = AE.$$

**14922.** (ROBERT W. D. CHRISTIE.)—Find a multiplier M which will make the modular equation  $x^y - 1 = M(1/x^y - 1)$  true for any prime whatever, e.g.,  $y = 6, x = 7, M = 8, 7^6 - 1 = 8(7^6/8 - 1)$ , i.e.,  $9 - 1 = 8/8 - 8$  or  $-9 = 8 \pmod{17}$ .

Solution by the PROPOSER.

By the theory of primitive roots  $r^{2m-1} + 1 = 0 \pmod{P_{4m-1}}$ ; therefore

$$r^{2m-3}(r^{2m-1} + 1) = 0; \quad \text{therefore} \quad -r^{2m-3} = r^{4m-4};$$

$$\text{therefore} \quad \frac{(r^{2m-3}-1)(r^{2m-3})}{1-r^{2m-3}} = r^{4m-4};$$

$$\text{therefore} \quad r^{2m-3}-1 = r^{4m-4} \left( \frac{1-r^{2m-3}}{r^{2m-3}} \right) = r^{2m-1} - r^{4m-4} = r^{p-3}(r^{-(2m-3)} - 1),$$

whence  $M = r^{p-3}$ , where  $r$  is any root of the prime  $p = 4m - 1$ .

In an exactly similar way we establish

$$(r^{2m-2}-1) = r^{p-3}(r^{-(2m-2)} - 1),$$

where  $r$  is any primitive root of the prime  $p = 4m + 1$ .

**15089.** (The late Professor R. B. CLAYTON.)—Normals lying in a given plane are drawn to a series of confocal quadrics. Show that they envelop a parabola.

Solution by the PROPOSER.

Since any normal is cut by the principal planes in a constant ratio, and the normals which lie in a given plane are met by the principal planes in three given lines, we have to find the envelope of a line meeting the sides of a fixed triangle in the points X, Y, Z, so that the ratio XY : XZ is constant. But this envelope is known to be a parabola.

QUESTIONS FOR SOLUTION.

**15125.** (G. H. HARDY, B.A.)—Prove directly that

$$\lim_{k \rightarrow 1} \int_1^{1/k} \frac{du}{\sqrt{(u^2-1)(1-k^2u^2)}} = \frac{1}{2}\pi.$$

**15126.** (A. M. NESBITT, M.A.) [Suggested by Quest. 9153.]—Prove that the sum of all the integers less than  $(p^2 + 1)^n$  which are divisible by  $p$  and not by  $p^2$  is  $(p-1)/2p^2 \{ (p^2 + 1)^n - 1 \}^2$ ,  $p$  and  $n$  being integral, and that the sum of their squares is  $[ \{ (p-1) X \} / 6p^2 ] (2X^2 - p^2)$ , where

$$X \equiv (p^2 + 1)^n - 1.$$

**15127.** (Lt.-Col. ALLAN CUNNINGHAM, R.E.)—Factorise completely into prime factors  $N = 10^{24} + \frac{1}{2} \cdot 10^{12} + 1$ .

**15128.** (ROBERT W. D. CHRISTIE.)—Let  $a, b$  be any two consecutive members of the series (continuant) 1, 2, 3, 5, 8, 13, &c. Then

$$4a^2b - 3ab^2 + 1 = a_n^2.$$

It is required to find the series  $a_n$ .

**15129.** (H. W. WEBSTER, M.D.)—It is possible to put forty-eight queens, of six different colours, upon the board at the same time, no two of a colour *en prise*. How are they arranged?

**15130.** (Professor LANGHORNE ORCHARD, M.A., B.Sc.)—An equilateral triangle, of side-length =  $a$ , is thrown "at random," from a height =  $na$ , upon an indefinite horizontal plane which is ruled with equidistant horizontal lines, crossed with equidistant vertical lines, so as to form a number of squares, each of side-length  $2a$ . Find the "probability" that a side of the triangle will cut one of the lines.

**15131.** (C. E. YOUNGMAN, M.A.)—Given a semicircle on diameter BC, draw an ordinate PN, and on NP produced take A such that  $BA^2 = BC(BN + NP)$ . Prove that the triangle ABC has  $\tan^2 A = \tan B \tan C$ ;

BROCARD angle  $90^\circ - A$ ; BROCARD axis parallel to BC, &c.

**15132.** (Professor NEUBERG.)—Construire un triangle ABC, connaissant les cotés indéfinis AB, BC et un point de BROCARD  $\Omega$ .

**15133.** (JOHN PRESCOTT, B.A.)—Through P, a point within the angle BAC, draw a line MPN, meeting AB and AC in M and N respectively, such that the sum of AM and AN shall be equal to a given length. Also draw the line so that the sum of AM and AN may be a minimum.

**15134.** (Professor S. SIRCOM.)—The tracing point of a Hatchet Planimeter of length  $c$  traverses a straight line. Find the curve described by the hatchet and obtain a construction for the Gudermannian of any ratio  $l : c$ .

**15135.** (W. H. BLYTHE, M.A.) [Suggested by Quest. 10198 and more general.]—Let P and Q be two inverse points. Show that a cubic can be drawn through A, B, C, I, I<sub>1</sub>, I<sub>2</sub>, I<sub>3</sub>, P and Q, such that PQ, PA, PB, PC, QI, QI<sub>1</sub>, QI<sub>2</sub>, QI<sub>3</sub> are tangents to the curve at Q, A, B, C, I, I<sub>1</sub>, I<sub>2</sub>, I<sub>3</sub>.

**15136.** (Professor COCHEZ.)—Étudier les courbes

$$(i.) \quad (x-y)^2 x + 2(x-y)y + 1 = 0, \quad (ii.) \quad y^2 = (x^4 - 1)/x^2.$$

**15137.** (R. KNOWLES.)—T, T' are the poles of AB, CD, chords of a rectangular hyperbola centre O; AB, CD meet in E; if  $\alpha, \beta$  be the angles that EO and T'T' make with the transverse axis, prove that  $\tan \alpha = \cot \beta$ .

**15138.** (Professor SANJANA, M.A.)—ACA', BCB' form a pair of conjugate diameters of an ellipse; CP and CD are two conjugate semi-diameters. If A'P, AD meet in O (within the ellipse), prove that BDOP is a parallelogram, and find when its area is a maximum. [Geometrical proof required; see TODHUNTER, *Plane Coordinate Geometry*, x., Exs. 43, 44.]

**15139.** (M. PEIRIS.)—An ellipse is inscribed in a triangle, such that its centre coincides with the centre of the circle circumscribing the triangle. If P and P' are corresponding points on the ellipse and its auxiliary circle respectively, and the tangent at P' meets CB produced in B', and if CP<sub>1</sub>, CD are a pair of conjugate diameters, show that CB'.PN = CD.P<sub>1</sub>N<sub>1</sub>, where PN and P<sub>1</sub>N<sub>1</sub> are perpendiculars from P and P<sub>1</sub> on the major axis and the diameter CD respectively, and find the value of each side of the equation in terms of the distance  $d$  of the circum-centre from the orthocentre of the triangle, and the radius R of the circum-circle of the triangle.

**15140.** (Professor UMES CHANDRA GHOSH.)—Show that the pedal triangle of any triangle is a self-conjugate triangle with respect to its KIEPERT'S hyperbola.

**15141.** (Rev. G. RICHARDSON, M.A.)—If  $a$  be an edge of a tetrahedron, A the dihedral angle at that edge,  $\Delta$  the area of a face,  $l$  the perpendicular distance between a pair of opposite edges, and V the volume, then  $3V \Sigma (1/l^2) = \Sigma (a \cot A)$  and  $9V^2 \Sigma (1/l^2) = \Sigma (\Delta^2)$ .

**15142.** (Professor NANSON.)—If

$$x + y + z + w = 0, \quad ax + by + cz + dw = 0, \\ (a-d)^2(b-c)^2(xw + yz) + (b-d)^2(c-a)^2(yw + zx) \\ + (c-d)^2(a-b)^2(zw + xy) = 0,$$

prove that  $x : y : z : w = (d-b)(d-c)(b-c) : (d-c)(d-a)(c-a) : (d-a)(d-b)(a-b) : (b-c)(c-a)(a-b)$ .

**15143.** (J. S. LAWSON, M.A.)—Sum the series

$$3 - 20x - 30x^2 - 290x^3 - \dots \text{ ad inf.},$$

where  $x < \frac{1}{2}$ , the series being recurring.

**15144.** (R. KNOWLES.)—Prove that the sums of a finite number ( $r$ ) of terms in the two series

$$1 + (m+1)x + (2m+1)x^2 + \dots + (mr-m+1)x^{r-1}$$

and  $1 + (m+1)^2x + (2m+1)^2x^2 + \dots + (mr-m+1)^2x^{r-1}$ ,  $m$  being any positive integer, are respectively

$$\frac{[1 + (m-1)x - (mr+1)x^r + (mr-m+1)x^{r+1}] + (1-x)^2}{[1 + (m^2+2m-2)x + (m-1)^2x^2 - (mr+1)^2x^r + (2m^2r^2 - 2m^2r + 4mr - m^2 - 2m + 2)x^{r+1} - (mr-m+1)^2x^{r+2}] + (1-x)^3}.$$

## OLD QUESTIONS AS YET UNSOLVED (IN OUR COLUMNS).

**8284.** (D. BIDDLE.)—Each of  $n$  bags, placed in a row, contains  $n$  balls, of colour distinct from those in the other bags. A ball is taken at random from the first bag, and is transferred to the second, and then one from the second is similarly transferred to the third, and so on; and, when the last bag is reached, a ball is taken from that and is placed in the first, and the process is repeated until each bag has been visited  $n$  times (putting in and taking out). Find the respective probabilities that at the end (1) no bag shall contain two balls of the same colour, (2) all the balls in each bag shall be of one colour, as at first, but the bags in which they are severally found shall be different from those which they originally occupied.

**8346.** (W. J. McCLELLAND, M.A.)—The triangle formed by joining the feet of the symmedians of any triangle cuts off from the vertices three triangles, the feet of the perpendiculars of which are the feet of the symmedians of the co-pedal triangles. [For the symmedians divide the opposite sides in the ratios  $b^2 : c^2$ ,  $c^2 : a^2$ ,  $a^2 : b^2$ .]

**8578.** (C. E. McVICKER, M.A.)—PONCELET'S theorem *does not hold on the sphere*. Prove, however, that the problem, "To inscribe in a small circle a spherical polygon of  $n$  sides, each of which shall touch another given small circle," is still either indeterminate or impossible.

**8806.** (R. TUCKER, M.A.)— $O$  is the in-centre of the triangle  $ABC$ ,  $K_1, K_2, K_3$  are the LEMOINE points of the triangles  $BOC, COA, AOB$ ; show that their trilinear coordinates are proportional to  $t_2 + t_3, 3t_2 + t_3, t_2 + 3t_3$ , &c., where  $t_1, t_2, t_3$  stand for  $\tan \frac{1}{2}A, \tan \frac{1}{2}B, \tan \frac{1}{2}C$  respectively. If the external bisectors of the angles  $A, B, C$  meet the opposite sides in  $p, q, r$ , then  $pK_1, qK_2, rK_3$  intersect by pairs on the internal bisectors of  $ABC$  in  $L, M, N$  say; prove area of

$$\Delta LMN = 10\Delta^2 \cdot R/(s+a)(s+b)(s+c).$$

Find also the area of the triangle  $K_1K_2K_3$ .

## NOTICES TO CORRESPONDENTS.

It is requested that all Mathematical communications should be sent to the Mathematical Editor,

Miss CONSTANCE I. MARKS, B.A., 10 Matheson Rd., West Kensington, W.

## THE LONDON MATHEMATICAL SOCIETY.

Thursday, May 8th, 1902.—Dr. Hobson, President, in the Chair.

Mr. J. E. Wright, Trinity College, Cambridge, was elected a member. Dr. G. Prasad was admitted into the Society.

The following communications were made to the Society:—

Prof. Burnside: "On Groups in which every Two Conjugate Operations are Permutable."

Mr. A. E. Western: "Fermat's Theorem on Binary Powers."

Mr. H. S. Carslaw: "The Application of Contour Integration to the Solution of Problems in the Theory of Conduction of Heat, and to the Development of an Arbitrary Function in Series."

Dr. G. Prasad: "On the use of Fourier's Series in the Theory of Conduction of Heat."

Dr. F. S. Macaulay: "Some Formulæ in Elimination."

The President will represent the Society at the centenary celebration of the birth of Abel, which is to be held at Christiania in September, 1902.

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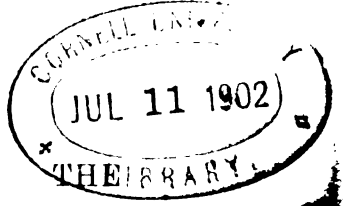
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## CONTENTS.

	Page		Page
The Education Bill in Committee.....	281	An Ideal University for London .....	294
King's College, London: Partial Abolition of Tests.....	282	Correspondence .....	295
Notes .....	283	The College of Preceptors and the Education Bill—The Educationists' Opportunity—The Annual Ceremonial—The Teachers' Registration Council.	
Transactions of the Childhood Society—Corporal Punishment in Rough Schools—Report of the Committee on Military Education and Training—The Victoria League and "Imperial Education"—Colleges and Undergraduates—"One Great Union of Teachers"—Exhibition and Conference on Science Teaching and Nature Study at Southampton—"Slipshod English."		Meeting of the Council of the College of Preceptors .....	297
Summary of the Month .....	284	Reviews .....	297
Euclid and Geometry: Proposals of Reform.....	289	The Romantic School in Germany (Brandes)—The Language and Metre of Chaucer (Ten Brink and Kluge)—Methuen's Shakespeare: Julius Caesar (M. Macmillan)—The Tutorial Arithmetic (Workman).	
Current Events .....	291	General Notices .....	299
Fixtures; Endowments; Honorary Degrees; Coronation Honours; Scholarships; Vacancies and Appointments; Literary Items; General.		First Glances .....	300
		Mathematics .....	303

## The Educational Times.

### The Education Bill in Committee.

As we anticipated, the closure has already been invoked to drive the Education Bill through Committee. In spite of glaring breaches of the principle of a single Authority—a principle, however, that need not be made a fetish—the first clause was carried as it stood, not without angry manifestations of dissent. Mr. Balfour contented himself with pleading that the Authorities set up by the Bill would, at all events, be an improvement upon the existing system. We trust the modest expectation will be realized. Very much will depend on the spirit that guides their action. Our hopes would have been higher if their responsibility had been less vicarious, though it is something to have obtained a clear declaration that the ultimate control shall lie with the Council, and not with the Committee of the Council.

Before entering upon Clause 2, Mr. Balfour found it necessary to make an explicit statement on the financial part of the Bill. The result is that the Government propose to insert in Part III., after Clause 10, a new clause, providing that—

in lieu of the grants under the Voluntary Schools Act of 1897, and under Section 97 of the Elementary Education Act of 1870, as amended, there shall be annually paid to every Local Education Authority out of moneys provided by Parliament (a) a sum equal to 4s. per scholar, and (b) an additional sum of 1d. per scholar for every 2d. by which the product of 1d. rate falls short of 10s. per scholar, but the total amount payable to any Local Education Authority on account of all Parliamentary grants, including the grant under this section, shall not in any year exceed three-fourths of the total expenditure of the Authority under Part III. of this Act, and the amount payable under this section to the Local Education Authority shall, where necessary, be reduced accordingly. For the purposes of this section the number of scholars shall be taken as the number of scholars in average attendance as certified by the Board of Education in public elementary schools.

This means that the grant to voluntary schools, which was £640,000 last year, and the grant to necessitous School Boards, which was £220,000, are to be discontinued, and that to this £860,000 is to be added from the Exchequer a fresh sum of over £900,000, making a total of £1,760,000, or more than double the grants given since 1896. Instead of making an equal distribution of about 7s. 6d. per scholar, the all-round grant is fixed at 4s. a head, the balance being destined to relieve such districts as are unable otherwise to sustain the burden thrown upon them by the

elementary system. But in no case will the Exchequer grants exceed three-fourths of the total expenditure on this branch. The proportionment of the grant in aid to the financial inability of a district is no new principle, and in many places its operation will be beneficent. But the proposal generally is a complex affair. It gives a sharper edge to the question of the educational relations of local areas and the Government, especially on the keenly disputed point of control. It is conditioned by no requirement of an equivalent contribution from the rates. It ought to improve education. One can only hope that measures will be taken to ensure such improvement. This large grant, be it noted, is confined to elementary education.

Naturally on Clause 2 the first amendment sought to render the provision of secondary education compulsory—to replace "may" by "shall." While many Local Authorities will need no urging to do their duty in this most important matter, it cannot be ignored that there are many districts, mostly country areas, where the conception and appreciation of secondary education are extremely rudimentary, and where the desire for it is kept in severe restraint by a vigorous dislike of rates. It would be an amiable rather than a practical idea to hope more from leading the Authorities in such districts than from driving them; and some of them have already had healthy experience of pressure from the Board of Education. Mr. Balfour eventually offered a compromise, so that the clause should read: "the Local Authority shall consider the needs and take such steps, after consultation with the Education Department, as may seem desirable to aid the supply of education other than elementary." The compromise was accepted, and it will probably suffice in practice. The Education Department is not likely either to let backward districts go to sleep or to overdrive them.

But what is this education "other than elementary"? One does not quite understand why there should be so much reluctance to express its contents in positive form. We will fill the gap with Mr. A. J. Mundella's analysis:

The education described as "other than elementary" which will be brought under the new Authority falls under two distinct classes. The first class comprises the education, primary and secondary, of the "middle classes," by means of schools and colleges of various sorts, private and public, which have not hitherto been under a public Authority. The second class comprises the higher or continued education of scholars in public elementary schools, for which the means hitherto adopted have been evening schools and classes, higher-grade schools, science and art

classes, municipal technical schools, pupil-teacher centres, and training colleges for teachers.

There is no great mystery about the matter, but, in view of the stringent limitation of the sphere of elementary education, it is well to have definite conceptions. It is Clause 2 that must make provision for all these varied branches of the important department of secondary education, and it cannot define too clearly the intentions of the Legislature. After much debate, Mr. Balfour agreed to another compromise, extending his previous concession in these terms: education other than elementary, "including the training of teachers and the general co-ordination of all forms of education." An ardent educational spirit might have prompted a more liberal and explicit phraseology on a matter that goes to the very roots of national prosperity and advancement.

Of the financial amendments, we may notice particularly the one that aimed at making it compulsory, instead of optional, on the part of a Local Education Authority to apply the whole of the residue under the Local Taxation Act—the whisky money—for the purposes of secondary education. Here again the rates came into competition, and the voice of the agricultural member waxed loud and insistent, but it was significant that Sir William Hart Dyke most heartily supported the amendment, especially in the interests of technical education. Happily the House took the same view, and the amendment was carried by 251 against 151—a majority of 100. No doubt, as Mr. Mundella points out, "the new Authority ought to be armed with (1) the power and (2) the obligation to (3) provide schools which shall be (4) sufficient in number, (5) suitable in curriculum, (6) adequate in staff, (7) equipment, and (8) maintenance, (9) efficient in results, (10) moderate in fees, (11) representative in management, and (12) available for all who desire to attend." That is the counsel of perfection. But, in all the circumstances, there seems to be good reason to be thankful for the measure of improvement that has so far been attained.

*King's College,  
London.*

THE following resolution was passed at a meeting of the Council of King's College, London, on June 13, by a majority of 22

votes against 2:—

That, in view of the situation created by the University of London Act, 1898, the Council, while determining to maintain the connexion of the College with the Church of England as set forth in Section 5 of King's College, London, Act, 1882, resolves that, so soon as may be, every religious test as a qualification for office, position, or membership, in or under the Council or College, other than professorships or lectureships in the Faculty of Theology, shall cease to exist; and, further, that all necessary and proper steps be taken to give effect to this resolution.

Section 5 of the Act of 1882 lays it down that the purpose of the College is "to give instruction in the various branches of literature and science and the doctrines and duties of Christianity as the same are inculcated by the Church of England." It is needless to anticipate the "necessary and proper steps" for giving effect to the resolution; but, presumably, such a change of interpretation of the section will require statutory readjustment of the terms. There arises also the question whether the present professors within the scope of the resolution will be released from their obligations under the religious test administered to them on acceptance

of office. One would anticipate that they will be declared free. The College is to be heartily congratulated.

The result being satisfactory, we do not care to consider the official explanations too curiously. If the Council refused to surrender to the late Liberal Government, this, we are assured, was because of the provocative manner of Sir William Harcourt's delivery of a summary and peremptory demand. The present decision, on the other hand, has been reached on a calm and dispassionate consideration of the merits of the case, which led to the view that it was not merely the wisest, but "the only, step to be taken to carry out the designs of King's College." The plain and simple fact is that the step was inevitable, unless the College was prepared to stand out of the London University movement and to maintain an independent position, without share in the Parliamentary grant. One cannot but recall the fact that University College has been working for some three-quarters of a century without ever having a shred of religious tests, and that King's was founded expressly to counterbalance the non-ecclesiastical institution in Gower Street by instruction under Church oversight and influence. The historical development has its lessons, though it would be ungenerous to press them just now.

Another point, which we should not have sought, but which we may not avoid, is forced upon us by the manner in which the Bishop of London and Principal Robertson have dealt with the new situation in public utterances. The Principal is reported to have said that he regards the new step as a proclamation that the Church of England, in accordance with her best and noblest traditions, positively welcomes as her ally the very best work that can be done in the name of science and literature—that she welcomes the disinterested pursuit of truth in every form as an ally of religion and piety. Here is a true note. If it were otherwise, indeed, the Church would be maintaining two contradictory positions and placing herself in an attitude not a little trying to thoughtful and sincere minds. We believe the Principal is entirely right, and we rejoice with him that, on the present occasion, the Church has recognized her best and noblest traditions. But a difficulty remains: the high principle is limited. The theological staff, who might be expected to be the most disinterested of all searchers after truth, are still to remain in bonds while the others go free.

The Bishop, too—if he has been correctly reported—has left room for further explanation. He assured the friends of the College that no one need fear that it will drift away from the Church of England. There is no very apparent reason, indeed, why there should be any such fear. But the Bishop is reported to have said this:—

It is not very likely, while a Keble man is Chairman and another Keble man is on the Council, that we for a moment would give our consent to it. What we feel is that the real security of King's College should be a living security. Keble has no sort of test of this kind.

But are two members of Council—even two Keble men—a sure guarantee for the permanence of the connexion? No doubt the only real security is a living security; but what is a living security? Can it be other than proved devotion to truth? A religious test does not exclude mental reservations. And again, if Keble, the great exemplar, "has no sort of test of this kind," what is the obvious inference? But the ob-

scurity we find in the Bishop's utterance may be due to some misapprehension.

What we are concerned with is not the propriety or the impropriety of tests in the theological department, but simply the logic applied to the change. Still the trend of opinion demands attention. Vagaries of investigation in all departments, whether under or not under tests, are well known, but probably they are the natural outcome of human endowment and circumstance, and not (or very rarely) of mere perversity or dishonesty. In any case, new and strange opinions can be effectively met by argument alone, and not by the expulsion of a Maurice, or even by the burning of a Bruno. A test slackly enforced is both useless and of bad example; a test firmly enforced checks or restricts the pursuit of truth. The middle position seems of little moment either way. The experience of President Gilman, for twenty-five years the distinguished head of Johns Hopkins, and now President of the Carnegie Institution at Washington, is well worth noting. "In the conduct of a University," says Dr. Gilman, "secure the ablest men as professors regardless of other qualifications, excepting those of personal merit and adaptation to the chairs that are to be filled. Give them freedom, give them auxiliaries, give them liberal support." But the first of these things is freedom. It is significant, too, that the Rev. Dr. MacKenna, presiding at the annual meeting of Mansfield College a fortnight ago, remarked, in calling upon Dr. Edward Moore, Professor-elect of Harvard University, to address the assembly,

that Harvard had showed them an example which he hoped would be followed in this country soon and widely—that of establishing or putting its theological school, its Divinity Faculty, upon an absolutely free and broad basis, especially in freedom from that most sad bondage, an expectation that the professor should in deference to differences of opinion keep back any of his own deepest convictions. They were perfectly aware in England a very great start had been made in the direction of catholicity by the recognition of the fact that it was not liberty to hold one's tongue when one differed, but liberty to speak with the certainty that what was said would be received in a generous and thoughtful manner.

There lies the essential point: "in a generous and thoughtful manner." At the same time it is to be acknowledged that, under existing conditions, King's College could not have reasonably been expected to take a longer step towards absolute freedom of research and teaching. Minds differ strenuously and honestly, and impatience is unwise.

### NOTES.

We are glad to see that the activity of the Childhood Society is finding a permanent record. The first volume of the "Transactions" is slim, but its successors will, no doubt, grow with increase of years. The objects of the Society deserve to be made widely known. They are stated to be:

To promote the study of educational methods and of the environment of children during school life best suited to ensure the mental and physical development of normal children, as well as of those whose conditions are abnormal or who are feebly gifted mentally.

To supply information and diffuse knowledge on points connected with the mental and physical status of children, by means of publications, lectures, &c.

To promote the training of teachers specially qualified to deal with such children; and assist by legislation, philanthropic efforts, or otherwise, the provision necessary for them.

Besides the outline of the Society's proceedings, the volume gives the substance of a number of lectures on per-

tinient subjects, as well as the (first prize) essay on "Suggestions (from a teacher's point of view) for the best Methods of giving effect to the Code for Day Schools, having regard to the various conditions of age, social influences, and future means of livelihood," by Mr. Mark Hughes, B.A., A.C.P. The whole collection will be found to be most instructive; and it ought to attract favourable attention to the work of the Society.

It is much to be regretted that Miss Honnor Morten has resigned her seat at the London School Board. Her single-handed contest against corporal punishment in the schools has been most creditable to her sensibility and humanity; but her resignation is not likely to soften the hearts—or, rather, the heads—of the remaining members on the subject; while it deprives them of the direct benefit of her large experience in other matters of educational importance. No sensible teacher would apply physical force as a remedy save in the very last resort; and, if the teachers in the rougher districts insist that such force is absolutely necessary, on occasion, for the maintenance of order, one may be tolerably satisfied that there is very substantial ground for their opinion. The true remedy must be sought at an earlier stage—in the home conditions of the children. No one can doubt for a moment that both teachers and School Board members would alike be gratified if corporal punishment could be diminished and abolished. The facts of social life must, however, be faced in practical ways.

THERE will be little surprise at the scathing condemnation recorded in the Report of the Committee on Military Education and Training. Scarcely one of the seventy-three witnesses examined but expressed dissatisfaction with the existing state of education, both professional and general, among military officers as a class; not a few of them going so far as to affirm that it is no uncommon thing to find officers unable to write a good letter or to draw up an intelligible report—not only officers that have passed in by the back gate of the Militia, but also officers that have entered by the front door of Woolwich and Sandhurst. The Committee's recommendations aim at a thorough grounding in a limited number of subjects, and the elimination of "cram." They would substitute one general examination for the separate examinations of entrants; and this general examination would embrace (1) English; (2) mathematics; (3) either French or German; (4) either Latin or experimental science; and (5) a voluntary subject—Greek, higher mathematics, or one of the alternative subjects under (3) or (4) not taken as a compulsory subject. The Committee wish to encourage University candidates, and even suggest that schools of military instruction should be organized at the Universities. When all is said and done, the efficiency of the initial check depends on competent examiners with a free hand. Sandhurst is respited, with a significant hint about "lack of supervision," if not even "positive neglect." The most hopeful point of all would be the free career to brains, unchecked by intolerable and ridiculous expenses, or by social preferences of the less fit, or by the preposterous operation of the principle of seniority.

LEAGUES are many, but the Victoria League is the first, so far as we have observed, to take up the question of specific "Imperial education." As Mr. Wyndham said at the first annual meeting of the League (June 18), the danger of mere mechanical expansion in the political world may be met by extended knowledge in every part of the Empire as to the conditions of the rest. Not only may, but must. Mr. Asquith referred to the painful experiences of the South African War. He said:

It was one of the illustrations of the enormous ignorance that prevailed in the mother country as regarded the outlying parts of the Empire, and in the outlying parts of the Empire as regarded the mother country. Imperial sentiment was an excellent thing, but it was not enough—we must have knowledge of local conditions, requirements, and possibilities before we could bring to fruitful exercise what was more necessary, namely, that power of exchanging imaginations with one another which was essential if our unity was to be something more than a phrase.

True; but what seems most urgently needed is that the politicians—or, say, statesmen—and the directors of the Press should either go to school or be required somehow to keep up an elementary knowledge of the facts, and, moreover, to guide their action upon such knowledge. After all, it may be a question whether much knowledge may not be overpowered by very small considerations of individual interest. The moral teacher is, therefore, needed. The continuous and scandalous neglect of India is a far more powerful argument than the South African War, though that ought to be sufficiently impressive. By all means let "Imperial education" expand and flourish—especially on the moral side.

"THE relations of a college to its undergraduate members are in the nature of a contract terminable at pleasure on either side." Such is reported to have been a *dictum* of one of the members of an Oxford college tribunal that recently expelled five undergraduates. We do not profess to decide whether this statement is legally sound or whether any legal process is available on behalf of the unfortunate undergraduates. But we have no doubt at all that, if such be the law, a legal remedy has not been provided because the legislature and society have assumed rational and fairly equitable conduct on the part of college and University authorities. If we lived by strict rules of law, the law would be very different from what it is. From all that can be learned of the proceedings, there appears to be the gravest reason to fear that these undergraduates, whatever their offence, were tried and condemned in defiance of elementary rules of judicial procedure. The appeal to the Visitor, unhappily, is an empty formality. We suspect the case is not likely to encourage parents to rush into contracts of the sort. If a mandamus will not go—and we are loth to believe that it will not—the powers of Parliament ought to be invoked to provide the means of incontestable justice.

In another column we publish a spirited appeal by Mr. Somerset Bateman for "one great union of teachers." We should be reluctant, indeed, to adopt his assertion that "each class of teachers seems to be setting up its own sectarian assembly and grinding its own axe." Rather we should regard it as hopeful that teachers should associate in groups to give expression to their ideas from their own

points of view, which may be self-regarding without being selfish, and, far from precluding, may actually be preparing the way for, co-operation, or even union, with the rest. A forcible expression, however, is sometimes useful, and very likely Mr. Bateman intends no more than what we have just said. Undoubtedly, in the profession of teaching, as elsewhere, it remains true that

All your strength is in your union,  
All your danger is in discord;

and the differences among teachers, regarded in anything like true perspective, are quite insignificant in comparison with the elements of common interest. Mr. Bateman specifies some advantages that would naturally attend "one great union" of teachers. The question is a large one, and not free from complications; but we confidently anticipate that it will receive due consideration in influential quarters.

THE Exhibition and Conference on Science Teaching and Nature Study at Hartley College, Southampton, proved a gratifying success, much to the credit of the local Teachers' Guild and of those in immediate charge of the arrangements. Examples of appliances used in science teaching and in Nature study and of the work of students in those departments were liberally contributed not only by individual teachers and others interested, but also by schools all over the South of England and the Isle of Wight. The Conference also indicated vividly how strong a hold the idea of Nature study has taken in these parts. The spirit of Gilbert White, as somebody said, still lives in Hampshire. We are glad to learn that a full account of the proceedings will be published. The meeting was a pleasant foretaste of the great gathering to be held in London during the current month.

WE regret to have overstrained the mathematical faculties of our genial contemporary, *Secondary Education*. In our article on "Slipshod English" last month (not "in the May number") we said that "an avenue of trees on each side of the drive" "implies at least six rows of trees." How that can be our friend professes himself "quite unable to see." But he admits that our mathematical problems have often seemed incapable of solution "until the following month demonstrated the fact that the supposed impossibility was merely due to a defect in the reasoning faculties of a puzzled student." It is only in the mathematical department, however, that we acknowledge the need of formal solutions of our problems; but we do not doubt that further study will eventually enable our acute contemporary not only to distinguish May from June, but even to count six.

### SUMMARY OF THE MONTH.

THE general discussion of the Education Bill has proceeded with vigour throughout the country. The House of Commons, after preliminaries, at length went into Committee on the Bill (June 2). A number of motions of instruction to the Committee were ruled out by the Speaker, notably three having for their object the division of the Bill into two separate Bills, for secondary and for elementary education. On Clause 1, three motions of amendment were successively defeated: for the postponement of the clause; for limiting the Bill to secondary education; and for

the retention of the School Boards in boroughs. Next day (June 3) Mr. Balfour made it clear that the ultimate control is intended to lie with the Council, and not with the Committee of the Council; if Clause 12 did not carry out that object, let it be modified so as to do so. A motion against autonomy in elementary education for the smaller boroughs was defeated after long discussion. On June 4 the powers to be given in elementary education to municipal boroughs over ten thousand, and to urban districts over twenty thousand, occupied the whole sitting. The Government held its ground all along the line. It was not till June 17 that the Bill was taken up again, when the closure was applied (for the second time during Committee), and Clause 1 was carried. The fortunes of Clause 2 are narrated in our first leading article.

A MEETING to protest against the Education Bill was held at Queen's Hall, Langham Place, London, under the auspices of the London Progressive Education Council (June 10), Lord Rosebery in the chair. Sir Henry Campbell-Bannerman wrote:

It is time that the Liberals of London rose in denunciation of a Bill whose main principles will be applied to them in a future Session, if the Government have their way. It is quite enough to say that the Bill seeks to crush the healthy and democratic School Board, and fosters the inefficient but privileged Committee; that it favours sectarian schools under clerical control, and levies rates while ignoring the rights of the ratepayers; that it does nothing to maintain or extend higher education; that it fails to provide for the training of teachers, and leaves that great profession mainly closed against any but one sect; that it, in fact, hinders the establishment of a really national system. If the people of London do not desire to be sucked into this whirlpool of evil, they should speak out now, while we in Parliament are seeking to amend the Bill, if we cannot end it.

LORD ROSEBERY said London knows that, if the Government policy is successful, "it is only being kept as a *bonne bouche* for the last." The aspect of the Bill that seemed to him "the gravest of all" was this:

You are now going for the first time since the abolition of Church rates to hand over the rates of the country—the educational rates of the country—to a body which will be practically a close corporation, and on which the minority which is to represent the public is to be reduced to the proportion of one-third. . . . Financially it is not a very small matter. . . . If we are to maintain the School Board standard all through England, in the county areas the additional burden on the rates will be £1,661,385; in the county boroughs, exclusive of London, it will be £722,871; making a total new burden on the rates of this Government Bill of no less a sum than £2,384,256. . . . Under this Bill this enormous burden will be handed over in the main, if not altogether, to be spent or to be directed by a governing body in which, as I say, the proportion of popular representation will be insignificant. This is a new and a dangerous proposition. It strikes deep down at the very foundations of our constitutional structure in this country. I do not believe that through an English House of Commons—a British House of Commons—unless the Commons of England have derogated immeasurably from the traditions of their forefathers, it is possible that any such proposition can pass.

On the point of efficiency, Lord Rosebery said: "In this great conjuncture, in this moment of the world when the nations are all striving—we are all striving against each other—for commercial and popular existence, the Government presents us with this Bill—a Bill which, as I venture to say, without rhetorical expression, will do more to stunt the educational development of the country at a moment when it requires inspiration and development than almost any measure that I can conceive possible."

MR. ASQUITH said they regarded the Bill as "the deliberate throwing away of a priceless opportunity which may not recur for years, even for generations, of building up, upon the lines and in the spirit which the conditions of our time and country require, the great and really national system of education." He remarked:

When the Archbishop was a great educational authority and reformer, speaking as a member of a Royal Commission, he said: "The important thing, if you want to make education efficient in a country like England, is to associate with the management and control local interest and local sentiment." What ought to have been done in those rural districts? In the first place, you should have enlarged the area with which you have got to deal. You will never have efficient schools so long as each parish has its own. What you want is to group your parishes in a not too large, but in a fair-sized and properly manageable, administrative area, because, if you do so, you will have a larger reservoir of rating to draw upon; you will have a larger number of capable

people interesting themselves in education and able to give their time and energy to management; you will be able to have bigger schools, pay higher salaries to your teachers, and in every way to improve your educational appliances. That is the first thing that ought to be done, and then, inasmuch as it will be absolutely necessary, if that is to be done, either out of the Exchequer or out of the local rate to provide additional funds, the case has become absolutely irresistible for predominant popular management. There is no case in this country of a rate raised locally for any local service in which the expenditure of the rate is not controlled by local representative management. Then again, when you had got your new area, your improved authority, and your additional local powers, it would have been perfectly possible to arrive at an arrangement by which the County Council should act as the Secondary Authority and should exercise a co-ordinate influence and power as among the different local areas with which it is concerned. That, I believe, would be a statesmanlike and perfectly practical solution of the whole matter.

MR. JOHN MORLEY, speaking at Edinburgh (June 7), declared himself perfectly willing—"nay anxious"—"to look at any Bill which would unite in England all the forces, whether religious forces, educational forces, or the patriotic forces, of all who wish well to and love their country."

But this Bill can only intensify sectarian divisions. It disperses and subdivides educational effort. It hands over yearly large endowments out of the rates to schools which are in effect under private and sectarian management. It injures the truly national schools, while it encourages the multiplication of schools in which the education will encourage that spirit of social division which I do not think you know in Scotland, but which in England, at least, is one of the consequences of the relation, which I for my part detest in all countries—the relation of the establishment of a Church by a State. And, finally, this Bill is no settlement like the settlement of 1870. It will give a new force, it will give a new leverage, to the denominational system.

THE ARCHBISHOP OF CANTERBURY, speaking at the annual meeting of the Church Defence and Church Instruction Committee, said the Education Bill was drawn up evidently with a desire to do justice to the Church.

They looked upon the Bill with a very strong hope that it would be really serviceable in the discharge of the duties which certainly were incumbent upon the Church—namely, to give effective and real religious instruction to all her own children. It had been represented that the Church desired to proselytize. The Church never had any such purpose in view. It was quite true that the Church did wish every inhabitant of these islands to be a Churchman, but they did not wish that in the sense that they desired to use any secret or hidden methods to bring that about. They did not wish to go behind the backs of the parents of the children, and to teach what the parents disapproved of. In the heat of controversy, Churchmen had said things which were not wise, and had expressed themselves in a tone of hostility to Nonconformists, which had done incalculable mischief. It was certainly not in the mind of the Church as a body to say such things, and still less was it in their minds to act in such a manner. They desired to be just all round. If they could conciliate the Nonconformists, and get them to approach the Church more nearly than they did, he believed they would be able to satisfy all they wished.

THE BISHOP OF HEREFORD, one of the most liberal-minded occupants of the Episcopal bench, writes to a correspondent:

I should be strongly opposed to a system of secular elementary schools, believing that, if no religious instruction were given in the day schools, many children would never receive any religious instruction at all, and also that such a system would react unfavourably on the teachers. Moreover, even if it were possible to give religious instruction to all children in Sunday schools, this instruction alone, given only once a week, would not be nearly so influential on life and character as instruction given day by day and every day. While holding this view, I set great value on the Sunday school, and I feel that we ought to do much more than is generally done in the way of good and interesting Sunday instruction for both children and adults. My point is that it would be a great loss if our children were not instructed in the Bible, especially the Gospel narrative, day by day; and it should be borne in mind that, as a rule, all Englishmen, whether Churchmen or Nonconformists, desire that the children in all our elementary schools should have the benefit of good Biblical teaching as part of their daily education.

SIR RICHARD JEBB, speaking at a meeting of the Central Council of Diocesan Conferences, held in the Jerusalem Chamber, Westminster, said:

The optional clause should be dropped and the action of the Bill made compulsory. Elementary education was inseparable from secondary education. There was no doubt that denominational schools

were demanded by the people. There were now fourteen thousand schools of the voluntary character, where three million children were being educated, and what was desired was to bring up elementary education to a proper standard, and maintain that standard at a proper level. The buildings which would be erected under the new propositions or be handed over represented the capital value of not less than £26,000,000, which was a worthy contribution towards the cost of education. The Local Authority would direct what changes should take place in the time-table, subject to the approval of the Board of Education. The educational interests of the ratepayers were amply guarded by the decisions of the managers being subject to the approval of the Local Authority and the power given them to veto the appointment of a teacher on the ground of educational deficiency. The appointment of one-third of the managing body by the Local Authority amply covered the rights which they should possess. There would be under the Bill no more privately managed schools; in every school the element of publicity and criticism would be preserved by the managers chosen by the Local Authority. As to the financial question, there was a general feeling that a share should come out of the Imperial Exchequer; and, as the child was educated for the Empire and not the locality, the demand was fair and reasonable. Under the Bill as proposed he considered that education would rest on a permanent basis adequate to the needs of the nation.

THE Incorporated Association of Assistant Masters in Secondary Schools "welcomes the Education Bill, because it proposes to constitute the County and County Borough Councils the paramount Local Education Authorities; because it will make the residue under the Local Taxation (Customs and Excise) Act, 1890, applicable to secondary as well as to technical education; and because it will compel the Local Authorities to include 'persons of experience in education' in their Education Committees." But it objects to the option clause (5), and wishes the limitation of 2d. in the pound (Clause 2) removed; desires, as in the case of Wales, a Treasury grant for higher education proportioned to the local rate, "inasmuch as higher education is a national service"; deprecates the possibility of separate committees for higher and elementary education without a provision for co-ordination; suggests that the teachers in the area registered under Column A and Column B respectively should be recognized as bodies to nominate [Clause 12 (2)] "persons of experience" in education; and holds that transfers under Clause 15 (a) should be subject to the approval of the Board of Education. In particular the Association desires to see Clauses 4 and 5 of the Bill of 1900 incorporated in Part II. (Higher Education) as follows:—

4.—(1) Every Local Education Authority shall make such reports and returns, and give such information to the Board of Education with respect to their proceedings under the Local Taxation (Customs and Excise) Act, 1890, and this Act, as that Board may require. (2) Every Local Education Authority shall, in the exercise of their powers of establishing and aiding schools under the said Acts, have regard to the existing supply of efficient schools, and to the existing application of money applicable to purposes of education.

5.—(1) If the governing body of any school feel aggrieved at the action of any Local Education Authority on the ground that it acts unequally or unfairly with respect to that school, or is otherwise prejudicial to the school, they may complain to the Board of Education, and that Board, after communicating with the Local Education Authority, shall determine the matter, and the Local Education Authority shall comply with any order made by the Board of Education for removing the ground of the complaint. (2) For the purposes of this section the expression "governing body" shall include any corporation, trustees, or other persons managing a school.

MESSEURS. F. C. BOTTRILL and E. J. Brentnall, Hon. Secretaries of the West Lambeth Teachers' Association, following up Mr. Yoxall's complaint in the House of Commons, draw attention to "a grave injustice dealt to many elementary teachers by the regulations governing the new Register of Teachers" (*Pall Mall Gazette*, June 19). After explaining the provisions, they write:

Thus, all teachers in elementary schools who possess a University degree or its equivalent, plus the Board of Education Certificate, are shut out from obtaining registration in Column B simply because they are teachers in elementary schools, though the qualifications for teaching are practically the same whether the child be in a public elementary or non-elementary school, and the work in the higher classes of an elementary school is of a more advanced character than in the preparatory classes of a secondary school. . . . Another injustice to the elementary teachers has been dealt in the representation on the Registration Council: . . . 5,000 secondary teachers have five representatives; 45,000 elementary teachers have one representative.

THE Trade Union Congress Parliamentary Committee, at an

Education Conference at Exeter Hall, unanimously passed the following resolution:—

That, as the Government Bill will destroy popularly constituted bodies of education, this Conference condemns in the strongest possible terms the Government policy on education; and, further, it is of opinion that the abolition of School Boards will have a most destructive effect on the education of the people and take away the advantages which the workers have in direct representation in the management of Board schools; and, therefore, calls upon the Government to withdraw the present Bill.

WHILE the Teachers' Guild give general approval to the Education Bill, members make the following suggestions:—(1) That the optional clauses be made compulsory; (2) that dismissals, as well as appointments, in primary schools be subject to veto; (3) that women should be put on Secondary Education Authorities; (4) that the disabilities of pupil-teachers in country districts be removed; and (5) that the Bill should provide definitely for an increase in the rate beyond 2d.

AT the annual meeting of the Association of School Boards of Scotland, in Glasgow, the following resolution was adopted:—

That it be remitted to the Executive to oppose the Government Education Bill, in so far as it conflicts with the declared policy of this Association, makes for the abolition of the School Board system, and interferes with the right of the people to control expenditure under the rates.

MR. BARTLEY, in the House of Commons (June 2), asked the Vice-President of the Committee of Council whether secondary schools carried on for private profit were now eligible for public grants out of taxation as well as those secondary schools which were conducted so as to pay a substantial dividend on the capital employed. Sir John Gorst: They are not eligible for public grants. Mr. Bartley asked on what authority financial grants were made by the Board of Education towards the education of pupils in secondary schools whose pupils were financially able to pay, and did pay, substantial fees for their education. Sir John Gorst: The sums granted by Parliament are administered by the Board of Education in accordance with regulations annually laid before Parliament. Such grants are made to schools which, from their character and financial position, are eligible to receive aid from public funds, and not to individual scholars.

THE Head Master of the Princess's Road Board School, Moss-side, Manchester, having forwarded to Sir Francis Knollys a letter inquiring if His Majesty's desire for an extension of the summer holidays of school children in commemoration of the Coronation could be officially announced in some form, received the following answer:—

In reply to your letter, I beg to say I have written, by the King's commands, to the head masters of thirty-four public schools in England, Scotland, and Wales, expressing the hope that they might feel themselves at liberty to grant an extra week's holiday in celebration of the Coronation. It is, I fear, impossible to address personally the head master of every school throughout the kingdom on the same subject, but it would afford gratification to His Majesty to know that all the schools had obtained an extension of their summer holiday.

THE Government has decided that a reduction of attendances up to the limit of one week should be allowed in schools in England and Scotland in view of His Majesty's wish that the scholars should have a week's holiday during the Coronation.

THE Senior Wrangler of the year, Mr. Ebenezer Cunningham, Scholar of St. John's, reflects honour on Dame Owen's School, Islington, and a share of it may also be claimed by the Canal Road Board School (Hoxton) and the Crouch End Board School—that is, in so far as any school can make a Senior Wrangler. There are not a few cases in the list where distinctions may similarly be traced back to elementary schools. They emphasize the essential importance of the ladder.

The only lady Wrangler is Miss A. E. Bennett, of Girton, who is equal to No. 13. She does honour to the North London Collegiate School, and testifies to the utility of a Clothworker's Exhibition.

The ladies have also done well in the other Triposes. Miss Welsh gains a Class I. in Part I. of the Classical Tripos; and three ladies take the highest places with eight men in Part II. In Modern and Mediaeval Languages, Moral Sciences, and History the ladies are still more triumphant.

A considerable sprinkling of the "sports" appear to have been studious. The Senior Wrangler is a good oarsman; and well



known athletic names appear frequently in good positions in the lists of Classics and History.

THE disruption of Victoria University continues to be a burning question throughout the North, though some of the foremost local journals even are "becoming somewhat weary" of the discussion. The Liverpool Royal Institution has petitioned in favour of a Liverpool charter. The Yorkshire College, backed by the Lords Lieutenant, the County Councils, and the Technical Instruction Committees of all the Ridings, is determined to oppose disruption in every legitimate way possible, and, if unsuccessful, to assert its right to be "residuary legatee" of Victoria. Both Owens and Victoria University have decided to petition for an independent University in Manchester; and Convocation in Victoria University has just (June 23) decided, by 137 votes against 87 (calling for a local inquiry first), in favour of such application.

THE University of Wales has decided to fix the registry of the Court at Cardiff. The Corporation of Cardiff has obtained Parliamentary powers to make a free gift of a site for the offices, and also to contribute £6,000. It has also just made a free gift of five acres in Cathays Park to the University College for buildings.

THE University of Wales (Graduates) Bill has passed the House of Commons. The object is to put Welsh graduates on the same footing as graduates of Oxford, Cambridge, London, and Victoria in certain respects, by removal of anomalies in the conditions of entrance into the legal profession. For instance, a Welsh graduate has had to be articulated to a solicitor for five years, whereas a graduate of one of the other Universities has only to serve for three years.

PRINCIPAL LODGE writes to the *Times* (June 10) to call attention to the two chief methods for the encouragement of University education, "which so far have been regarded with favour." He says:

One mode is the scholarship method—viz., to pay the expenses of students, and so enable large numbers to attend existing places of instruction, at the same time expressing a pious hope that such places, though possessing attractive features, may in some respects reform and develop new and improved departments—an operation which, if undertaken, clearly entails on those places an era of beggary, and the necessity of laying their case before persons able to help. The other mode is the equipment method—viz., the provision of the best possible educational appliances and the highest grade of University professor, and then leaving it to individuals, or to the public bodies of districts, or of other countries, to arrange a method by which their students shall go and reap the benefit of the instruction so provided. For science, splendidly fitted laboratories, as in Germany; for history and literature, lectures of the highest class, as in Paris. These attract suitable students from all parts of the world automatically; any question of how they can live and pay the fees, if any, being a matter for private arrangement at home—not for committees at University centres. It would be, perhaps, as easy, and it would certainly seem more natural, for the colonies to subscribe each to send its own scholars to a splendid educational home centre, if such existed in this country, as it is for them subsequently to send donations to improve the appliances for teaching at inadequately equipped places to which their youth may already have been gratuitously sent. If, however, the other method has anywhere been adopted, then it would seem appropriate that a contribution towards equipment should accompany any influx of students to the mother country, whether that influx occurs under the scheme of the 1851 Exhibition Commissioners or under some other auspices.

## UNIVERSITIES.

(From our Correspondents.)

WE are at the moment of writing in the middle of Oxford. "Commem." festivities, the first "Commem." for three years. It seemed probable that the Coronation would cut things somewhat short, but a way out of the difficulty was found by commencing rather sooner, Hertford opening the entertainments with a ball on the Friday night (instead of Monday), while Magdalen transferred their usual concert from the Wednesday to the preceding Saturday, and did not suffer perceptibly from the competition of Mr. Ben Greet's pastoral play at Worcester.

On Monday there was quite a plethora of balls, the chief being the very elaborate entertainment by Magdalen in a special marquee in St. Swithin's quad, and that of the Bullingdon Club in the Town Hall. Oriel also competed, and, on its usual more modest and perhaps as effective scale, Wadham. Indeed, we do not hold very much with these twenty-five shillings a ticket extravagant festivals.

On Tuesday we had the Eucania. The list of recipients of honorary degrees was not very inspiring, and we hear the Council had several disappointments in their attempt to secure a representative selection. Among those that accepted, Japan was doubly represented by the Japanese Minister and Count Matsukata; the numerous American visitors gave a special welcome to Mr. Choate, while Lord Cromer may be taken to represent our "forward" Colonial policy. The new D.C.L.'s, as usual, attended the Masonic *fête* which the Apollo University Lodge gave on the Tuesday afternoon after the Eucania. A new element of local colour was introduced into the meeting in the Sheldonian by the new D.Litt. and D.Sc. gowns.

Of recently announced scholarships and prizes it is remarkable that in the Hertford, of five names mentioned, four, including the winner, Mr. Burroughs, are Balliol men, the only other college with a representative being Queen's (Mr. Rolt). It is also noticeable that again, as in 1900, the examiners have refused to award the Lothian, from want of any essay of "sufficient merit": this is surely rather a serious reflection on our much-belauded History School. As we foretold in the last letter, the question of compulsory Greek is really to come before Congregation next term: the Hebdomadal Council have drawn up a series of resolutions. As this will result in the greatest contest since the Ladies' Degree question, it will be as well to give the resolutions in full.

1. That candidates shall not be required to offer both Greek and Latin in the examination in stated subjects in Responsions.
2. That all candidates shall be required to pass in two out of the four following languages:—Greek, Latin, French, and German; one of the two being either Greek or Latin.
3. That in Greek and Latin an option shall be allowed between presented books and unprepared translations.
4. That in French and German the examination shall be in unprepared translations and prose composition only.
5. That the Grammar paper shall be discontinued, but the papers on Greek prepared books shall contain grammar questions on the passages set.
6. That for those who offer Latin prose composition shall be retained.

It is beside the point at present to discuss the principles laid down in 2 to 6, for it has been decided that, if the first resolution be not carried, the others shall not be put.

Doubtless next term the pamphleteer will be in full evidence, and many pens are being trimmed for the fray. We fancy the contest will be a close and severe one, for the apostles of modern subjects, the men of science, and the utilitarians are a steadily growing force; nay, more, we fancy a good many tutors in Pass subjects are ready to escape from the task of trying to drive Plato's "Apology" and "Meno" and Aristotle's "Ethics" into unresponsive Pass-men. Yet those who are ready to sacrifice Greek because of the Pass-man or science student or Rhodes' scholar do not realize that the result will be the abolition of Greek, except for a few genuine scholars and, perhaps of necessity, for those who wish to read theology.

The masterly and lucid judgment given by Mr. Lyttelton in the question of the appeal of the University and the colleges against the new and much higher assessment which the City authorities desired to impose has put University officials and college bursars on very good terms with themselves, and the City fathers sat in undisguised dismay as the figures given by Mr. Lyttelton for the University Buildings, the Clarendon Press, and Magdalen and Keble Colleges were pronounced. Mr. Lyttelton based his judgment at 3 per cent. on "the substituted building" principle, dismissing the 5 per cent. assessment on the ground that the colleges were able to borrow money for the purpose of these buildings at the lower figure. The City has been allowed three weeks to consider whether it will appeal, and, for the sake of the ratepayers, we hope it will not. The whole question of the assessment was one, as Mr. Lyttelton said, *svi generis*; but the veriest outsider in these matters could see that the "fancy value" of £2,000 put on college chapels was absurd.

The new buildings of University are now well on the way to completion, and may be pronounced a satisfactory addition to the

High Street. Merton has now done away with another piece of old Oxford by the demolition of some of the old houses which faced the New Schools' quadrangle in King Street. In their place, we are told, houses are to be erected for married Fellows.

The University eleven surprised both itself and its critics (who are numerous and outspoken) by following up its victory over the Irish gentlemen by an excellent victory over a somewhat weakened Surrey eleven. As Cambridge succeeded in London in doing the same, the University teams must be rather better than we imagined. On our side there is no one of the Paluoret or R. C. Foster stamp, and we do not think there is a bowler of the same class as Dowson or E. R. Wilson.

The Oxford competitors at Henley will be rather few and, apart from University, not very good. There will be an Oxford Leander eight, and a good deal of criticism has been caused by the non-inclusion of any Cambridge men. We believe that, as a matter of fact, some Cantabs were invited, but, owing to their college requiring their services, they were obliged to decline.

The announcement of peace was followed by a great want of it in Oxford on the Monday. Bonfires, both premeditated and extempore, flourished exceedingly. The Corn Market was full of rowdy undergraduates and a good many more rowdy who posed as undergraduates, and there was a certain amount of the "indiscriminate osculation"—to quote from one of the papers—which, we believe, was originated by Londoners on Mafeking night. The undergraduate, when let loose, is a peculiarly irresponsible person, and it is as well that he should learn that there are certain things which gentlemen don't do.

*A propos* of the Rhodes scholars and the possible complications which may arise, the *Oxford Magazine* has an amusing "diary," of which the following excerpts may amuse some (not too exacting) readers:—

April 1.—Just seen Rhodes' will. Free culture at Oxford! What Oxford? Idaho or Maryland? Must look up a map.

April 2.—Find there's an Oxford in England, too. Sorry. Should have preferred something more up to date. Wired Bursar for details.

April 3.—Rhodes says college authorities children. Have mailed them two dozen box-kites, four clockwork coyotes, and two casks molasses candy—preliminary commission for seeing business through.

April 23.—Long letter from Bursar. Haven't time to read it all. Speaks of "imbibing the spirit of the place." No doubt meant as caution. Very proper. Have mailed him my brother's temperance certificate; quite easy to alter initials. This will reassure Bursar.

April 25.—Another letter from Bursar. Likes "local colour" of my wires, and is sure I shall become one of Oxford's "polished gentlemen." Think he takes me for a coloured man.

April 26.—Brilliant idea! Send nigger in my name. Nigger will live cheap and remit balance.

April 27.—Got good-sized local coloured nigger to go for 200 dols. a year. Am having him blackleaded for polish.

April 29.—Nigger taking capital polish. Am having Stars and Stripes enamelled on his chest for more "local colour."

April 30.—Great disappointment. Nigger struck for 250 dols. Have just had him lynched.

May 1.—Late nigger's father has offered to go for 180 dols. Will do, but does not take polish so well as his son.

ANOTHER May term gone, regretted by none. Cambridge. It is impossible to imagine anything more doleful than the appearance of Cambridge streets at a time which is usually associated with merrymaking and frivolity. Of course, a certain number of visitors came up for the races and the balls, but the summer frocks and picture hats were never in evidence; everything was dull as ditch-water, and no one was grieved when the long farce was over.

The declaration of peace led to a little demonstration. The undergraduates had apparently decided to do nothing, as there were too many concurrent claims on youthful energy. The local Bumbles, however, would not have it so; they proceeded to erect barricades across every street leading into the Market Place, and so gave the frolicsome undergraduate a direct invitation to light up the usual bonfire in the prohibited area. The barricades were quickly demolished, and proved useful for building a bonfire; some buildings being erected in the Market Place also provided assistance in the way of fuel, and a thoroughly enjoyable evening was spent by the majority of the men in residence and a large number of prominent townsmen who came out to see the fun. The police behaved excellently, as usual; the proctors were a trifle fussy, and actually caught two men (out of the two thousand)

who were stoking the fire, and sent them down. A novel feature of the proceedings was an imitation of De Wet's tactics in breaking the block-house lines: some enterprising spirits drove the cattle on Midsummer Common through Sidney Street to Petty Cury, and rushed the barricades under cover of their four-footed friends. Scattered cows were discovered the following morning in various parts of the neighbourhood.

The honorary degree day was a trifle more interesting than usual this year, and was graced by the presence of two Indian potentates, the Maharajahs of Gwalior and Kolhapur. Diamonds and pearls were much in evidence, and the ladies were delighted. Plain men like the Master of the Rolls, Sir Harry Johnston, of Uganda fame, Sir Albert Hime, Prime Minister of Natal, and Sir Joseph Ridgeway, Governor of Ceylon, hardly attracted the notice they deserved, especially as they appeared in mufti. Viscount Hayashi, the Japanese envoy, had a very flattering reception, but within the past twenty-five years nothing has equalled the scene when Lord Kitchener, fresh from his Soudan achievements, honoured the University by accepting a degree.

The May races were held in detestable weather, and a gloom was thrown over the scene by the sudden death of the Master of Trinity Hall after the second night's racing. "Ben" Latham, as he always has been to many generations of Hall men, was the last representative of a departed class, the college don to whom the interests of his college were the be-all and end-all of his existence. Many stories are told of him and his single-hearted zeal for the good of his "boys," as he used to call them. Once he is said to have remarked to an unsatisfactory member of his college: "You can't row, and you don't read, and you wear tight trousers; you ought to go to—" mentioning the name of a smaller college which carries on a plucky struggle against adversity. In conversation with a Master of a certain college which generously admits our Asiatic brethren to the advantages of academic life, he is reported to have asked: "What sort of an entry have you this year?" The answer was: "A very good one." "Any white men?" was the Master's naive inquiry. His successor is Mr. E. A. Beck, the Senior Tutor, whereat there is much rejoicing in undergraduate circles, as well as satisfaction throughout the University, and especially among old "Hall" men.

The great meat scandals are over, and the trial of the butcher and his men has resulted in an acquittal; whether the Caius undergraduates are thoroughly satisfied at the disclosures made in court is another matter.

There are people irreverent enough to believe that the late Cecil Rhodes was correct in his estimate of the financial abilities of college officials, but, great as is the mismanagement in college affairs, a still more grotesque spectacle is provided by those who manage University finance. A sound business man put in charge of the place for twelve months with dictatorial powers would cut down the expenses of education by one-third and of living by one-half.

Dr. Chase, the President of Queens', has been elected Vice-Chancellor for the ensuing year: he is an amiable and courteous person who will make no mistakes, and who will be a worthy figurehead to represent the University to the outside world.

The Master of Magdalene has, by the sudden death of his brother, succeeded to the Barony of Braybrooke and to the possession of the family seat at Audley End. It may not be generally known that the Mastership of Magdalene is in the gift of the owner for the time being of Audley End. It is hoped that the present Master will see his way to remaining in office, that his wise and courteous counsels may still be at the disposal of the University. It is refreshing in these degenerate days to have resident in Cambridge one, if only one, example of the courteous manners of a past generation.

The examinations are all over, and the lists published. Much heart-burning has arisen from the fact that the number of plucks in the first part of the General has reached the somewhat large figure of 44 per cent. Doubtless the examiners are right; but the writer of these notes is inclined to think that the abnormal number of failures is more likely to be due to a variation in the capacity of a small number of examiners than in the acquirements of a large number of candidates. The number of men classed in the Mathematical Tripos—seventy-two—is almost the smallest on record; Natural Science is rapidly becoming the popular avenue to an Honours degree, while Theology and Law also draw away a good many men from the older triposes.

Dr. Roberts, the Secretary of the Extension Syndicate, is resigning his office at the beginning of next term, and his successor is shortly to be appointed. Rumours are in circulation

that the Syndicate which is considering the proposed changes in the scheme of poll examinations is not a very harmonious body, and that decisions have been arrived at by very minute majorities. If this is so, the normal *non-placet* awaits the ultimate report.

The University Golf Club is laying out new links near Coton, about two miles from the town; and there is no doubt the club will take a new lease of life in consequence.

The proctors for next year are Mr. Hobson, of Christ's, and Mr. Comber, of Pembroke. The former has experience, and the new man is likely to prove a success.

### EUCLID AND GEOMETRY: PROPOSALS OF REFORM.

THE *Mathematical Gazette* for May devotes considerable space to the publication in full of the Report of the Mathematical Association's Committee on Geometry. This Report arouses a keen interest, for it gives, respecting the improved teaching of geometry, the views and suggestions of a large and important body of thinkers drawn for the most part from the teachers of mathematics in many of our principal colleges and schools. The moderate spirit of the proposed reform is clearly shown in Article 7, which disclaims any intention of promoting such changes as would render invalid Euclid's proof of any proposition. The more general suggestions are few, but very important.

In the first place, it is proposed to include in the recognized school curriculum an introductory course in geometry of an informal and experimental character, and to take proper account of it in the examination room. The course is intended to lead (1) to a more thorough grasp of geometrical truths when taught later in a formal manner, (2) to a proper appreciation of the necessity for accurate constructions, and (3) to skill in the use of instruments. The suggestion is likely to meet with universal approval. At the present time it is a well known fact that large numbers of examination candidates make no attempt to produce either in size or in shape the figure required by a geometrical question that involves even the simplest numerical data. Suppose, for example, the dimensions of some right-angled triangle given and the construction asked for, how many candidates reproduce *verbatim* I. 22, yet remain blissfully unconscious of the special type and magnitude of the triangle indicated!

A natural consequence of the proposal to establish such preliminary courses of instruction is the idea that the theorems and problems of geometry should be taught independently, and salutary stress is laid on the importance of deriving, as far as possible, each demonstration from first principles and of constantly emphasizing the connexion between associated theorems. In discussing the question of order in teaching, the Committee wisely advocates taking nearly the whole of Book III. before Book II. For the various detailed suggestions in connexion with the several books, those interested must necessarily be referred to the Report itself.

In forming conclusions upon the proposed modifications of each book of the "Elements," it is necessary to bear in mind, what is evident on the face of the Report, that the individual articles are the result of the most careful thought and are based on wide and prolonged experience. Generally, however, we anticipate that the propositions proposed as supplementary to those recognized by Euclid will be regarded as very valuable additions; while the omission of existing theorems or problems is justly deemed advisable in consequence of one or more of the following considerations: (1) that the proposition is not required; (2) that the question involved may be more effectively treated from a different standpoint; (3) that, being easy of proof and of limited application, it may with advantage be treated as an exercise rather than as a proposition; and (4) that it may more suitably be regarded as an exercise in geometrical drawing.

In connexion with the detailed treatment of Book I., it is necessary to draw attention to Article 30. Obviously what is intended is that an irregular figure should be reduced to a triangle of equal area by one—or, if needed, more than one—application of I. 37, and not of I. 38, as stated. Again, important alterations affecting the discussion of the theory of ratio and proportion are thought to be desirable. The Committee points out a remedy for a defect that is only too abundantly evidenced in the answers to examination papers—namely, the want of logical sequence shown in the comparison of congruent figures. The proposed method of arranging the corresponding elements in parallel columns is excellent. It is not new, of course, but it is far too rarely adopted in practice.

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THE half-yearly meeting of members of the College of Preceptors will be held in the College Library on Saturday, July 19, at 3 p.m.

THE Nature-study Conference in London, we may remind our readers, is fixed for July 23.

THE Board of Education have decided, at the suggestion of the Council of the Society of Arts, to hold during the early part of next year an Exhibition of Engraving and Etching in the Victoria and Albert Museum, South Kensington. The Exhibition will consist of examples of copper and steel engraving, including line mezzotint and stipple (plain and coloured), aquatint, and etching. Communications should be addressed to the Secretary, Exhibition of Engraving and Etching, Board of Education, South Kensington, S.W.

THE Catholic Association has organized a series of summer trips, tours, and pilgrimages—among the rest a language holiday course at Douai ("a place made memorable in the annals of the Faith in England"), the party leaving London on August 4. Apply to Valentine M. Durnford, K.S.G., 22 Paternoster Row, E.C., before July 21.

THE scheme for the allocation of the grant Endowments of £10,000 a year from the Technical Education Board of the London County Council has been finally adopted by the University of London, the consent of the institutions concerned having been obtained. (See below, page 293.)

THE Public Health Institute, Edinburgh, completed by the liberality of Sir John Usher, has now been formally handed over to the University.

MRS. MARGARET OGILVIE has endowed with an income of £200 a University Readership in Ophthalmology, to be held by the honorary surgeon to the Oxford Eye Hospital.

LORD DERBY has given three acres of land towards a site for a new Grammar School at Bury, and has offered £1,000, in addition, upon certain conditions not yet disclosed.

THE Oxford D.C.L. has been conferred upon the Hon. Joseph H. Choate, the American Ambassador; Viscount Hayashi, the Japanese Ambassador; Lord Cromer; and Count Matsukata. D.Sc., on Mr. W. H. M. Christie, Astronomer Royal, and Dr. Arthur W. Rücker, Principal of the University of London. D.Litt., on Prof. Kielhorn, C.I.E., of Göttingen.

At Oxford, too, the honorary degree of D.D. has been conferred upon the Ven. H. N. Churton, M.A., Bishop-elect of Nassau, and upon the Rev. J. E. Mercer, M.A., Bishop-nominate of Tasmania; and the degree of M.A. upon Mr. W. J. Smith-Jerome (B.M. London), University Lecturer in Medical Pharmacology and Materia Medica.

THE University of Cambridge has conferred the following honorary degrees:—

LL.D.: Mr. Whitelaw Reid, Special American Ambassador to the King on the occasion of His Majesty's coronation; Maharaja Dhizaj Sir Madho Ras Sindhia, Maharaja of Gwalior, G.C.S.I., A.D.C.; Sir Shahu Chhatrapati Maharaj, G.C.S.I., Maharaja of Kohlapur; the Duke of Argyll; Viscount Hayashi, Japanese Ambassador; Sir Richard Henn Collins, Master of the Rolls; Sir Joseph West Ridgeway, Governor of Ceylon; Sir Albert Henry Hime, Prime Minister of Natal; General Sir F. W. Grenfell, Governor and Commander-in-chief of Malta.

Sc.D.: Sir H. H. Johnston, Special Commissioner for the Uganda Protectorate; Dr. A. W. Rücker, Principal of the University of London; and Robert Ball, Acting Director of the Geological Survey of Canada.

Litt.D.: Rev. William Sunday, Lady Margaret Professor of Divinity in the University of Oxford; and Frederic Seebohm.

Mus.D.: H. W. Parke, Battell Professor of Music at Yale.

THE Cambridge honorary M.A. has been conferred on Mr. T. H. Middleton, Professor of Agriculture; Mr. Abrahams, Reader in Talmudic and Rabbinic Literature; and Mr. A. P. Goudy, Lecturer in Russian.

EDINBURGH UNIVERSITY has conferred its honorary LL.D. upon the following Colonial Premiers and Governors:—Right Hon. Edmund Barton, K.C. (Australia); the Hon. Sir Robert Bond, K.C.M.G. (Newfoundland); General Sir F. W. Grenfell, G.C.B., G.C.M.G. (Malta); Lt.-Col. the Hon. Sir A. H. Hime, R.E., K.C.M.G. (Natal); the Right Hon. Sir Wilfrid Laurier, G.C.M.G. (Canada); Sir William Macgregor, M.D., K.C.M.G. (West Africa); the Right Hon. Sir J. W. Ridgeway, G.C.M.G., K.C.B., K.C.S.I. (Ceylon); the Right Hon. R. J. Seddon (New Zealand); Sir W. J. Sendall, K.C.M.G., G.C.M.G. (West Indies); and the Right Hon. Sir J. Gordon Sprigg, K.C.M.G. (Cape Colony).

DUBLIN UNIVERSITY has conferred the following honorary degrees:—

D.Litt.—Alexander Campbell Fraser, Professor Emeritus of Logic and Metaphysics, University of Edinburgh; George Abraham Grierson, Fellow of the University of Calcutta, and chief of the Linguistic Survey of India; M. Theodore Reinach, the historian and archaeologist; and William Ridgeway, Professor of Archaeology in the University of Cambridge.

D.Sc.—Sir William Abney; Josiah Willard Gibbs, Professor of Mathematics in Yale University; and George Johnston Stoney, F.R.S.

LL.D.—John Winthrop Hackett, member of the Legislative Council of West Australia; Sir Albert H. Hime, K.C.M.G. (Natal), an old student of Trinity College; and Horace Brooks Marshall, one of the Sheriffs of the City of London.

DURHAM UNIVERSITY has conferred the honorary D.C.L. on Prof. Pringle-Pattison, Dr. Fraser's successor at Edinburgh.

COLUMBIA UNIVERSITY has conferred its honorary LL.D. upon Mr. Michael Ernest Sadler, of the Board of Education.

THE University of Missouri, very appropriately, has conferred its honorary LL.D. upon Mr. Samuel L. Clemens. Did not "Mark Twain," once upon a time, bear a hand in working a steambot on the Mississippi? There seems to be an "Innocent Abroad."

THE most notable feature of the Coronation Honours is the institution of an Order of Merit. The dozen names in the first list worthily represent the Army and the Navy, literature, science, and art. Lord Rayleigh, Lord Kelvin, Lord Lister, Mr. Morley, Mr. Lecky, Sir William Huggins, and Mr. G. F. Watts are excellent representatives of the three latter departments. Carlyle, it will be remembered, accepted the Prussian Order *pour le Mérite*, though he afterwards declined G.C.B.

LORD KELVIN is also made Privy Councillor. Principal Rücker, of the University of London, is knighted. Prof.

Ramsay, of University College, London, is made K.C.B. Principal Lodge, of Birmingham, Dr. Isambard Owen, of the University of Wales, Dr. Villiers Stanford, of Trinity (Cambridge), and the Hon. H. McLaurin, Chancellor of the University of Sydney, are knighted.

THE physicians and surgeons are well to the front. Lord Lister is made a Privy Councillor. Sir W. S. Church, Bart., President of the Royal College of Physicians, is made K.C.B. Sir Francis Laking and Sir Frederick Treves become baronets. Mr. H. G. Howse, President of the Royal College of Surgeons (England); Mr. Halliday Croom, President of the Royal College of Surgeons (Edinburgh); Dr. Thomas Fraser, President of the Royal College of Physicians (Edinburgh); Mr. Victor Horsley, of University College, London; Prof. Macewen, of Glasgow; Dr. W. J. Collins; and Mr. Alfred Cooper, F.R.C.S.—are knighted.

SIR ALFRED LYALL is to be congratulated on his admission to the Privy Council, and Mr. Leslie Stephen on his K.C.B. The literary Knights Bachelor are Mr. F. C. Burnand, Mr. W. Laird Clowes, Dr. Conan Doyle, and Mr. Gilbert Parker, M.P.

ART is represented by Sir Edward Poynter, P.R.A., who receives a baronetcy; and by Mr. W. Emerson, President of the Royal Society of British Architects; Mr. E. Waterlow, A.R.A., President of the Royal Society of Painters in Water Colours; Mr. John Thornycroft, F.R.S.; and Mr. Charles Wyndham—who are knighted.

THE Senate of the University of London Scholarships. has approved the following conditions for the Gilchrist Scholarships and Studentships for Women:—(1) Four scholarships of £40 a year for two years, two open annually to candidates that have passed the Intermediate Examination and are not of more than two years' academic standing. One scholarship may be raised to £50 if the holder studies experimental science and her college fees would exceed £40 a year. (2) One studentship of £100 for one year, open to a graduate in Honours of the University for a course of study in an approved institution in preparation for some profession, which she must promise to practise at least two years. Applicants to be of not more than three years' standing from first graduation. Apply to the Principal before the end of February. (3) One travelling scholarship of £70, open to secondary teachers holding the University diploma—preferably such as shall have been trained in the proposed Day Training College for Teachers. Scholars must have been engaged in teaching for at least two years, and must at election be holding an appointment in a school. No examination, but nomination by a Committee of Selection, who report by April 15. Further particulars in *London University Gazette* for June 7.

A MITCHELL Studentship in Economics and Political Science (including Commerce and Industry), £100, is open (September 15). Apply to the Academic Registrar, University of London, by August 31.

THE following prizes and scholarships, for women only, will be awarded on the results of the Cambridge Higher Local Examination in June, 1903:—(1) £5 to each of the best five candidates engaged in tuition as a profession or preparing for that profession; (2) the Lowman Memorial Prize (interest on £125 Caledonian Railway 4 per cent. Debenture Stock) to the candidate highest in Group A among those engaged in or preparing for the work of tuition; (3) two scholarships, £50 a year each, tenable at Newnham for three years, for success in special groups; (4) Gilchrist Scholarship, £50 a year, tenable at Girton or at Newnham.

for three years; (5) Liverpool Clough Scholarship, £60 a year, tenable at Newnham for two years. See the Regulations for the examinations now published.

THE University of Oxford School of Geography offers a Geographical Scholarship, £60, open to such as have taken Honours in one of the Final Schools of the University. Examination, October 14. Apply to the Reader in Geography, Old Ashmolean Building, Oxford, by October 1.

FROM the proceeds of his book on "The Cause and Conduct of the War," Sir Conan Doyle proposes to set apart £1,000 to found a scholarship for enabling some poor South African Boer or British student to study at Edinburgh University. With the rest he will encourage the movement for civilian riflemen.

THE Universities of the Maritime Provinces of Canada are sending a memorial to the executors of Mr. Rhodes's will asking that the conditions of the will be altered so as to give all the provinces of the Dominion an opportunity to compete for the Oxford scholarships. The will provides only for Ontario and Quebec, two out of seven provinces.

AT the City of London School it is intended to form a class in journalism next term, and the most promising boy in this class, as discovered by examinations and examples, will be awarded the G. W. Steevens Travelling Scholarship of £400.

Vacancies and Appointments. IN connexion with the grant of £10,000 a year recently voted to the University of London by the London County Council in aid of the work of the Faculties of Arts, Science, Engineering, and Economics, the Senate have made the following appointments:—Prof. Ramsay, F.R.S., Teacher of Chemistry at University College; Prof. Capper, Teacher of Mechanical Engineering at King's College; Prof. Unwin, F.R.S., Teacher of Civil and Mechanical Engineering at the Central Technical College. At the London School of Economics and Political Science: Prof. Hewins, Director of the School, Teacher of Modern Economic History; Mr. A. L. Bowley, Teacher of Statistics; Mr. Edwin Cannan, Teacher of Economic Theory; Prof. Foxwell, Teacher of Banking and Currency; Mr. Herbert Hall, teacher of the Sources of Early Economic History; Mr. H. J. Mackinder, Teacher of Economic Geography; and Mr. A. L. Sargent, Lecturer on Foreign Trade. Also Dr. Karl Breul and Dr. Robert Priebsch to the Professorships of German, founded by the University; and Dr. J. Norman Collier, F.R.S., to the Professorship of Organic Chemistry at University College.

THE REV. ARCHIBALD ROBERTSON, D.D., LL.D., Principal of King's College, has been elected Vice-Chancellor of London University for 1902-3.

THE Chair of Modern History at Cambridge is vacant through the lamented death of Lord Acton.

MR. E. A. BECK, M.A., Fellow and Senior Tutor of Trinity Hall, Cambridge, has been elected Master, in succession to the Rev. H. Latham, M.A.

AT Cambridge, too, Mr. E. G. Duff, M.A., of Wadham College, Oxford, has been elected Sanders Reader in Bibliography; the Special Board of Indian Civil Service Studies have appointed Syed Ali Bilgrami, B.A., LL.B., Calcutta, to be University Teacher of Marathi; and Mr. Leonard Doncaster, B.A., Scholar of King's College, has been appointed assistant to the Superintendent of the Museum of Zoology.

THE REV. HERMANN GOLLANZ, M.A., D.Lit., has been elected to the Goldsmid Chair of Hebrew, and Mr. R. A. Nicholson, M.A., to the Chair of Persian, at University College, London. Prof. Nicholson has also been appointed University Lecturer in Persian at Cambridge.

DR. ROBERT LATTA, Professor of Moral Philosophy, Aberdeen University, has been appointed to the Chair of Logic in the University of Glasgow, in succession to Dr. Adamson.

MR. JAMES TAIT, M.A., late Fellow of Pembroke College, Oxford, Lecturer in Ancient History and Assistant Lecturer in History, Owens College, Manchester, has been appointed to the newly instituted Chair of Ancient and Mediæval History at Owens.

THE REV. J. H. B. MASTERMAN, M.A., has been appointed to the temporary (three years) Chair of History in the University of Birmingham.

MR. J. H. CLAPHAM, Fellow of King's College, Cambridge, has been elected to the newly instituted Professorship of Political Economy at the Yorkshire College, Leeds.

DR. T. WITTON DAVIES, formerly Lecturer, has been appointed Professor of Semitic Languages in the University College of North Wales. Prof. Davies also holds the Chair of Hebrew and Old Testament in the Baptist College, Bangor.

THE Wardenship of Trinity Hall, Glenalmond, is vacant through the resignation of Canon John Huntley Skrine, M.A.

MR. DAVID H. M'CURTAIN, M.A., B.Sc. Lond., Head Master of the Secondary Department of the North Kelvinside School, Maryhill, Glasgow, has been appointed Principal of the new School of Science at Crewe.

THE REV. A. R. JOHNSON, M.A., second master in the Exeter Grammar School, has been appointed Rector of Marwood, Barnstaple.

THE REV. JOHN M. EUSTACE, M.A., assistant master at Weymouth College, has been appointed Rector of Challacombe, Barnstaple.

Literary Items. MESSRS. MACMILLAN & Co. announce a new and popular issue of the illustrated edition of Green's "Short History of the English People," in forty monthly parts. The complete work will make four handsome volumes.

MESSRS. BLACKWOOD & SONS have in the press a new edition, in four volumes, of Sir Walter Scott's "Minstrelsy of the Scottish Border," prepared by Mr. T. F. Henderson, author of an interesting volume on "The Casket Letters." The last critical edition of the "Minstrelsy" (Lockhart's) was published some seventy years ago.

THE Department of Comparative Literature in Columbia University has decided to publish a *Journal of Comparative Literature* quarterly. Many of the foremost European scholars have promised co-operation.

MESSRS. INGLIS, KER, & Co., of Glasgow, will publish in the autumn a "Life of Dr. Parker," of the City Temple, by the Rev. Dr. Anderson, of Windermere, who has successfully written the biographies of Principal James Morison and Dr. Fergus Ferguson. Dr. Anderson will speak with the

authority and fulness derivable from a lifelong intimacy with Dr. Parker.

MESSEURS. BROWNE & NOLAN, of Dublin, will presently issue a revised and completed edition of "Ireland, Industrial and Agricultural," a timely exposition of the condition, resources, and economic possibilities of the country, edited by Mr. William P. Coyne, M.A., F.S.S., for the Department of Agriculture and Technical Instruction for Ireland. The volume will be illustrated by upwards of a hundred full-page plates, maps, and diagrams.

SIR ISAAC PITMAN & SONS have just issued the first number of *Business Life*, a monthly pennyworth, "directed to the growing demand for special training in all departments of business life which is being made by the stress of competition with other nations." The contents are of a practical character, and the personal element is represented in "Successful Students" (with portraits) and "Life Stories of Successful Men." The successful man of the current number is Dr. T. J. Macnamara, M.P. (with portrait).

THE results of the third examination for the General National Diploma in Agriculture, recently held at Leeds, "indicate a continued improvement in the standard of knowledge attained," but "the general education of many of the candidates is very deficient. . . . Many students whose papers were otherwise creditable exhibited a remarkable ignorance of spelling, grammar, and ordinary English composition."

MR. A. SONNENSCHIEIN, who has laboured long and earnestly for the simplification of the methods of teaching English children to read, held a conference with London Board-school teachers (June 9) on "The Teaching of Reading in Elementary Schools" in the Board Room on the Victoria Embankment. The object of the conference was to show that reading, writing, and spelling from dictation of words of regular structure can be taught in a year, whereas from three to five years are now spent in this study.

THE new Regulations for the Cambridge Higher Local Examination, containing the announcement of set subjects in the various Groups for December, 1903, and June, 1904, as well as for December, 1902, and June, 1903, can now be obtained from the Local Secretaries or from Dr. Keynes, Syndicate Buildings, Cambridge.

AT a meeting of the governors of George Heriot's Trust, Edinburgh (June 9), a letter was read from a student whose fees had been remitted, stating that, having had constant work for the past two years, he was now in a position to repay the sum—£12. Scotland is not yet wholly demoralized by grants in aid of deserving students.

IN the opinion of the *Outlook* (May 24) "the gentlemen who are now called secondary inspectors are not qualified by attainments, standing, or experience to estimate the work of a good secondary school. Most of them are the old South Kensington men new christened; the new ones are men without sufficient experience to guide them; and very few have taught in secondary schools themselves."

THE Court of Governors of Owens College, Manchester, decided (June 4) to apply for a charter for an independent University in Manchester, to be called the Victoria University of Manchester. The Court were of opinion that any powers and advantages possessed by the Victoria University and its graduates, including the use of the name Victoria, should be equally continued (if desired) to the proposed

Universities in Leeds, Liverpool, and Manchester and their graduates.

THE *Jewish Chronicle* (June 7) says that, in view of the improved position of Hebrew in the University of London, "the curriculum at Jews' College is being reorganized, and a more absorbing attention is to be devoted to Hebrew studies, which are in future to culminate in the Diploma of Rabbi. Meanwhile, it is desired that before long Jews' College may be an affiliated College in Semitics of the University, and there can be little doubt that the closest bond must, in the near future, exist between Jews' College and University College."

ON Speech Day at Wellington (June 18), the Master (the Rev. Bertram Pollock) stated that 700 old Wellington boys had been to the front, 70 had died in their country's service, 253 have been mentioned in dispatches, 41 had received the D.S.O., Sir Ian Hamilton had received a K.C.B., and two Victoria Crosses had been won. One of the V.C.'s (Captain Towse) was present.

PRESIDENT BUTLER'S admirable inaugural address on "Scholarship and Service," on his installation at Columbia University (April 19), is published in full in the June number of the *Educational Review*, which Dr. Butler himself so ably edits. The same number contains an interesting article on "The Abolition of Compulsory Greek in Germany," and a very useful and handy "Bibliography of Education for 1901."

THE *conversazione* given by the President, Council, and professors at University College, London, on June 19 was brilliant and successful.

A STATUTE has been promulgated in Congregation of Oxford University for the transfer of the control of the training of secondary teachers, now entrusted to the Delegacy of Local Examinations, to an independent delegacy. Mr. Sidgwick pointed out that the present step was called for by the action of the Board of Education in making a diploma necessary for junior inspectorships and by the draft Order in Council requiring a diploma in the case of registration of teachers. He observed that beyond this transfer no change was involved, except the giving a University *status* to a Reader in Education if such an official be hereafter created.

#### AN IDEAL UNIVERSITY FOR LONDON.

PROF. E. H. STARLING, M.D., F.R.S., delivered the annual Foundation Day oration at University College, London (June 5), taking for his subject "The Building of the University." He said that he proposed to deal with the best manner in which they might complete the work begun seventy-five years ago by their founders—namely, the establishment in London of a University which should be adapted to the needs of this monstrous metropolis, and should offer to all classes and creeds of the Empire an education which would fit them to take their part in the struggle not only for mere existence, but for the persistence of the English race and English ideals. A single institute or group of institutes would not be an adequate solution of the problem. The University must be equally accessible to dwellers in the north, south, east, and west of London—a condition which could only be fulfilled in the case of a single institute by placing the University in the heart of the City. A better and more feasible way was to adopt a process of division, so that a complete University centre should be provided in the close neighbourhood of the railroads which served those four quarters of the London area.

Such a division of the University could be accomplished without in any way destroying the unity of the whole. In their ideal University there would be a centre in each of the four quarters of London. Each of those centres would be in so far a complete University in that it would be a place for study and research in all branches of knowledge, and would be a community of teachers



and scholars. The local business affairs of each centre would be under the control of a committee or council appointed by the Senate of the University, but containing representatives of the local body of professors. All those centres would be but parts of this University, with common aims, with similar curricula, and the same standard of examination. The Senate of the University, which would contain representatives from all centres, would be responsible for the appointment of the local governing bodies, and would keep in their own hands the power of appointing and dismissing professors. It would be possible in that way to provide for the training of ten thousand students within the University of London, and to ensure the freedom of teaching and research and the living contact of each student with men of different ideals and modes of thought, which were the most valuable factors in a University training.

Such a University could not be founded without the possession of adequate means. Each centre would necessitate the erection of buildings at a cost of about £500,000, on ground covering from five to ten acres. For a moderate endowment of its professorships and the maintenance of its laboratories a yearly income of £50,000 should be provided in addition to the income from students' fees, which might amount to another £30,000. Those might seem large sums to those who were ignorant of the money spent abroad by the State on Universities or of the income which was available from ancient endowments at Oxford and Cambridge. The united income of the colleges at Oxford was £330,000 a year, and at Cambridge nearly £300,000 a year. The yearly Government grant to the University at Strasburg, with only 1,000 students, was £50,000. He was convinced that there would be no difficulty in raising those amounts in London, either by the generosity of its rich men or by grants from public funds, if only those interested in the making of a University would combine their efforts towards a common end. The task was rendered easier by the fact that in the building of the University they could utilize for University purposes in London many of the buildings and endowments already existing, and it was in the hope of inaugurating a common movement in that direction that University College had declared itself ready to be incorporated in the University.

The first step in the making of a great London University was indeed halfway towards accomplishment. Towards the sum of £170,000 necessary for the incorporation of University College more than half had been already subscribed. But it was only a first step. Where were they to find the other centres? The solution of that question was already under consideration by various bodies in the University. The Faculty of Medicine of that University was engaged in drawing up plans for the establishment of a great institute for preliminary and early medical studies in the immediate neighbourhood of the University buildings in South Kensington, at a cost of £150,000 for laboratories, and at least an equal sum for endowment of professorships. The University already contributed a considerable sum annually out of their grant from the Technical Education Board to the expenses of the Engineering School, the Central Institute of the City and Guilds, and it was to be hoped that this was but the prelude to an incorporation of that school in the University. A similar incorporation of the Royal College of Science would present many difficulties, seeing that that school of science was a Government Department. Part, at any rate, of its work would gain by being directly under the control of the University, and they might confidently look forward to the time when the vacant ground round the Imperial Institute, including the building itself, would be occupied by a group of institutes which together would form a complete University centre for West London, where many, if not all, faculties would be represented. For the University centre of South London they had already a nucleus in King's College. The incorporation of that institution in the University would probably cost less than that of University College. But its buildings permitted of little or no expansion, and it would be far better to give them back to the Government if the University could receive in exchange five to ten acres of land in a corresponding position south of the river, and erect thereon new buildings fitted to modern requirements, and with accommodation for a large number of students which would be provided by South London and the southern railroads. The East London centre was urgently required for the scientific training of men who were to be leaders and captains of industry in that great manufacturing district. The facilities for University education in that part of London were at present most rudimentary, but it seemed possible that the University might use the excellent institute maintained by the Drapers' Company, at any rate as a

nucleus on which to build its fourth centre. In this centre the Faculties of Science, Applied Science, and Engineering would take a foremost place. The Arts Faculty, however, would not be absent, and would be represented at least by such subjects as modern languages, history, and economics, which were the foundation of any Commercial Faculty of a University.

In addition to those centres, there would be a number of schools of the University which would preserve their autonomy, but would direct their teaching according to the requirements of the University. Such schools would be mainly post-graduate in character, in that it would be their office to graft on the general training in method acquired within the walls of the University itself the special professional training necessary to fit the man for the pursuit of medicine, law, commerce, administration, &c. Among such institutions would be the twelve medical schools attached to the great hospitals of London, the School of Economics and Commerce, the various training schools, and, it was to be hoped, the great legal corporations, which had so far failed to grasp the extent of their responsibilities in the formation of a Legal Faculty of the University. The utilization of the polytechnics would require careful consideration.

## CORRESPONDENCE.

[We do not hold ourselves responsible for the opinions expressed by our correspondents.—Ed. E.T.]

### THE COLLEGE OF PRECEPTORS AND THE EDUCATION BILL.

*To the Editor of the Educational Times.*

SIR,—My attention has been drawn to a communication under the above heading which appears this month in the correspondence columns of a contemporary.

I beg to utter a respectful protest against the action of the Dean in writing this letter, and in dating it from the College of Preceptors. I do this irrespectively of the opinions he has advanced. The Dean occupies a position of greater responsibility than that of an ordinary member of Council, for he is, to a large extent, their official representative. One would naturally expect, therefore, that a certain measure of reserve would be imposed.

This is illustrated by the fact that, at the very time the Dean was inditing the letter in question, he was also engaged in preparing the draft of a Report to be presented to the next meeting of the Council, in order to be dealt with before formal presentation to the forthcoming half-yearly meeting.

If he had been requested by the Council to write, the matter would have worn a different complexion, or if there had been any debate on the question from which he could have gathered, more or less completely, the sense of the Council, there might have been some excuse; but, judging from the published reports, no such debate has taken place, so that, in effect, the Council is partly pledged without its knowledge and against its will.

Apparently, the Dean, in the course of conversation, had picked up the opinions of two or three of the members. Unfortunately, in a measure of this kind, religious animosity and political bias frequently shape the feelings and obscure the educational bearings of any particular policy; but I submit that, in an official pronouncement of the whole Council, the measure would have a fair chance of being considered from the educational standpoint alone; and, if such were the object of my letter, I should be quite ready to offer a challenge to the Dean, and to assert that, if a ballot were taken, a majority of the Council and of the members of the College would be found in favour of the main principles embodied in the Government Bill. But I am not now concerned to defend or to oppose the Bill; one is jealous only that the College should be kept outside religious or political partisanship and that the impartiality of one of our own officers of Council should be maintained.

Unfortunately, owing to the action of the Dean, the question has become somewhat obscured, and the direct result of his un-called-for intervention will be to exacerbate the discussion at the College on the 19th prox., and, it may be, to draw it off on a false issue.

Mr. Eve throws a doubt on the advisability of imposing a test to ascertain whether or not a teacher conscientiously believes the

doctrines he seeks to be allowed to teach. His recent action leads to the conclusion that a test might sometimes be advantageously employed to ascertain the wisdom and prudence of certain office-bearers in our own College. "It is impossible to describe in Parliamentary language" the evil effects at this crisis of a lack of judgment on the part of our leaders.—I am, Sir, &c.,

J. O. BEVAN.

55 Gunterstone Road, West Kensington, W.

June 14, 1902.

*To the Editor of the Educational Times.*

SIR,—My letter was not intended to be official; I regret if there was anything about it to justify a contrary idea. It began with a plain statement of fact necessitated by what seemed to me an erroneous impression conveyed in the previous number of the *Journal of Education*. The Report adopted by the Council bears out this statement. The remainder of the letter was, as I plainly stated, an expression of my own opinion.—I am, Sir, &c.

H. W. EVE.

37 Gordon Square, W.C., June 24, 1902.

### THE EDUCATIONISTS' OPPORTUNITY:

"ONE GREAT UNION OF TEACHERS."

*To the Editor of the Educational Times.*

SIR,—Some years ago I heard Dr. Fairbairn deliver at Aberystwyth a striking address, in which he spoke of the unique opportunity that lay before the founders of the Welsh University, inasmuch that they had a free field and were not hampered by the dead hand of the past. Such an opportunity lies before English educators at the present moment. Everything educational is in the melting-pot, and it is theirs to take care lest they should have to repeat, in a somewhat different sense, Thring's caustic comment: "There came forth this calf." He has told us that "the skilled workman is the lord of all things on earth," and "that the foremost teachers of the English-speaking race are the most living creators of the life that is to be."

Believing that to be true, I wish to lay before your readers an idea that I trust may prove fruitful. The problem is "to make English education effective and to secure adequate power for teachers." To secure this requires union and sinking of differences. Yet each class of teachers seems to be setting up its own sectarian assembly and grinding its own axe. Thus the power of the teaching profession is weakened in the same way that Cyrus weakened the river Gyndes, by distribution into too many channels. And, if I may be pardoned the use of another metaphor, a thick tree has to be sawn through—the tree of opposition and indifference; to effect this there come little groups of woodmen whose axes only dint the roots, whereas one saw worked by steam would soon bring it down.

Cannot all the subdivisions lay aside their differences and unite to form one great union of secondary teachers, if not of all teachers? All teaching is at bottom one, as Prof. Laurie stated so emphatically before one Commission. The coming Register is another proof of the solidarity of the profession. Cannot the College of Preceptors or some other great body formulate a scheme for swallowing up the members of all minor bodies? Many advantages would follow. (1) The public would believe teachers to be in real earnest. (2) Every recommendation would carry many times the weight that a recommendation from a smaller body can carry. (3) Teachers would learn to regard the problems of the profession from a general rather than a particular standpoint. (4) It would be possible to secure good tenure by a determination on the part of such a united body to have it. (5) A really stable and general fund might be created—membership of this might be made compulsory—for paying annuities to assistants on retirement or to their widows when necessary.

When I consider (as a secondary teacher who has suffered many things) what the N.U.T. has accomplished for its members, I repeat:

O fortunati, quorum iam mœnia surgunt!

But, like Æneas, I look forward to "fines Italos fataliaque arva," where a mighty "imperium magistrale" will spring up and "debellare superbos."—I am, Sir, &c.,

The Endowed School, Watford, SOMERSET BATEMAN.

June 1, 1902.

[We comment on this letter in our "Notes."—ED. E. T.]

### THE ANNUAL CEREMONIAL: COLLEGE DIPLOMAS AND ACADEMIC COSTUME.

*To the Editor of the Educational Times.*

SIR,—Most people who have attended the annual distribution of prizes and certificates of the College of Preceptors must have been struck by the small percentage of graduates who attend to receive their diplomas. It is, of course, evident that many who live in the country find it impossible to be present; but I think there are many who might be induced to put in an appearance if they were specially requested by notice to do so. The ever-increasing number of teachers who take the College diplomas, and the recognition of the L.C.P. and F.C.P. as qualifications for registration, surely warrant a slightly more elaborate ceremony than the one at present in vogue. In this connexion it would be interesting to know why academic costume, for which elaborate regulations are laid down in the College Calendar, is not worn. Its adoption would at least add to the attractiveness of the distribution. I beg, then, to offer the following suggestions:—(1) That all teachers entitled to diplomas be requested to make a special effort to attend; (2) that graduates who have already received their diplomas be likewise made welcome; and (3) that academic costume be worn.—I am, Sir, &c.,

Collegiate School, Grimsby,

W. HUBERT COLLINS, A.C.P.

June 9, 1902.

[(1) This should scarcely be necessary, and, where necessary, would hardly be effective; still, it is a simple matter. (2) All are welcome, as of course. (3) The point will, no doubt, receive due attention.—ED. E. T.]

### THE TEACHERS' REGISTRATION COUNCIL:

THE REGISTRAR'S TENURE.

*To the Editor of the Educational Times.*

SIR,—I beg to enclose herewith a copy of a letter I have addressed to the Teachers' Registration Council. It seems to me that the system of tenure in that branch of the Board of Education should be clearly defined. For who will not consider it a scandal and a shame if the Registrar be dismissed summarily without appeal and without compensation, when he may be clearly in the right? And yet what is to prevent this if the system of tenure there resembles that of most, if not all, head masters of schools under schemes of the Charity Commissioners?—I am, Sir, &c.,

THOMAS ALLEN.

Woodbury, Malvern Link, June 13, 1902.

Mr. Allen's letter, dated June 7, is as follows:—

I have this morning under date of the 5th inst. received the following communication from South Kensington:—

"In reply to your letter of the 29th ultimo, I beg to inform you that I have not received instructions from the Teachers' Registration Council to make any statement on the subjects mentioned in your letter."

Now it seems to me that it should be known what is the system of tenure under the Registration Council. Accordingly I beg to ask (1) whether the Registrar will have to sign a declaration that he will acquiesce in his own dismissal should such be resolved upon; (2) whether he will be liable to summary dismissal without appeal and without compensation, when he may be clearly in the right; and (3) whether there is anything in the nature of automatic removal in your branch of the Board of Education.

I gather that primary teachers are on the high road to have a right of appeal. I rejoice thereat. Which of your body will now come forward and object to a similar boon being granted to teachers in endowed schools?

[It is well to be jealous on the question of tenure; but tenure in public schools seems to be on a materially different footing from tenure of this Registrarship. The signing of the declaration does not place the Registrar in a worse position; it simply prevents a misguided man from giving useless trouble to both parties. It is not easy to see how the Registrar can be clearly in the right if the Council decide that he is clearly in the wrong. In any case, he appears to be very amply guaranteed by the number and by the character—personal, representative, and public—of the Council.—ED. E. T.]

L.L.A.—One cannot go beyond the terms of the Order. Qualifications not inserted there are—for the present, at any rate—inadequate, however highly they may be esteemed elsewhere.

## MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.

A MEETING of the Council was held at the College, Bloomsbury Square, on June 14. Present: Rev. T. W. Sharpe, President, in the Chair; Rev. J. O. Bevan, Dr. Brcal, Mr. Brown, Mr. Butler, Mr. Charles, Miss Crookshank, Mr. Eve, Mr. Holland, Mr. Kelland, Mr. Pinches, Rev. Dr. Robson, Mr. Rule, Dr. R. P. Scott, and Mr. Storr.

The minutes of the last meeting were read and confirmed.

The Secretary reported an increase in the number of entries for the Certificate and Lower Forms Examinations, as well as in those for the forthcoming Diploma Examination.

He stated what steps had been taken to bring forward amendments to the Education Bill in the interests of secondary schools.

The report of the Literary Committee was adopted.

The draft report of the Council to the General Meeting was considered, and was referred to the President, Vice-Presidents, and Dean for final revision.

The following books had been presented to the Library since the last meeting of the Council:—

By the AUTHORS.—Barbier's *Sténographie Aimé Paris*; Findlay's *Principles of Class-Teaching*; Newsholme's *Hygiene and Public Health*; Leonard's *First Course of Chemistry*.

By E. ARNOLD.—The Australian Commonwealth; Hill's *Physiology for Beginners*; Kirkman and Field's *Arithmetic for Schools*; Wilson's *First Course in Analysis and Grammar*; Wolff's *Français pour les tout Petits*.

By BLACKIE & SON.—Blackie's *Narrative Histories, No. III.A.*; Illustrated *Continental Geography Reader (America)*; Atkins's *Skeleton German Grammar*; Blakener's *Milton's English Sonnets*; Davison's *Easy Mathematical Problem Papers*; Nall's *Xenophon's Anabasis, Book II.*; Schoedelin's *Selections from Chateaubriand's Les Martyrs*; Turnbull's *Racine's Les Plaideurs*.

By C. J. CLAY & SONS.—Ropes' *Erekmann-Chatrian's Madame Thérèse*.

By W. B. CLIVE.—Allcroft and Hayes's *Livy, Book XXI.*

By MACMILLAN & Co.—Andrew's *Greek Prose Composition*; Selby's *Burke's Thoughts on the Cause of the Present Discontents*.

By MATHCEN & Co.—Wilnot-Buxton's *Makers of Europe*.

Calendars of Queen's College, Galway; Aberdeen University; Edinburgh University.

Register of Veterinary Surgeons.

## REVIEWS.

## GERMAN ROMANTICISM.

"Main Currents in Nineteenth Century Literature." Vol. II.—*The Romantic School in Germany.* By George Brandes. (Heinemann.)

The second volume of Dr. Brandes's great work, originally published in 1873, now appears for the first time in an English dress. The date is important. The recent triumph of Bismarck's policy and the foundation of the new German Empire, the transformation of the Hamlet of Nations into the practical Fortinbras, were too fresh in the author's mind to allow him to adopt the strain:

Good night, sweet prince,  
And flights of angels sing thee to thy rest.

In a remarkable passage he points the contrast between realistic Germany, whose watchword is "In Reih' und Glied" (in ordered ranks), and the romantic Germany of the beginning of the century. It is, perhaps, not to be wondered at that he is somewhat unsympathetic in his treatment of the Romantics.

Reaction against the eighteenth century was characteristic of all Europe at the beginning of the nineteenth. In Germany the form that reaction took was determined by several causes. The popular literature, of which Kotzebue is a conspicuous example, was of a distinctly "Philistine" type. It roused the opposition, on the one hand, of Goethe and Schiller; on the other, of the romantic movement. That movement Dr. Brandes traces to a double source—the literary influence of Herder, Goethe, and Schiller, and the philosophical influence of Fichte. Herder's "theory of history excluded the idea of purpose." It was the opposite of

Yet I doubt not through the ages one increasing purpose runs.

Goethe, and less obviously Schiller, had, after the "storm and stress" phase of their youthful work, drifted further and further from the realities of modern life, and devoted themselves to artistic perfection of form. "Distaste for historical and present reality—in other words, subjectivism and idealism"—was in the air. Fichte, building on the foundation laid by Kant, had formulated his solution of the everlasting problem of the respective contributions to our knowledge of subject and object, of the thinking mind, and of external matter, in the "doctrine of a world-positing, world-creating Ego." As Carlyle puts it in his essay on "Novalis":

To a Transcendentalist, Matter has an Existence, but only as a

Phenomenon: were we not there, neither would it be there; it is a mere Relation, or rather the result of a Relation between our Living Souls and the great First Cause; and depends for its apparent qualities on *our* bodily and mental organs; having itself no intrinsic qualities; being, in the common sense of the word, Nothing.

Again, the widening gap between poetry and real life and the philosophical creed which magnified the individual and his intuitions, or what he believed to be his intuitions, tempted the enthusiastic and imaginative to drift back into the precepts of Aristippus:

Et mihi res, non me rebus, subiungere conor.

As in the previous volume, much space is devoted to the analysis and criticism of typical novels of the period. Among these is Fr. von Schlegel's "Lucinde," a book much discussed at the time, and the subject, among other criticisms, of Schlegel's "Briefe über die Lucinde." Dr. Brandes says of it:

Its main idea is to proclaim the unity and harmony of life as revealed to us most clearly and most comprehensibly in the passion of love, which gives a sensual expression to the spiritual emotion, and spiritualizes the sensual pleasure. What it aims at depicting is the transformation of real life into poetry, into art, into Schiller's "play of powers," into a dreamy imaginative existence, with every longing satisfied, a life in which man, acting with no aim, and living for no purpose, is initiated into the mysteries of Nature.

The keynote of the book is: "Industry and utility are the angels of death with the flaming swords, who stand in the way of man's return to Paradise." That, says Dr. Brandes, is the Paradise that lies behind us, and hence the fruitlessness of the whole movement.

The most attractive figure among the Romanticists is Novalis, so lovingly depicted for us by Carlyle, the mystic *par excellence*, who preferred night to day, sickness to health, and whose personal charm and early death combined with the undoubted beauty of his writings to shed a poetic halo round his memory. His unfinished novel, "Heinrich von Ofterdingen," with its famous quest of the "Blue Flower," is intended to be the counterpart and refutation of "Wilhelm Meister." His criticism of that work clearly shows his point of view.

Goethe is an altogether practical poet. His works are what English wares are, simple, neat, suitable to their purpose and durable. . . . He has, like the Englishman, a natural sense of order and economy, and an acquired sense of what is pure and noble. . . . "Wilhelm Meister's Lehrjahre" is, in a way, altogether modern and prosaic. Romance perishes in it, and so does the poetry, the magic quality, of nature. . . . Artistic atheism is the spirit of the book. "Wilhelm Meister" is a "Candide" directed against poetry.

To "Wilhelm Meister" Novalis preferred "Sternbold," written by Tieck, with the help of Wackenroder's posthumous papers. An essay of his, entitled "Christendom in Europe," shows to what lengths he was carried. In it he denounces Protestantism and every form of free thought, and actually applauds the Pope's condemnation of Galileo, on the ground that, if men realized that the earth was but an insignificant planet, "they would lose, along with their respect for their earthly home, respect for their heavenly home and their fellow-men."

A few more points must be very briefly noticed. The long self-discipline which enabled A. W. von Schlegel to naturalize—if one may use the word—Shakespeare in Germany is admirably described. Jean Paul, "in many ways the forerunner of Romanticism," is represented as uplifting, in "Titan," "a warning voice against its futile, demoralizing tendency." There is an interesting chapter on the efforts of the school to merge poetry and music in each other.

They tried to make word-music, much as the prose authors of our own day try, with more or less success, to make word-pictures.

It will be remembered with what care Lessing sought to draw the line between poetry and painting. In this connexion we might, one is disposed to think, have been excused the somewhat truculent criticism:

When the mist is so thick that it can be cut with a knife, the Romanticists cut it into fourteen pieces and call it a sonnet.

Ste. Beuve would have expressed himself differently. Other chapters deal with the unreality of the Romantic treatment of Nature, and with their partiality for *Doppelyüngerer*, or the appearance to a person of an apparition of himself. Further on, Arnim and Brentano are discussed, the compilers of "Des Knaben Wunderhorn," that collection of old German popular poetry which has exercised such a far-reaching influence. Both were thorough-going Romanticists; but Arnim was almost the only one of the school who never dallied with the fascinations of Catholic-

ism, and Brentano proved to be the pioneer of the novel of peasant life, familiar to us in the pages of Immermann and Auerbach. The tragic story of Heinrich von Kleist is used to point the moral of the whole book.

We shall see, says Dr. Brandes, how the clearness, the definiteness, which was the natural quality of his genius, was disturbed and deranged by the poetical insanity of Romanticism.

But he does acknowledge his genius. Kleist is, indeed, reckoned among the Romanticists; but, as Von Treitschke points out, he is too great and too original to be catalogued under any class-name. Lastly is traced the influence of the movement on the War of Liberation, "a war for hearth and home, but waged at the command of the old dynasties."

#### HANDBOOK TO CHAUCER.

*The Language and Metre of Chaucer.* By Ten Brink and Kluge. Translated by M. Bentinck Smith. (Macmillan.)

The original edition of this book was brought out by Prof. Ten Brink in 1884, with the assistance of his friend, Prof. Kluge, and was, as the former says in his preface, the result of several years of study. The second edition appeared in 1899, some years after the death of Ten Brink, and was edited by Prof. Kluge, who introduced very little alteration of any kind. He also took much interest in the present translation made by Miss Bentinck Smith, and assisted her with many helpful suggestions. This translation is particularly valuable, as rendering accessible to a far wider circle of English students the results obtained by patient investigation and indefatigable research of one that was eminent both for his scientific grasp of philology and his masterly appreciation of the works of Chaucer. With this book before us, we realize that in this particular aspect of Chaucer-study the accuracy and thoroughness of the work cannot be surpassed, and that the conclusions reached are, therefore, perfectly trustworthy and reliable.

The main subject of the brief introduction is the influence of Chaucer upon English literature and language, more especially English dialect and metre. The treatise following takes up the three points of phonology, accent, and the structure of verse and stanza.

In the phonology, the vowels are first discussed, with regard to their quality (timbre), quantity (duration), and accent (stress), which are mutually interdependent. Lists are then given of Germanic vowels, which are classed according to quantity: *i.e.*, as short, long, and variable. The sources of each, and the different forms under which they appear in Chaucer, are also fully examined, while notice is further taken of diphthongs. A careful summary of this part traces the history of the Old English vowels, so far as they are represented in Chaucer's dialect. A short account of unaccented vowels is followed by a classification of romance vowels dependent on accent. Of these, three classes are distinguished: those with a tonic, a pre-tonic, and a post-tonic accent. In a similar manner the writer discusses the consonants of Chaucer, under the heading of "Labials, Linguals, Palatals, and Gutturals," first pointing out how a lengthening of the consonant became general in the change from Old to Middle English. Special notice is taken of the voiced and voiceless *s*.

In the accent, the verb is first studied, with regard to its tense-formation, and the characteristic forms of the strong and weak verbs are considered. Other points discussed are the inflexion of the various tenses and the formation and inflexion of the anomalous verbs. In treating of the substantive, the vocalic and consonantal inflexions of Old English nouns are carefully distinguished. With regard to the romance substantives, stress is laid upon the connexion between those used in Chaucer and in Old English. The adjective and pronoun are similarly reviewed.

In the chapter on "The Structure of Verse and Stanza," Section I., on prosody, deals with the treatment of the weak *e*, syncope, apocope, &c. Section II., on accent and stress, discusses the accentuation of Germanic and Romance words. In the section on the various forms of metre and their structure, the normal short line and the heroic couplet are fully analyzed, while the history of the latter and its use prior to Chaucer are given. Finally, the subjects of rime, alliteration, and the stanza are carefully considered. It is hoped that this brief analysis will to some extent indicate the value and scope of a work that ought to be in the hands of every earnest student of Chaucer.

#### METHUEN'S SHAKESPEARE.

*The Tragedy of Julius Cæsar.* Edited by Michael Macmillan. (Methuen.)

Spaciously printed and got-up, and edited with scholarly refinement and discretion, the present addition to Messrs. Methuen's handsome series of "The Works of Shakespeare" will be cordially welcomed. The introduction stands out from the multitudinous editions of this favourite play both in literary appreciation and in analytical keenness. The presentation of the argument for the determination of the date of composition exhibits an educative example in sound method. At first one tends to feel impatient with Mr. Macmillan's detailed consideration of the view that the hero of the play is Brutus; but, after all, one comes to acknowledge that the wisest course is to argue it step by step out of the field. The most distinctively able section, we are inclined to think, is the examination of Shakespeare's handling of the character of Cæsar, in comparison with the general historical facts and with the particular statements that the author found in Plutarch—a luminous contribution to the analysis and to the justification of the dramatist's method. Of similar quality, though on a lower plane of importance, is the discussion of the minor characters, and especially of Brutus and Cassius. Mr. Macmillan, we think, is not so sure-footed when he comes to the criticism of Shakespeare's representation of that "collective personage," the mob. The poet, he says, "deliberately goes out of his way"—that is, departs from Plutarch's account—to add a "touch of wanton injustice to the character of the Roman mob," in the case of the murder of Cinna; but, for all that, the poet need not be dramatically wrong; and what Mr. Macmillan has already said on the subject rather tends to show that the poet is dramatically right.

The blunt monster with uncounted heads,  
The still-discordant wavering multitude—

is not the description perfectly just? There is undoubtedly "unpittiful frankness" in Casca's contempt for "the rabblement," but is it not consonant with the "rudeness" of this "blunt fellow" (i. ii. 300-305)? There does not seem to us to be any unnecessary conflict between Casca's disgust with "the rabblement" and Carlyle's "Two men I honour, and no third." In any case, the deepest sympathy with the lower classes is not inconsistent with revulsion at the gratuitously uncleanly and untidy habits of too many of them. For the rest Mr. Macmillan handles effectively Shakespeare's process of idealization and his re-arrangement of his materials in more effective combinations, and he examines minutely the dramatic compression of events. The reprint of the principal passages from North's "Plutarch," forming the basis of the play, is a useful adjunct, but it had better have been placed under a separate heading. Practically it is no matter, but, in a literary point of view, the introduction is felt to end weakly, tailing off into a string of extracts.

The notes, critical and literary, run mainly at the bottom of the page. They are conspicuously judicious, whether selected or original; and they throw a full and steady light upon the dark and dim places of the text. Fortunately, Mr. Macmillan has "not had the temerity to suggest many new readings"; still less has he had the rashness to make innovations on the text. He is wisely conservative in this respect; his suggestions do not point to success in the difficult enterprise of conjecture. He seems clearly right in placing a dash at the end of iv. iii. 5, thus at once saving the reading of the Folios and illustrating a characteristic of Brutus. We cannot argue the points now, but we do not like any of his half-dozen suggestions, except those on iii. i. 39 and iii. ii. 118. His laudable attempt to explain the usual reading in iii. i. 174-5 is worth further consideration; but the interruption of the easy flow of Brutus's speech by such a ragged boulder does incline one to be content with Capell's emendation. Some good longer notes are relegated to an appendix. One closes the book with real satisfaction, and with the belief that every serious student of the play will be grateful to Mr. Macmillan for his able and discreet guidance.

#### FIGURES MADE CLEAR.

*The Tutorial Arithmetic.* By W. P. Workman, M.A., B.Sc., assisted by R. H. Chope, B.A. (Clive.)

This volume cannot fail to take a good place amongst the best text-books on the subject. It is an excellent addition not only to the "University Tutorial Series," but to arithmetical class books in general. There is undoubted evidence throughout—though, perhaps, even more especially in the non-commercial portion of the book—that the work has been produced by masters of the

subject and able teachers. The clearness of the explanations of the theory, the directness of the language, and the fitness of the definitions are extremely satisfactory. The volume is, perhaps, primarily intended for students enjoying the additional advantages of oral instruction; but it is also very suitable for purposes of private study. The best methods of setting out work are sufficiently indicated in the large number of illustrative examples, and there are frequent and valuable observations bearing on details in the treatment of problems and on the errors that students are specially liable to fall into. In the demonstration of the theory of many of the processes there are placed side by side purely numerical examples and examples with letters as types of number generally; and it may be noted that the gain in generality is obvious, while no knowledge of algebra is required in order that the majority of the latter examples may be thoroughly understood. At the close of the book a short and very interesting chapter on Congruences is introduced, and the principles are then applied to the discussion of portions of the theory of Recurring Decimals. The volume contains a very large number of exercises, and the authors believe that the final series of problems is an exceptionally difficult collection. The text appears to have been very carefully passed through the press, but there is on page 341 (Art. 210, last paragraph but one) an evident and rather important misprint.

## GENERAL NOTICES.

### CLASSICS.

"Murray's Home and School Library."—*Plato's Republic*.

By Lewis Campbell, M.A., LL.D.

A charming introduction and companion to the "Republic." Dr. Campbell writes with fulness of knowledge and thought, and with a mind eagerly attentive to modern aspects of the matters dealt with by Plato. His object, he explains, is twofold: "partly to explain some aspects of the dialogue, in which elucidation seems to be required, at least for beginners; but partly also to indicate some ways in which the spirit of the author of the 'Republic,' when duly 'unsphered,' may without violence be fruitfully applied to modern life, notwithstanding the extreme difference both of real and imaginary circumstances." Education being, in Plato's view, "the pivot article of a standing or falling commonwealth," educational theory occupies about one-third of the whole dialogue; and on this aspect Dr. Campbell brings to bear a prolonged and mature experience, as well as ripe scholarship and knowledge of the world. Referring to two minor principles that Plato insists on—that subjects should be classified and graduated according to the pupils' ages, and that the earliest lessons should be accompanied with enjoyment—he asks: "Have not both these rules been violated by our public-school system—promoting cram and gerund-grinding between eight and twelve, and depriving the more arduous studies of the fresh interest that might else attend them if commenced when the mind has been prepared to profit by them?" The illustrations are interesting and useful. Dr. Campbell writes "Plato" and "Zeno," the "Euthyphro" and the "Meno," but "Glaucou" as well as "Solon," and "Heraclitus," but "Adeimantus." Why not have the courage to call men uniformly by their own names?

"Macmillan's Greek Course."—*Greek Prose Composition*.

By S. O. Andrew, M.A.

Mr. Andrew limits himself to the mature Attic, so as to avoid "Baboo" Greek. Assuming accidence and syntax, he throws his strength upon "analysis and the resulting comparison of idioms," with a view to the study of the language "as rhetoric, as an instrument of expression." The introduction (58 pages) selects a variety of grammatical and rhetorical points for detailed illustration; then come 187 exercises in the different forms of composition, with brief notes of suggestion; and a vocabulary is appended. The remarks introductory to the several divisions might have been extended with advantage; and the two or three specimen translations suggest the prospect of a "key." The exposition, selection, and annotation indicate alike thorough care and competent scholarship. The book will make a place for itself in the crowd.

(1) *Schüler-Kommentar zu H. S. Sedlmayers Ausgewählten Gedichten des P. Ovidius Naso*. Second edition. Von K. A. Schwertassek. (Williams & Norgate, for G. Freytag, Leipzig.) (2) *Wörterverzeichnis zu derselben*. Von H. Jurenka. (Same publishers.)

Dr. Schwertassek has made three essential alterations on his first edition. He has largely extended the practice of indicating the construction; he has thrown out all references to a grammar; and he has necessarily dropped the references to Dr. Sedlmayer's section on poetical peculiarities, which no longer appears in the edition of the text. The notes are quite elementary and very full—overdone, we should say. Dr. Jurenka's "Wörterverzeichnis" is adequate and careful; but why a special dictionary at all?

*A First Latin Course*. By E. H. Scott and F. Jones. (Blackie.)

The reformed methods of modern language teaching have evidently influenced the writers of this course. There is plenty of repetition, and of conversational practice; and oral exercises in supplying terminations, like "Romani insulam vast—," form a considerable part of it. Another feature is the addition to the several lessons of short Latin proverbs in black type intended for learning by heart. There are also a few pieces for reading. The vocabularies are arranged according to the lessons, and an index of English words refers the pupil back to the exercise where each occurs. There are arguments against this plan as well as in favour of it.

### MATHEMATICS.

*Longmans' Complete Arithmetics: Mental and Practical, Course B.—Books IV.—VII.*

The successive books satisfy the requirements of the latest Code of Regulations for the successive standards of day schools, and in some cases the range of the volume is rather wider than that absolutely demanded. The small quantity of text is good; but the task of explanation is practically left to teachers. The sets of exercises are divided into similarly graduated sections with a view to enabling teachers of large classes to ensure among their pupils, at every stage, independent work of an even character. The answers to the exercises contained in each book are issued in a separate companion volume.

*Blackie's Three-Division Arithmetic.*

A good series of three little books, written specifically for the use of "small elementary schools," and covering the whole of the necessary school course. A preliminary page, besides giving other useful hints to teachers, indicates the limits of time within which average pupils should be able to master the contents of the several volumes, and points out how any extension of the school career of an individual pupil may be used with advantage to ensure greater proficiency in arithmetic, and possibly a wider knowledge of it. By far the greater number of exercises deal with questions of a concrete character, and are thus the more likely to awaken the interest of children. There is a minimum of text. The introduction to vulgar fractions is particularly good. In discussing averages, the author notes the curious origin of the word, and apparently implies that the true meaning of it is "loss by sea." The best authority is against that view, and, in any case, where is the good of starting etymological conundrums in such a place? Occasionally a slight want of clearness is noticeable in the wording of a sentence, but such defective expression is exceptional.

### MODERN LANGUAGES.

*Trois Comédies (A. de Musset)*. Edited by K. McKenzie, Ph.D. (Heath.)

A convenient edition of "Fantasio," "On ne badine pas avec l'amour," and "Il faut qu'une porte soit ouverte ou fermée." In a dozen pages Dr. McKenzie summarizes the main events of De Musset's life, and indicates his chief works; and he adds some pages of notes, which are barely sufficient for the purpose of elucidating the text and give the impression of having been written in a hurry.

*La Jeune Sibérienne (Xavier de Maistre)*. Edited by W. G. Etheridge. (Blackie.)

We regret that the editor did not annotate some more novel and interesting and really French tale. His notes on grammar and on subject-matter alike are very good indeed; not so the vocabulary, which is incomplete, and should be overhauled at once.

*Cinq Scènes de la Comédie Humaine (H. de Balzac)*. Edited by B. W. Wells, Ph.D. (Heath.)

To the mature student these scenes will be of interest, as showing some aspects of Balzac's work; for class-reading the book is quite unsuitable. The first *scène* is a tale of madness; the second of murder; the third is tainted by insinuations against the heroine; the fifth introduces the figure of Christ in a highly poetic fashion; and there is only the fourth remaining, which has been edited before, and is fairly well known—the "Episode sous la Terre." The notes are adequate, but it is a little surprising to find no note on *saute, marquis!* in the third line of page 1, nor on *d'honneur* (page 4, line 23); to learn that Swabia is part of Bavaria (page 197); and to find Prosper called Caspar (page 198). It is more than surprising to meet with such a fatuous remark as this: "That a French girl should blush at such lying marks her as a person of exceptionally ingenuous candour."

*Commercial French, Part II*. By W. M. Poole and M. Becker. (Murray.)

With regard to this second part, there is no need to say more than that it is as good as the first, and that any one teaching or learning French for commercial purposes should study it at once. It is the best book of its kind that we have yet seen. Reform method teachers will be particularly grateful for it.

*L'Arrabbiata, and Hochzeit auf Capri (Paul Heyse)*. Both edited by Dr. W. Bernhardt. (Heath.)

Much as we admire Heyse as a writer of short stories, and of "L'Arrabbiata" in particular, we do not think that Dr. Bernhardt was well advised in following the extraordinary suggestion of the New

England Commission on Text-Books for Preparatory Schools, which recommended Heyse's novels as "pre-eminently suitable for students preparing for entrance to college" (i.e., a secondary school). "L'Arrabbiata" is a tale of passion, a tale of Italy; to make it a peg for elementary grammar is sinful. The "Hochzeit auf Capri" also has an Italian scene, about which the editor speaks in fervid terms in his introduction, and a very slight plot, little likely to interest our pupils. The notes are sufficient, but occasionally somewhat pedantic in tone; the vocabularies are practically complete.

## ENGLISH.

*Emerson's Essay on Beauty.* Edited by Susan Cunningham. (Speight.)

Miss Cunningham treats Emerson's essay as "a class study in English composition." One cannot but doubt whether she might not have selected a more fruitful piece, in point both of matter and of style. We suspect this essay is rather beyond the powers of "upper forms in schools," whatever "private students" may make of it. However, it represents a laudable aspiration. Miss Cunningham takes "English composition" in a tolerably wide sense. Among her questions are these: "Where do you find the earliest mention of a treatise on plants and flowers?" "What differences of character might be expected in the residents of (a) Naples; (b) Northwich; (c) Bedford; (d) the hospice of St. Bernard; (e) Tunbridge Wells?" "What are the points which you would observe in a loaf of bread before determining whether it is beautiful?" "What of the 'realistic drama' and the 'Lord Mayor's Show' as satisfying the idea of appropriateness?" We should like to see our leading literary men answer such questions. And "when is 'parallel to,' and when 'parallel with,' correct." Well, when? Miss Cunningham is really more concerned with the thought and the facts than with the "composition," and with the composition in the highest rhetorical sense than with the mechanics of style. "Since it is comparatively easy to mistake fault-finding for criticism, the method of pointing out the author's peculiarities, tricks of style, and 'faults' is purposely avoided." That is to say, one of the most effective means of turning the subject to account for the end in view is deliberately neglected on a mere fancy. You cannot teach "English composition" without a standard and without bringing your subject to the test of that standard. Yet the idea of the "study" is elevating, and the treatment is earnest and suggestive.

*A Text-Book of Applied English Grammar.* By Edwin Herbert Lewis, Ph.D. (Macmillan.)

Prof. Lewis believes "that elementary oral correctness and an elementary sentence-sense should be the first objects of grammar study." By precepts and oral exercises he labours to inculcate correctness, chiefly in the use of verbs. The greatest bugbear is the universal "ain't." "Every grammar class should be an anti-ain't club"—that is, in Chicago and the region round about. Another prominent outsider is *wa'n't* (wasn't). "Brung," we learn, "is a vulgarism"; "I done" is a bad vulgarism; so is "has rose"—we miss the classic "riz." But really there is very little for English schools in this section, except the proper use of "lie" and "lay." The second section of the book is an elaborate inculcation of the main elements of a sentence—simple, complex, and compound, especially with a view to getting the punctuation right. The end does not justify the means. Teach the proper thing at the proper time, and seven-tenths of this appalling drudgery of exercises should be quite unnecessary.

## HISTORY AND GEOGRAPHY.

Pitman's Commercial Series.—*Commercial History.* By J. R. V. Marchant, M.A. (Pitman.)

The first half of this book consists of a very interesting historical sketch of ancient and mediæval commerce. The valleys of the Euphrates, the Tigris, and the Nile have afforded contemporary records of commercial and industrial activity existing nearly six thousand years ago. From the commerce for which rivers form the high road we pass to the commerce of the narrow seas, to the story of the Phœnicians, Greeks, and Romans, and thence to the period of the middle ages, to the story of the Italian, Flemish, and German towns. This is followed by an excellent sketch of English commerce, manufactures, and commercial legislation from the time of the Normans to that of the Tudors. An account of the beginning of oceanic navigation, of the great explorers and discoverers from Columbus to Drake and Hudson, introduces some interesting details about the commencement of trade with Russia, Africa, and the Indies, and the origin of the first trading companies. The latter part of the book is hardly so satisfactory, partly through the greater complexity of the subject in modern times, partly because the division of the matter under a great number of different headings tends rather to interfere with the narrative and change the work into a sort of dictionary of subjects. Many of these subjects are adequately treated, but the exigencies of space have caused others to be unduly curtailed, and in one or two cases not to be brought quite up to date.

*Problems and Exercises in English History (1399-1603): A Revision-Term Course, containing Sixty Typical Questions, . . . with full Answers, &c.* By J. S. Lindsey. (Cambridge: Heffer & Sons.)

This is a *multum in parvo*, calculated to be useful to the historical

student—though the answers to examination questions rather suggest the competitive student. Mr. Lindsey's knowledge is extensive, and his *brochure* is not uninteresting in form if regarded as a practical book for the teaching of history.

## MISCELLANEOUS.

*The College Student and his Problems.* By James H. Canfield, LL.D. (Macmillan.)

Dr. Canfield is Librarian of Columbia University, and he has been in succession Chancellor and President of two other American Universities. He brings to his task, therefore, the ripe wisdom of years and varied experience. We fear, however, that the conditions of University life are so totally different in the States that our English youth is not likely to profit directly by Dr. Canfield's sage counsels. To the general reader the most interesting part in the volume is the appendix on expenses. The estimated cost of a year of college life (excluding clothes and travelling and vacation expenses) varies from a minimum of £22 in the Ohio State University to a maximum of £166 at the Columbia State University. Seeing that the cost of living is generally far higher in the States than in England, the first figures seem almost incredible. It is interesting, also, to learn that the best business firms in the States give the preference to graduates, and that Horace Greeley's jibe ("No college graduate or other horned cattle need apply") is quite out of date. This is borne out by what Mr. Carnegie told us the other day. The managers and superintendents of all the departments of his vast business have, almost without exception, gone through a regular University or polytechnic course.

## FIRST GLANCES.

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**MATHEMATICS.**

**15032.** (R. KNOWLES.)—In DE MORGAN'S *Calculus*, p. 257, the following examples are given:—

$$2 \cdot 3 \cdot 4 + 3 \cdot 4 \cdot 5 + 4 \cdot 5 \cdot 6 = \frac{4 \cdot 5 \cdot 6 \cdot 7 - 1 \cdot 2 \cdot 3 \cdot 4}{4} = 204;$$

$$2 \cdot 3 + 3 \cdot 4 + 4 \cdot 5 + 5 \cdot 6 = \frac{5 \cdot 6 \cdot 7 - 1 \cdot 2 \cdot 3}{3 \cdot 1} = 68.$$

Show that these results can be obtained by means of the coefficients in the expansion of  $(1-x)^{-n}$ .

*Solutions* (I.) by J. PRESCOTT, B.A.; (II.) by T. PRELLE, A.I.A., and A. W. POOLE, B.A.

(I.) We have  $(1-x)^{-n} = (1-x)(1-x)^{-(n+1)}$ ,

$$\text{or } 1 + nx + \frac{n(n+1)}{2!}x^2 + \frac{n(n+1)(n+2)}{3!}x^3 + \dots$$

$$= (1-x) \left\{ 1 + (n+1)x + \frac{(n+1)(n+2)}{2!}x^2 + \frac{(n+1)(n+2)(n+3)}{3!}x^3 + \dots \right\}.$$

Hence, equating the sum of the coefficients of the powers of  $x$  up to  $x^r$ ,

$$n + \frac{n(n+1)}{2!} + \frac{n(n+1)(n+2)}{3!} + \dots + \frac{n(n+1)\dots(n+r-1)}{r!} = \frac{(n+1)(n+2)\dots(n+r)}{r!} - 1.$$

By putting  $n = 4, r = 3$ , we get the first result, and by putting  $n = 3, r = 4$ , we get the second.

(II.) Let  $S = \sum_{\beta=0}^{\beta=r-1} (p+\beta)(p+\beta+1)(p+\beta+2)\dots(p+\beta+m-1)$ .

Now, since the coefficient of  $x^m$  in the expansion of  $m!(1-x)^{-n}$  is  $n(n+1)\dots(n+m-1)$ ,

$$S = \text{the coefficient of } x^m \text{ in the expansion of } m! \sum_{n=p}^{n=p+r-1} (1-x)^{-n},$$

$$\text{i.e., in } m!(1-x)^{-(p+r-1)} \frac{1-(1-x)^r}{1-(1-x)}.$$

$$\text{Hence } S = \text{the coefficient of } x^{m+1} \text{ in } m! \left[ \frac{(1-x)^{-(p+r-1)} - (1-x)^{-(p-1)}}{1-(1-x)} \right] = \frac{(p+r-1)(p+r)(p+r+1)\dots(p+r+m-1) - (p-1)p(p+1)\dots(p+m-1)}{m+1}.$$

Putting  $p = 2, m = 3, r = 3$ ,

$$S = 2 \cdot 3 \cdot 4 + 3 \cdot 4 \cdot 5 + 4 \cdot 5 \cdot 6 = \frac{4 \cdot 5 \cdot 6 \cdot 7 - 1 \cdot 2 \cdot 3 \cdot 4}{4} = 204.$$

Putting  $p = 2, m = 2, r = 4$ ,

$$S = 2 \cdot 3 + 3 \cdot 4 + 4 \cdot 5 + 5 \cdot 6 = \frac{5 \cdot 6 \cdot 7 - 1 \cdot 2 \cdot 3}{3} = 68.$$

**14780, 15012, 15062.** 14780.—(Rev. J. CULLEN.)—A given line cuts the circumcircle in P and Q. Prove that (1) the asymptotes of the isogonal transformation of PQ are at right angles to the SIMSON lines of P and Q. (2) If PQ passes through the circumcentre, then the asymptotes are the SIMSON lines. (3) If PQ be  $\Sigma a\lambda = 0$  and  $(p, q, r)$  the trilinear coordinates of P (or Q), then the asymptotes are of the form  $\Sigma \alpha \lambda p^2 = 0$ .

15012. (Professor SANJANA, M.A.)—Let P be any point on the circum-circle of ABC; draw a chord QR of the circle perpendicular to the SIMSON line of P; then PR shall be perpendicular to the SIMSON line of Q, and also PQ to that of R. Prove also that these three lines concur at the point midway between the ortho-centres of the triangles PQR and ABC.

15062. (Professor SANJANA, M.A.)—On the circum-circle of a triangle ABC a fixed point P is taken, and QR is a chord of the circle parallel to the SIMSON line of P: prove that PR is parallel to the SIMSON line of Q, and PQ to that of R. The triangle formed by the three SIMSON lines is homothetic to the triangle PQR: find the locus of the homothetic centre as QR moves parallel to itself.

*Solutions* (I.) by C. E. YOUNGMAN, M.A.; (II., 15012), by R. F. DAVIS, M.A.; (III., 15012), by H. W. WEBSTER, M.D., and S. CONSTABLE.

(I.) For 15012, see Question 14613, Vol. LXXV., p. 107. In the figure for it, take P diametrically opposite to P; its pedal line will be perpendicular to that of P, and therefore parallel to QR; and pQ, pR are perpendicular to PQ, PR—i.e., parallel to the pedals of R and Q; so that the triangle pQR exhibits the properties of Question 15062, first part. For the second, the pedals of p, Q, R bisect Hp, HQ, HR at L, M, N (H being the orthocentre of ABC), and they are parallel to the sides of LMN; therefore they form a triangle p'Q'R' with sides double those of LMN, or equal to those of pQR. Hence the homothetic centre bisects pp'. And when QR moves parallel to itself p' describes the pedal of P; therefore the locus required is the straight line half way between this pedal and p.

Call P', Q' the points isogonal to P, Q; they are at infinity, so that the asymptotes of the hyperbola ABCP'Q' (the isogonal transformation of PQ) are the tangents at P', Q', and are parallel to AP', AQ'.—Now, whatever the position of P, AP' is perpendicular to one of the sides of the pedal triangle of P; hence the first part of 14780. In part (2) the hyperbola is rectangular, passing through H; and its centre O is on the nine-point circle; therefore R, diametrically opposite to H, lies on the circum-circle. Hence the isogonal of R is at infinity and on PQ; therefore the pedal of R is perpendicular to PQ. Consequently (by 15012), since R is the orthocentre of PQR, the pedals of P and Q meet at O; and each, being perpendicular to one asymptote, coincides with the other. Thirdly, the line joining the isogonals of two points  $(\alpha_1\beta_1\gamma_1)$  and  $(\alpha_2\beta_2\gamma_2)$  on  $\Sigma a\lambda = 0$  has evidently the equation  $\Sigma \alpha a_1 \alpha_2 \lambda = 0$ . Hence the equation of the tangent at P' is  $\Sigma \alpha p^2 \lambda = 0$ .

(II.) If Pp be the chord of the circum-circle perpendicular to BC, the SIMSON line of P is parallel to Ap, and bisects the join of P to the ortho-centre H (MILNE and DAVIS, p. 52). Then, since Pp, BC are perpendicular,

$$\begin{aligned} \text{arc BP} + \text{arc Cp} &= \text{semi-circumference,} \\ &= \text{arc AQ} + \text{arc Rp,} \end{aligned}$$

since Ap, QR are perpendicular; hence

$$\text{arc BQ} = \text{arc AP} + \text{arc CR};$$

which it will be similarly found is also the condition for RP being perpendicular to the SIMSON line of Q, &c.

Let K be the orthocentre of PQR. The SIMSON line of P bisects PH and is perpendicular to QR, or parallel to PK. It therefore bisects HK.

(III.) Let pp, the SIMSON line of P, meet qq, the SIMSON line of Q, in F; QR cut pp at right angles in E, and PR cut qq in D. By a well known theorem the SIMSON lines of P and Q must meet at the same angle subtended by the chord PQ on the circumcircle; therefore

$$\angle DFE = \angle PRQ;$$

therefore FERD is a cyclic quadrilateral; therefore

$$\angle FDR = \text{right angle, being supplementary to FER.}$$

Let O' be the orthocentre of PQR. Then QR is perpendicular to PO'. Therefore PO' is parallel to pp. By a well known theorem the SIMSON line of P bisects the line PO, if O be the orthocentre of ABC. Therefore pp bisects OO'. Similar results follow by using the SIMSON line of R in the first theorem, and the SIMSON lines of Q and R in the second.

**15097.** (H. BATEMAN.)—PP', QQ' are two pairs of isogonal conjugate points. PQ, P'Q' meet in R; P'Q, P'Q' meet in R'. Prove that R and R' are isogonal conjugate points.

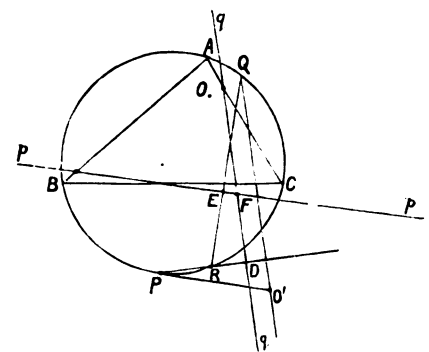
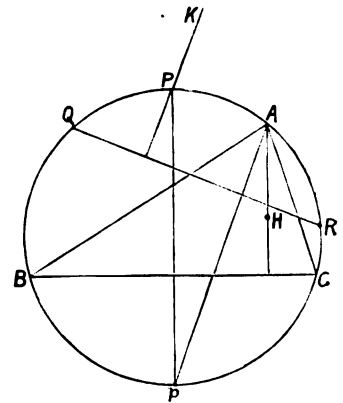
*Solution* by Professor SANJANA, M.A.

Let P, Q, R have the coordinates  $(a_1b_1c_1), (a_2b_2c_2), (a_3b_3c_3)$  respectively; then their isogonal conjugates P', Q', R' will be  $(a_1^{-1}b_1^{-1}c_1^{-1}), (a_2^{-1}\dots), (a_3^{-1}\dots)$  respectively. Also let PQR, P'Q'R' be straight lines; then the determinants  $(a_1b_2c_3)$  and  $(a_1^{-1}b_2^{-1}c_3^{-1})$  are each zero. It can then be shown that the determinants  $(a_2^{-1}b_3^{-1}c_1)$  and  $(a_3^{-1}b_1^{-1}c_2)$  are each zero; hence the points Q', R', P are in a straight line, and so also are R', P, Q. From which the proposition follows.

**15047.** (Rev. Prebendary W. A. WHITWORTH, M.A.)—Prove that the lowest value of N for which the equation  $x^2 + 3y^2 = N$  has 24 solutions in positive integers, zero excluded, is  $N = 214396$ . [The Proposer desires to withdraw Quest. 14998, as the statement made is true only in a restricted sense.—EDITOR.]

*Solutions* (I.) by R. W. D. CHRISTIE; (II.) by Lt.-Col. ALLAN CUNNINGHAM, R.E.

(I.)  $N = 214396 = 2^2 \cdot 7 \cdot 13 \cdot 19 \cdot 31$ . The primes 7, 13, 19, 31 are each of form  $3M + 1 = a^2 + 3b^2$ . Now, by an extension of EULER'S



theorem, we have  $(a^2 + nb^2)(c^2 + nd^2) = (ac \pm nbd)^2 + n(ad \mp bc)^2$ , and four other forms, making six in all, and  $n = 3$ ; we easily deduce

$$7 \times 13 = 8^2 + 3 \cdot 3^2 = 4^2 + 3 \cdot 5^2 = (\frac{1}{2} \cdot 7)^2 + 3 \cdot (\frac{1}{2} \cdot 3)^2 = (\frac{1}{2} \cdot 13)^2 + 3 \cdot (\frac{1}{2} \cdot 3)^2$$

$$19 \times 31 = 17^2 + 3 \cdot 10^2 = 1^2 + 3 \cdot 14^2 = (\frac{1}{2} \cdot 19)^2 + 3 \cdot (\frac{1}{2} \cdot 10)^2 = (\frac{1}{2} \cdot 31)^2 + 3 \cdot (\frac{1}{2} \cdot 10)^2$$

Therefore  $N =$  the following twenty-four solutions, where, for brevity, 452, 58 means  $N = 452^2 + 3 \cdot 58^2$  :—

- even 452, 58; 92, 262; 436, 90; 164, 250; 268, 218; 236, 230; 428, 102; 412, 122;
- odd 439, 85; 347, 177; 313, 197; 139, 255; 353, 173; 83, 263; 457, 43; 293, 207; 461, 25; 193, 243; 463, 3; 227, 233; 367, 163; 61, 265; 389, 145; 23, 267.

N.B.—All the odds are obtainable from the evens by an obvious rule, and, since every  $P_{3m+1}$  produces the three forms  $3A^2 + B^2$ ,  $[\frac{1}{2}(3A \mp B)]^2 + 3[\frac{1}{2}(A \pm B)]^2$ , one integral and two fractional, it follows immediately that the product of  $n$  similar primes equals  $2^{n-1}$  integral and  $2^n$  fractional values; consequently when  $N$  contains a factor 4 (or  $4^m$ ) the fractions disappear. In this case we get for the primes alone 8 integral and 16 fractional, and, multiplying by 4, we obtain by a second method the above 24 integral values.

(II.) It is known that a number  $N$  which has several partitions of form  $(x^2 + 3y^2)$  must be composite and must consist of a set of factors  $N = Eabcd \dots$ , where  $E = 1$  or 4, and  $a, b, c, d, \dots$  are unequal odd primes of form  $p = 6w + 1$ . The number of such partition  $(x^2 + 3y^2)$  of which  $N$  is capable will be  $2^{r-1}$  if  $E = 1$ , or  $3 \cdot 2^{r-1}$  if  $E = 4$ , where  $r =$  the number of odd primes. Here  $24 = 3 \cdot 8 = 3 \cdot 2^{r-1}$ , giving  $r = 4$ ; so that  $N = 4abcd$ . And  $N$  will be least when  $a, b, c, d$  are the least odd primes of form  $(6w + 1)$ , i.e. 7, 13, 19, 31; therefore

$$N = 4 \cdot 7 \cdot 13 \cdot 17 \cdot 31.$$

10198. (JOHN GRIFFITHS, M.A.)—The coordinates  $x, y, z$  being proportional to the perpendicular distances from the sides of a triangle  $ABC$ , prove that (1) the locus of a point  $(x, y, z)$  such that its pedal circle (i.e., the circle which passes through the feet of the perpendiculars drawn from the point in question upon the sides of the triangle) touches the nine-point circle is the cubic

$$x(y^2 - z^2) \cos A + y(z^2 - x^2) \cos B + z(x^2 - y^2) \cos C = 0;$$

and (2) trace this curve.

The PROPOSER gives the following interesting details as to the origin of the Question :—

The theorem in Question 10198 was derived by me from the following results.

- (1) If  $P, P'; Q, Q'$  denote two pairs of isogonal points, the sides of the triangle of reference and the lines  $PQ, PQ', P'Q, P'Q'$  are all tangents to a conic  $\Sigma$ .
- (2) The director circle of  $\Sigma$  and the pedal circles of  $(P, P'), (Q, Q')$  are coaxial.
- (3) If a conic be drawn through the circum-centre to touch the sides, its director circle will touch the pedal of the circum-centre; i.e., the nine-point circle.

Hence the theorem in question follows, if we suppose  $Q$  to coincide with the circum-centre and  $P, P', Q$  to be collinear.

The asymptotes are parallel to the three lines  $OP_1, OP_2, OP_3$ , the joins of the circum-centre  $O$  with the three points  $P_1, P_2, P_3$  (other than the vertices  $A, B, C$ ) where the cubic intersects the circum-circle.

Note on Question 14975.

By W. H. BLYTHE, M.A.

The cubic required is not  $x(y^2 - z^2) \sin A + \dots = 0$ , as given in note to Question 10198, *Educational Times*, June, 1902, and *Mathematical Reprint*, Series II., Vol. II., p. 111, but

$$bcx(y^2 - z^2) + cay(z^2 - x^2) + abz(a^2 - y^2) = 0.$$

the tangents to the curve at the angular points and at the centre of gravity meet in the LEMOINE point; the tangents at the centres of the inscribed and escribed circles meet in the centre of gravity.

Addition to Mr. Blythe's Note.

By G. N. BATES.

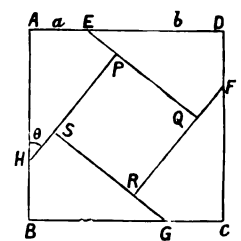
This is the so-called "cubique des dix-sept points."

In addition to the fourteen points given in the question, the curve also passes through the mid-points of the perpendiculars. Vigarié in his *Géométrie du Triangle* gives references to, Koehler "Sur un cubique remarquable du plan du triangle" (*Jour. de Math. Spec.*, 1887); Lemoine, *L'Annuaire de l'Association Française*, 1888; in addition to the reference Thomson, *Educational Times*, 1864.

13967. (R. TUCKER, M.A.)—In the figure,  $ABCD$  is a given square,

$$AE = DF = CG = BH = a,$$

and  $PQRS$  is another square. Find when  $PQRS$  is a maximum ( $\theta$  variable).



[The figure is a common one in bamboo chairs. Mr. TUCKER refers to pp. 633, 637 of CLIFFORD'S *Mathematical Papers* for notes upon this, the Bride's Chair.]

Solution by the late Rev. T. MITCHESON, B.A.

It would appear that  $PQRS$  is a maximum when  $HPEA$  is a minimum; which is so when  $HP$  coincides with  $HE$ . Hence the value required is

$$(a + b)^2 - 2ab = a^2 + b^2.$$

Or, thus: join  $HE$ , and let  $\angle EHP$  be  $\phi$ ; then

$$\text{area of } HPEA = \frac{1}{2} \{ ab + (a^2 + b^2) \sin(\theta - \phi) \cos(\theta - \phi) \}$$

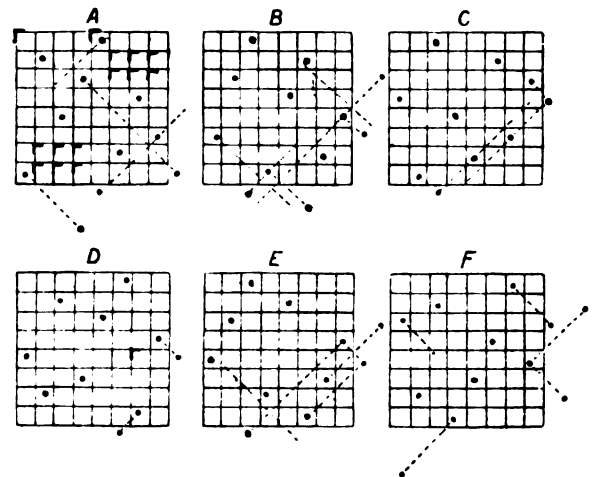
$$= \frac{1}{2} \{ 2ab + (a^2 + b^2) \sin 2(\theta - \phi) \}.$$

This is obviously a minimum when  $\theta = \phi$ , &c.

15021. (ALEXROP.)—Ranger les nombres 1, 2, 3, ..., 8 de manière que la différence entre deux quelconques d'eux ne soit pas égale en valeur absolue à la différence de leurs rangs. (Par ce problème on place sur l'échiquier huit reines en sorte qu'aucune d'elles ne donne échec à aucune autre.)

(I.) Solution by JAMES BLAIRIE, M.A.; (II.) Table of Arithmetical Solutions by H. W. WEBSTER, M.D.

By trial on the chess-board I find six entirely different solutions. These are shown in the diagram as  $A, B, C, D, E, F$ . Each of these solutions except  $E$  leads to eight different arithmetical solutions, as the chess-board may be looked at from four different sides and the columns may be taken either from left to right or vice versa. Thus  $A$  gives the eight solutions 17468253, 35286471, 83162574, 47526138, 64713528, 82531746, 52473861, 13837425. The solution  $E$ , however, only gives

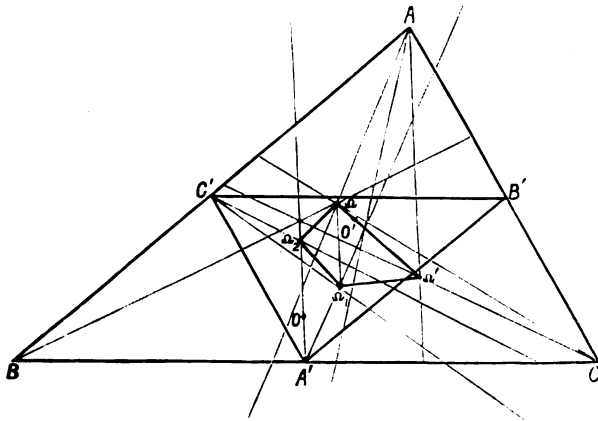


four arithmetical solutions, as, owing to the symmetry of the figure, the configurations seen from opposite sides of the board are identical. If we place to the right of  $A$  a similar chess-board with the same arrangement of queens, and place a similar board below each, and employ a hollow frame enclosing sixty-four squares, we obtain new chess-board solutions except in those cases where two queens on the same diagonal are included. The diagonals which may contain two queens are dotted in the diagram. We now find that diagram  $A$  affords fourteen different chess-board solutions, the corner of the hollow chess-board being placed on the marked points. But seven of these solutions are reflections of the other seven, and thus we only obtain fifty-six arithmetical solutions. Diagrams  $B, C, E, F$  when treated in the same way do not afford any new solution;  $D$  affords two solutions, but, as they are reflections of each other, we have only eight arithmetical solutions. Thus the diagrams lead to ninety-two arithmetical solutions. It will be observed that the eight arithmetical solutions which, in general, correspond to one chess-board solution may be derived from one another by easy arithmetical methods. [Rest in Vol.]

15092. (R. TUCKER, M.A.)— $ABC$  and  $A'B'C'$  are a triangle and its medial triangle.  $\Omega, \Omega'; \Omega_1, \Omega_2$  are the BROCARD points; and  $K, K'$  the symmedian points. Prove that  $\Omega\Omega_1, \Omega\Omega_2$  the join of the BROCARD ellipse centres, and  $KK'$  pass through the common centroid. Also  $\Omega\Omega_2, \Omega'\Omega_1$  intersect in  $a^2\alpha = b^2\beta = c^2\gamma$ . (Cf. MILNE, *Companion*, p. 174, Ex. 11.)

*Solution by the PROPOSER, and Professor SANJANA, M.A.*

The  $\alpha$ -coordinates of  $\Omega, \Omega'$ ;  $\Omega_1, \Omega_2$  are readily found to be proportional to  $a^2, ab^2; b^2c(c^2+a^2), bc^3(a^2+b^2)$ . Hence the equations to  $\Omega\Omega_1, \Omega\Omega_2$  are  $\Sigma ab^2(c^2-a^2)\alpha = 0, \Sigma ac^2(a^2-b^2)\alpha = 0 \dots\dots\dots(i.)$



Again,  $\alpha$ -coordinates of BROCARD ellipse centres of  $ABC, A'B'C'$  are proportional to  $a(b^2+c^2); bc(a^2b^2+b^2c^2+c^2a^2+b^2c^2)$ ; therefore equation to the join of these is  $\Sigma a^2\alpha(b^2-c^2) = 0 \dots\dots\dots(ii.)$

Hence (i.) and (ii.) these lines conintersect in  $G$ , the centroid of the triangles. Again, equations to  $\Omega\Omega_2, \Omega'\Omega_1$  are

$$\Sigma a^3b^2\omega_c\alpha = 0, \Sigma a^3c^2\omega_b\alpha = 0 \dots\dots\dots(iii.)$$

where  $\omega_a = a^4 - b^2c^2$ ; hence these lines meet in

$$a^3\alpha = b^3\beta = c^3\gamma.$$

Again,  $K, K'$  lie on  $\Sigma a\alpha(b^2-c^2) = 0$ , which passes through  $G$ .

**10157.** (R. W. D. CHRISTIE.)—If  $p$  be a prime number  $> 2$ , prove  $\{(2p! / 2 \times p! \times p!) - 1\} = p^2(M)$ , where  $M$  is the sum of  $\frac{1}{2}(p-1)$  integral square numbers.

*Solution by the PROPOSER.*

It is well known that the sum of the squares of the coefficients in the expansion of  $(1+x)^n$ , where  $n$  is a positive integer, is  $2n!/n!n!$ . Putting  $x=1, n=p$  (a prime), then

$$2p! / p! p! = 1 + p^2 + (pq)^2 + \dots + (pq)^2 + p^2 + 1;$$

$$\therefore \frac{2p!}{2p! p!} - 1 = p^2 \left\{ 1 + \binom{p-1}{2!}^2 + \binom{p-1}{3!}^2 + \dots + \binom{p-1}{\frac{p-1}{2}}^2 \right\} \\ = p^2(M) = p^2 \left\{ \frac{2p-1! - p(p-1)!^2}{p^3(p-1)!^2} \right\} \\ = p^3(Q), \text{ by WOLSTENHOLME, when } p > 3.$$

In the *Journal of Pure and Applied Mathematics*, for October, 1861, the late Rev. Dr. WOLSTENHOLME says:—“The method I employed is somewhat laborious, and I should be glad if some of your readers would supply a more direct proof” (v. also *Quarterly Journal*, June, 1899). The theorem gives the connexion between the integral squares and the series

$$\left( \frac{1}{1} + \frac{1}{2} + \dots + \frac{1}{n-1} \right).$$

**QUESTIONS FOR SOLUTION.**

**15145.** (R. CHARTRES.)—Three points are taken at random within a triangle and joined. Find the mean value of the  $n$ th power of the area of the triangle thus formed.

**15146.** (Professor NANSON.)—If  $(A, B, C)$  is the adjugate of the determinant  $(a, b, c)$ , prove that

$$(BC, CA, AB) = -(bc, ca, ab)(a, b, c)^2.$$

**15147.** (Lt.-Col. ALLAN CUNNINGHAM, R.E.) [Suggested by Question 15126.]—Let  $\Sigma(p, a)$  = sum of numbers  $\not\geq X$  containing  $p^a$ , but not  $p^{a+1}$ , where  $X = (p^m + q^m)^n - (p^m + q^m)$ .

Prove that, when  $a+\lambda, b+\lambda$  are both  $\not\geq m$ ,

$$\Sigma(pq, b) / \Sigma(pq, a) = \Sigma(p, b) \cdot \Sigma(q, b) / \Sigma(p, a) \cdot \Sigma(q, a).$$

[All symbols are + integers except  $p, q$ , which may be  $\pm$ .]

**15148.** (ROBERT W. D. CHRISTIE.)—Prove  $(r^{2^a} - 1)^n \equiv 0 \pmod{a_1 a_2 a_3 \dots a_n}$ , where  $\phi(a_1) = \phi(a_2) = \dots = \phi(a_n)$ .

**15149.** (D. BIDDLE.)—If there be  $n$  primes  $\not\geq \sqrt{N}$ , and  $\Sigma$  represent the sum of the integers which result (by disregarding remainders) from division of  $N$  by the several products of those  $n$  primes taken  $r$  at a time, prove that the number of primes  $\not\geq N$  is given by

$$N - 1 + n - \Sigma_1 + \Sigma_2 - \Sigma_3 + \dots \pm \Sigma_n,$$

where  $\rho$  signifies the greatest number of earliest primes whose continued product is  $\not\geq N$ .

Also, knowing that, if  $N$  include one more prime than does  $N-1$ ,  $N$  is that prime, discuss the possibility of discovering such difference with sufficient accuracy without actual division of  $N$  or  $N-1$  by the several primes, as by summation of their reciprocals, or otherwise. [The law above enunciated differs somewhat from that attributed to LEGENDRE, MEISSER, ROGEL, &c.; vide MATHEWS, p. 273.]

**15150.** (Professor LANGHORNE ORCHARD, M.A., B.Sc.)—Find the product of the two series

- (1)  $1 + 3 + 7 + 13 + 21 + 31 + \dots$  to  $n$  terms;
- (2)  $1 + 13 + 73 + 241 + 601 + 1261 + \dots$  to  $n$  terms.

**15151.** (R. KNOWLES.)—Prove that the sum to  $r$  terms of the series

$$1 + 3^2x + 6^2x^2 + \dots + \frac{1}{4}(r+1)^2(r+2)^2x^r$$

is  $\left\{ 1 + 4x + x^2 - \frac{1}{4}(r+1)^2(r+2)^2x^r + (r^4 + 5r^3 + 7r^2 - 4)x^{r+1} - \frac{1}{4}(3r^4 + 12r^3 + 9r^2 - 6r + 2)x^{r+2} + r^2(r^2 + 3r + 1)x^{r+3} - \frac{1}{4}r^2(r+1)^2x^{r+4} \right\} + (1-x)^5$ .

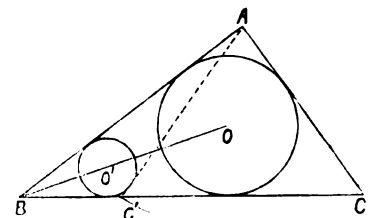
**15152.** (Professor COCHEZ.)—On considère l'équation

$$x^3 - \lambda x^2 + 23x - 1 = 0.$$

Déterminer  $\lambda$  pour que cette équation ait deux racines dont le produit soit égal à 3. Calculer ensuite les trois racines.

**15153.** (R. TUCKER, M.A.)—

In the “ambiguous” case of triangles (see figure), if  $b, \angle C$  are constant, and  $r, r'$  the radii of the in-circles, then, if the circles touch one another,  $rr'$  is constant.



**15154.** (C. E. HILLYER, M.A.)—If the median triangles be formed of the four constituent triangles of a quadrilateral, their sides will intersect four by four in three collinear points, viz., the mid-points of the diagonals of the quadrilateral (see Question 14083); therefore the median triangles are two by two in perspective, and the centres of perspective are collinear in threes, forming a second quadrilateral. It is required to prove that the mid-points of the diagonals of this quadrilateral and the four points of intersection of its sides with the corresponding sides of the original quadrilateral all lie on the same straight line.

**15155.** (W. C. STANHAM, B.A.)— $P$  is a variable point on a conic, foci  $S$  and  $S'$ .  $PS$  and  $PS'$  meet the curve again at  $R$  and  $R'$  respectively. Show that the locus of the intersection of  $SR'$  and  $S'R$  is a conic.

**15156.** (GEORGE SCOTT, M.A.)—Prove that the radius vector of an ellipse which makes with the axis major the eccentric angle corresponding to a point  $(x', y')$  is equal to the central perpendicular on the tangent at that point.

**15157.** (R. KNOWLES.)— $PQ$  is a chord of a parabola, normal at  $P$ ; tangents at  $P, Q$  meet in  $T$ . Prove that  $TP$  is bisected by the directrix.

**15158.** (H. BATEMAN.)— $O$  is a fixed point on a curve,  $P$  a variable point,  $G$  is the centre of gravity of the arc  $OP$ . Prove that the radius of curvature of the locus of  $G$  is  $GP^2 / s \sin \chi$ , where  $s$  = arc  $OP$  and  $\chi$  = angle between  $GP$  and the tangent at  $P$ .

**15159.** (Professor S. SIRCOM.)—The tracing point of a Hatchet Planimeter of length  $c$  traverses a circle of radius  $a$ . Find the curve described by the hatchet, and show that it is algebraic if  $\sqrt{(c^2 - a^2)}$  is commensurable, and that the length of the curve between two successive cusps is  $c \log(c+a)/(c-a)$ .

**15160.** (H. L. TRACHTENBERG.)—A curve has the circles of curvature at  $n$  points on it concurrent in a point  $O$ . The curve is inverted with regard to  $O$ . Prove that, if  $r$  be the degree of the inverse curve,  $3r^2 - 6r - n$  cannot be negative.

**15161.** (A. M. NESBITT, M.A.)—Trace the curves—

- (1)  $y(y-x^2) = x^3$ ;
- (2)  $(y-x^2)^2 = x(x^2+y^2)$ .

**15162.** (Professor NEUBERG.)—Étant donné un tétraèdre  $ABCD$ , soient  $A', B'$  les symétriques des sommets  $A, B$  par rapport à l'arête  $DC$ , et soient  $D', C'$  les symétriques des sommets  $D, C$  par rapport à l'arête  $AB$ . Le rapport des volumes des tétraèdres  $A'B'C'D', ABCD$  est égal à  $3 \sin 3(AB, CD)$ .

**15163.** (REV. T. ROACH, M.A.)—If  $A, B, C$  be the angles of a triangle, show that

$$\begin{vmatrix} \sin A & \cos A & \cos(B-A) \\ \sin B & \cos B & \cos(B-C) \\ \sin C & \cos C & 1 \end{vmatrix} = 0.$$

15164. (Professor SANJANA, M.A.)—Prove that

$$\frac{\cos(2n+1)\theta}{\cos\theta} + 2 \left\{ 2 \cos \frac{2n-1}{2} \theta - 2 \cos \frac{2n-5}{2} \theta + 2 \cos \frac{2n-9}{2} \theta - \dots \right\}^2$$

is a perfect square; and hence show that  $(x^{2n+2}+1)/(x^2+1)$  is the difference of two squares when  $2x$  is a perfect square,  $n$  being a positive integer.

OLD QUESTIONS AS YET UNSOLVED (IN OUR COLUMNS).

9081. (Professor WOLSTENHOLME, M.A., Sc.D.)—At each point P of a given equiangular spiral is drawn a curve similar to the curve  $r^n = a^n \sin n\theta$ , having four-point contact with the spiral; S is the pole of the spiral, S' that of the osculating curve; prove that  $SS' = n \cdot SP$ , and that the angle PSS' is double the angle between S'P and the tangent at P. [Thus, if the osculating curve be a parabola or cardioid,  $SS' = \frac{1}{2}SP$ ; if it be a rectangular hyperbola or lemniscate of BERNOULLI,  $SS' = 2SP$ . The theorem is not true if  $n = \pm 1$ , four-point contact being then impossible.]

9143. (A. E. THOMAS.)—A circle described through the origin, and touching the curve  $(x^2 + y^2 - 2ax)^2 (x^2 + y^2 - 5ax) = 4a^2y^3$  at a point Q, cuts the parabola  $y^2 = 4ax$  in three points, the normals at which to the parabola meet in a point W. Find the locus of W as Q varies.

9396. (Professor WOLSTENHOLME, M.A., Sc.D.)—Given the asymptotes of a cuspidal cubic, find the envelope of the straight line (U) joining the three points where the cubic crosses its asymptotes, proving that it is an orthogonal projection of an hypotrochoid, the radius of the rolling circle being one-third that of the fixed circle, and the tracing point bisecting the radius on which it lies. Also prove that, if the tangent at the cusp C touch its envelope in O, and CO be divided in the ratio 1 : 2, the dividing point will be the point of contact of U with its envelope. Find the locus of the inflexion of the cubic, and the envelope of the tangent at the inflexion.

9476. (B. F. FINKEL, M.A.)—If from a point P an evolute of a circle is described at random, find the probability that it will pass through a random point in a circle whose radius is  $r$  and centre P.

9552. (D. EDWARDS.)—Integrate the equation

$$\frac{dy}{\{(y-a)(1-y^2)\}^{\frac{1}{2}} + \frac{2 \cdot y^2 dx}{(x^2 + 2ax^2 + 1)^{\frac{1}{2}}} = 0.$$

9985. (Professor NEUBERG.)—Les points A, B, C, chargés des masses  $\alpha, \beta, \gamma$ , décrivent, simultanément, dans le plan ABC, les lignes AA', BB',

CC', et leur centre de gravité D parcourt une ligne DD'. Si l'on change les masses des points A, B, C, on obtient d'autres lignes DD'. Soit O un point fixe du plan AA'BB'. Démontrer que le lieu d'un point D tel que le secteur ODD' a une aire constante est une conique. (Comparer *Messenger*, 1877 et 1878, articles de MM. LEUBENDORF, KEMPE et ELLIOT.)

10113. (Professor GOB.)—Lorsque la base BC d'un triangle ABC est fixe et que l'angle de BROCARD est constant, les centres des cercles de NEUBERG ( $M_b$ ), ( $N_c$ ) décrivent une circonférence; le cercle ( $N_b$ ) a pour enveloppe un limaçon de PASCAL; la droite de LEMOINE de ABC enveloppe une conique ayant pour foyers les points B, C.

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It is requested that all Mathematical communications should be sent to the Mathematical Editor,  
Miss CONSTANCE I. MARKS, B.A., 10 Matheson Rd., West Kensington, W.

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Thursday, June 12th, 1902.—Dr. Hobson, President, in the Chair. The President announced that the De Morgan Medal for 1902 had been awarded to Prof. Greenhill. Mr. A. C. Porter was admitted into the Society. The following communications were made to the Society:— Prof. A. W. Conway: "On the Principle of Huygens in a Uniaxial Crystal." Lt.-Col. Cunningham: "The Repetition of the Sum-factor Operation." M. E. Picard: "Sur un théorème fondamental dans la théorie des équations différentielles." Mr. G. H. Hardy: "Some Arithmetical Theorems." Prof. Hill: "On a Geometrical Proposition connected with the Continuation of Power Series." Mr. J. H. Grace: "Types of Perpetuants."

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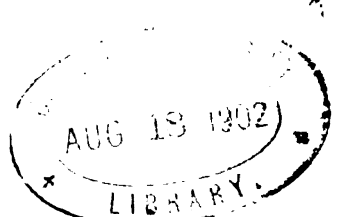
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ST. THOMAS'S HOSPITAL MEDICAL SCHOOL.

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The WINTER SESSION of 1902-1903 will OPEN on Wednesday, October 1st.

St. Thomas's Hospital being one of the Medical Schools of the University of London, provision is made for the courses of study prescribed for the Preliminary Scientific, Intermediate, and Final Examinations in Medicine.

Three Entrance Scholarships will be offered for competition in September, viz., one of 150 guineas and one of £60 in Chemistry and Physics, with either Physiology, Botany, or Zoology, for First Year's Students; one of £50 in Anatomy, Physiology, Chemistry (any two), for Third Year's Students from the Universities.

Scholarships and Money Prizes are awarded at the Sessional Examinations, as well as several Medals.

All Hospital Appointments are open to Students without charge.

Club-rooms and an Athletic Ground are provided for Students.

The School Buildings and the Hospital can be seen on application to the Medical Secretary.

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A Register of approved lodgings is kept by the Medical Secretary, who also has a list of local Medical Practitioners, Clergymen, and others who receive students into their houses.

For Prospectus and all particulars apply to Mr. G. RENDLE, the Medical Secretary.

H. G. TURNEY, M.A., M.D. Oxon., Dean.

THE ROYAL DENTAL HOSPITAL OF LONDON MEDICAL SCHOOL, LEICESTER SQUARE.

The WINTER SESSION, 1902-3, will commence on Wednesday, Oct. 1st.

MEDICAL SCHOOL.

Dental Anatomy and Physiology (Human and Comparative)—A. HOPEWELL-SMITH, L.R.C.P., M.R.C.S., L.D.S., on Tuesdays and Thursdays at 5.30 p.m. (Summer).

Dental Surgery and Pathology—W. B. PATERSON, F.R.C.S., L.D.S., on Tuesdays and Fridays, at 5.30 p.m. (Summer).

Mechanical Dentistry—E. LLOYD-WILLIAMS, L.R.C.P., M.R.C.S., L.D.S., on Wednesdays at 5.30 p.m. (Winter) (Demonstrator—Mr. W. F. FLORE).

Metalurgy in its Application to Dental Purposes—Dr. FORSTER MORLEY, M.A., F.I.C., F.C.S., on Thursdays at 5.30 p.m. (Winter) (Demonstrator—PERCY RICHARDS, F.I.C., F.C.S.).

Material Medica and its Application to Dental Surgery—HAROLD ACSTEN, M.B., B.S. Lond., L.R.C.P., M.R.C.S., L.D.S., Mondays, 5.30 p.m. (Summer).

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The STORER BENNETT RESEARCH SCHOLARSHIP, value £50, is awarded triennially.

Fee for two years' Hospital Practice required by the curriculum, including Lectures, £50 in one payment, or 50 guineas in two yearly instalments. The curriculum requires two years to be passed at a General Hospital. The fee for this is about £55. Both Hospitals can be attended simultaneously.

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The Calendar and further particulars will be sent on application to MORTON SMALE, Dean.

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PHYSICS—Prof. W. Grylls Adams, M.A., D.Sc., F.R.S.

BOTANY—Prof. W. B. Bottomley, M.A., Ph.D., F.L.S.

ZOOLOGY—H. Willoughby Lyle, M.D., F.Z.S.

II. COURSE FOR INTERMEDIATE M.B.

ANATOMY—Prof. A. Robinson, M.D., C.M.

PHYSIOLOGY—Prof. W. B. Halliburton, M.D., B.Sc., F.R.C.P., F.R.S.

PHARMACOLOGY—Prof. W. Tunnicliffe, M.D., M.R.C.P.

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BACTERIOLOGY—R. T. Hewlett, M.D., D.P.H.

OBSTETRIC MEDICINE—T. C. Hayes, M.D., F.R.C.P.

HYGIENE—W. J. K. Simpson, M.D., F.R.C.P.

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For the Preliminary Scientific Course, 25 guineas. Composition fee for whole University Course, £148. Composition fee for Conjoint Course (M.R.C.S., L.R.C.P.), £135. The fees may also be paid by annual payments.

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ST. BARTHOLOMEW'S HOSPITAL AND COLLEGE.

The WINTER SESSION will begin on Tuesday, October 1st, 1902.

Students can reside in the College within the Hospital walls, subject to the Collegiate regulations.

The Hospital contains a service of 750 beds. Scholarships and Prizes of the aggregate value of nearly £900 are awarded annually.

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For further particulars apply, personally or by letter, to the WARDEN of the College, St. Bartholomew's Hospital, E.C.

A handbook forwarded on application.

UNIVERSITY OF LONDON. THE MIDDLESEX HOSPITAL MEDICAL SCHOOL.

The WINTER SESSION, 1902-1903, will commence on Wednesday, October 1st.

Two Entrance Scholarships (value £100 and £60) will be competed for on September 23rd, 24th, and 25th.

One Entrance Scholarship (value £60), open to Students of the Universities of Oxford and Cambridge, will be competed for on September 23rd and 24th.

Notice in writing to be sent to the Dean on or before September 15th.

There are annually eighteen Resident Hospital Appointments open to Students without extra fee.

Composition Fee for general Students for whole Medical Curriculum, 135 guineas; for Dental Students, 54 guineas.

Special terms in favour of University Students who have commenced their medical studies, and of University of London Students who have passed Prelim. Sci.

The Residential College adjoins the Hospital and provides accommodation for thirty Students.

Prospectuses and all particulars may be obtained from—

J. MURRAY, M.B., F.R.C.S., Dean.

ST. MARY'S HOSPITAL MEDICAL SCHOOL,

PADDINGTON, W.

The WINTER SESSION will commence on October 3rd.

The HOSPITAL is close to Paddington Station (G.W.R.), the Great Central Railway Terminus, Edgware Road and Praed Street (Metropolitan and District Railway), and Lancaster Gate (Central London Electric Railway).

The Clinical appointments are free to all Students, and the Resident Medical Officers (18 annually) are appointed by competitive examination.

The NEW WING, now in process of completion, will provide 81 additional beds, three new Operating Theatres, Clinical Laboratories, and Clinical Theatre, besides the New Out-Patient Department already in use.

UNIVERSITY OF LONDON.

The MEDICAL SCHOOL, as one of the Schools of the University, provides complete courses of instruction for its Medical and Surgical Degrees.

PRELIMINARY SCIENTIFIC COURSE.—Classes will commence on October 6th.

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FOUR OPEN SCHOLARSHIPS in Natural Science, value £145, £78, 15s., £78, 15s., and £52, 10s.

TWO UNIVERSITY SCHOLARSHIPS, value £63 each (open to Students from Oxford or Cambridge), will be competed for on September 23rd and 24th.

SPECIAL TUITION.

For the Examinations of the Universities of Oxford, Cambridge, and London, and for the Fellowship of the Royal College of Surgeons, without additional fees.

For Calendar of the Medical School, containing all particulars, apply to the DEAN.

THE LONDON HOSPITAL MEDICAL COLLEGE (UNIVERSITY OF LONDON.)

The WINTER SESSION commences on October 1st.

The Annual Dinner will be held in the College Library on Wednesday, October 1st. E. HURRY FESWICK, Esq., F.R.C.S., Eng., is the Chair.

The Hospital is the largest in England; nearly 800 beds are in constant use, and no beds are closed. The only general hospital for East London. In-patients last year, 13,364; out-patients, 169,020; accidents, 28,532; major operations, 2,469.

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SCHOLARSHIPS AND PRIZES.—Thirty-four Scholarships and Prizes are given annually. SEVEN ENTRANCE SCHOLARSHIPS will be offered in September.

Special Classes are held for the University of London and other Higher Examinations. Special entries for Medical and Surgical Practice can be made.

Reduced fees to the sons of members of the profession. ENLARGEMENT OF THE COLLEGE.—The New Laboratories and Class Rooms for Bacteriology, Public Health, Operative Surgery, Chemistry, Biology, &c., and the New Clubs Union Rooms are now in full use.

The Clubs Union Athletic Ground is within easy reach.

Luncheons and dinners at moderate charges can be obtained at the Students' Club.

The Metropolitan, Central, and other Railways have stations close to the Hospital and College.

For prospectus and information as to residence, &c., apply, personally or by letter, to

Mile End, E. MUNRO SCOTT, Warden.

ROYAL HOLLOWAY COLLEGE (UNIVERSITY OF LONDON.)

The Michaelmas Term begins on October 2nd, 1902.

The College prepares Students for the London Degrees in Science and Arts, and for the Oxford Honour Examinations.

Ten Entrance Scholarships, from £40 to £75 a year, tenable for three years, will be offered for competition in July, 1903.

For further particulars, apply to the SECRETARY, Royal Holloway College, Englefield Green, Surrey.

ST. BARTHOLOMEW'S GRAMMAR SCHOOL, NEWBURY.

The HEAD MASTERSHIP of this School will become vacant at Christmas, 1902.

Candidates for the position must be Graduates of one of the Universities in the United Kingdom and under forty years of age.

The Salary is £150 a year and a Capitation Fee of £2, 10s., together with a Residence (unfurnished), rent free, and permission to take Boarders.

Candidates should forward applications, with copies of three recent testimonials, not later than August 25th next, to the undersigned, from whom further particulars may be obtained.

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List of September Vacancies forwarded on application to Graduates and other well qualified Assistant Masters seeking appointments for next term.

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List of September Vacancies forwarded to English and Foreign Assistant Mistresses and other Teachers on application. Liberal Salaries.

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(Under the management of a Committee appointed by the Teachers' Guild, College of Preceptors, Head Mistresses' Association, Association of Assistant Mistresses, and Private Schools' Association.)

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Registrar—Miss AGNES G. COOPER.

This Agency has been established for the purpose of enabling Teachers to find work without unnecessary cost. All fees have therefore been calculated on the lowest basis to cover the working expenses.

Head Mistresses of Public and Private Schools, and Parents requiring Teachers, or Teachers seeking appointments, are invited to apply to this Agency.

Many Graduates and Trained Teachers for Schools and Private Families; Visiting Teachers for Music, Art, and other special subjects; Foreign Teachers of various nationalities; Kindergarten and other Teachers are on the Register, and every endeavour is made to supply suitable candidates for any vacancy.

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TRINITY COLLEGE, LONDON.

(Inst. 1872.)

President—

THE RIGHT HON. LORD COLERIDGE, M.A., K.C.

Warden—EDMUND H. TURPIN, Mus.D.

Thursday, September 25, Michaelmas Term commences, when the individual tuition in all Practical and Theoretical Musical Subjects, as well as Class Tuition in the Theory and History of Music, during the day and evening, to professional and amateur students, will be resumed.

Lessons in the Theory and History of Music will also continue to be given by correspondence.

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The College Orchestra and Choir and the various Ensemble Classes for students and non-students will resume.

Prospectus and Students' Entry Form on application.

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UNIVERSITY COLLEGE, BRISTOL.

ENGINEERING EDUCATION.

COURSES FOR CIVIL, MECHANICAL, MINING, AND ELECTRICAL ENGINEERS, AND FOR ARCHITECTS AND SURVEYORS.

Special facilities are offered in the way of College Scholarships and Engineering Works Scholarships, favourable arrangements being made with firms in or near Bristol for practical training to be obtained in works concurrently with the College Course.

Surveying, Field Work, and Geology form prominent features of the Civil Engineering Scheme.

A College Diploma is awarded to Students who pass the qualifying Examinations. The Associateship of the College is conferred on those Students who obtain a First Class Senior Diploma.

The Institution of Civil Engineers accepts the Preliminary Certificate of the College in lieu of its Entrance Examination.

Sessional Courses for the Matriculation, Preliminary Scientific, Intermediate Arts, and Intermediate Science Examinations of the University of London, and for the B.A. and B.Sc. Degree, also for the Cambridge Higher Local Examinations. Composition Fee for each Session, 13 guineas. Registration Fee, 1 guinea.

A Course has been arranged for the training of Secondary Teachers.

The work of Women Students is under the supervision of a Lady Tutor.

Applications for vacancies in October to be made as early as possible to the undersigned, from whom Prospectus and particulars of residence in Clifton may be obtained. JAMES RAFTER, Registrar and Secretary.

OWENS COLLEGE, MANCHESTER.

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II. MERCANTILE LAW.

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IV. MODERN LANGUAGES: FRENCH, GERMAN, SPANISH, MODERN ARABIC, CHINESE.

Certificates are given to Students satisfactorily passing through a two years' course.

For full particulars apply to the REGISTRAR, from whom full particulars may also be had of the Evening Classes in Mercantile Law, Economics, and Modern Languages, and of the Certificates for Evening Class Students.

SYDNEY CHAFFERS, Registrar.

UNIVERSITY OF BIRMINGHAM.

SCHOLARSHIPS IN THE SCHOOL OF MODERN LANGUAGES.

Two SCHOLARSHIPS in GERMAN (given by Mr. and Mrs. Charles Harding) of the annual value of £50 each, tenable during three years, are offered to Students entering the School of Modern Languages next Session. At the close of the third year Travelling Scholarships of £100 each, tenable at a German University for one year, may be awarded to these Scholars, provided that they have taken the B.A. degree in the School of Modern Languages.

An Entrance Examination to the School of Modern Languages will commence on Monday, September 15th, 1902. Applications for admission must be received by the Registrar on or before August 16th.

For further particulars apply to the REGISTRAR at the University.

KELLAND TRAINING COLLEGE FOR KINDERGARTEN TEACHERS, LEICESTER.

Principals (Miss MORGAN, N.F.U. (Higher), Miss J. B. MORGAN, B.A. (Lond).)

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The Higher Examinations in Practical and Theoretical Music for Diplomas of Associate (A.L.C.M.), Licentiate (L.L.C.M.), the Teachers' Diploma (L.C.M.), and Fellowship (F.L.C.M.), take place in July (June for Scotland and Ireland) and December.

SYLLABUS for 1902 containing particulars of (1) The Teachers' Diploma (L.C.M.), (2) The new Cumulative Certificate, and (3) Four Exhibitions value £6. 6s. each, may be had of the SECRETARY.

In the Educational Department students are received and thoroughly trained under the best professors at moderate fees. Day and Evening Classes are held.

A VACATION COURSE of Instruction in Special Subjects for Teachers and others is held at Easter, August, and Christmas.

T. WEEKES HOLMES, Secretary.

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SCHOOL EXAMINATIONS, held three times a year—viz., March and April, June and July, and October and November. (See Syllabus B.) Entries for the June-July Examination will be received on or before May 14th, 1902.

Specimen Theory Papers set in the Local Centre and School Examinations of 1896 to 1901, inclusive, can be obtained on application to the Central Office. Price 3d. per set, per year, post free.

Copies of Syllabuses A and B, and all information, will be sent on application to

JAMES MUIR, Secretary.

14 Hanover Square, London, W.

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UNIVERSITY COLLEGE, LONDON. (UNIVERSITY OF LONDON.)

Principal—G. CAREY FOSTER, F.R.S.

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Assisted by the Carpenters' Company.

SESSION 1902-1903.

The Courses of Instruction in Mechanical, Civil, Municipal, and Electrical Engineering and Architecture commence on October 2nd.

Particulars of the Courses of Scholarships, of the Matriculation Examination, and of the Fees, may be obtained from the Secretary.

Fee for the full three-year Diploma Course, including the Course for graduation (B.Sc.) in the Faculty of Engineering, 115 guineas (£10. 10s. entrance fee, and £36. 15s. per annum).

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Municipal Engineering Oskert CHADWICK, M.I.C.E., C.M.G.

Civil Engineering L. F. VERNON HARCOURT, M.A., M.I.C.E.

Architecture T. ROGER SMITH, F.R.I.B.A.

Physics F. T. TROUTON, M.A., F.R.S.

General and Physical Sir W. RAMSAY, K.C.B., Chemistry P. R. S.

Organic Chemistry J. NORMAN COLLIE, Ph.D.

Applied Mathematics K. PEARSON, M.A., F.R.S.

Economic Geology E. J. GARWOOD, M.A.

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CONTENTS.

	Page		Page
The Education Bill in Committee.....	317	Half-yearly General Meeting of the College of Preceptors ...	328
Nature Study: Conditions, Methods, and Results .....	318	Adjourned Meeting of the Council of the College of Preceptors	332
Notes .....	319	Reviews .....	332
The Report on the University Colleges—The Teachers' Registration Council Notice—The Danish Education Bill—Sir Joshua Fitch (in the "Encyclopædia Britannica") on Education in England—And on the College of Preceptors—The Carnegie Trust—French Vandalism in Egypt—The Affiliation of Provincial Colleges in operation.		The Latest (Third) New Volume of the "Encyclopædia Britannica"—An American View of "Nature Study and Life"—Memoirs of a Disciple of Froebel (the Baroness von Marenholtz-Bulow)—The Scott Country—The Lore of a Highland Loch (the Lake of Menteith).	
Summary of the Month .....	320	General Notices .....	334
The New Professors of Education .....	323	Diploma Examination Pass List of the College of Preceptors, Midsummer, 1902 .....	335
Registration of Teachers .....	323	Mathematics .....	336
Current Events .....	325	List of Candidates who have passed the Midsummer Certificate and Lower Forms Examinations of the College of Preceptors .....	345
Fixtures; Endowments; Honorary Degrees; Barcelona Prize; Scholarships; Vacancies and Appointments; Literary Items; General.			

The Educational Times.

*The Education Bill in Committee.*

WE have never laid any great practical stress upon the principle of a single Authority, but the first three clauses of the Education Bill, as passed in Committee, offer food for reflection to those that do. The country was promised one Authority; it has, so far, got six classes of Authorities, totalling together 1,183 separate Local Authorities. Instead of simplicity, there is an ingeniously bewildering complexity. Two classes—the county boroughs (67) and the administrative counties (62)—control both their elementary and their higher education, the former without rating limit, the latter within the limits of a rate of 2d. in the £. Two more—municipal boroughs (140) with a population of over 10,000 and urban districts (61) with a population of over 20,000—also control their elementary education and may levy a rate up to 1d. in the £ to spend on their higher education; but at the same time they are subject to the County Council rate up to 2d. in the £, without any control of the higher education to which it is applied. These varied arrangements, then, establish 330 Local Authorities. But nearly three times as many (853) were added by an amendment on Clause 3—an amendment that can hardly stand on Report. Two more classes—municipal boroughs (108) up to 10,000 and urban districts (745) up to 20,000—while not entrusted with the control of their elementary education, are authorized to levy and spend a rate not exceeding 1d. in the £ for higher education, being at the same time subject to the County Council's rate of 2d. The arrangement wears a preposterous look in the light of the very general opinion that for higher education the Authority ought to be much wider than for elementary. But probably it regards evening classes and technical education on the new understanding of the limits of elementary instruction. In any case, it seems impossible to avoid a clash of jurisdictions. Such, then, is the principle of One Authority.

Clause 4, as dealing with religious instruction, invited delicate handling, notwithstanding the tolerably plain intention of the terms. The first subsection originally ran: "A Council in the application of money under this part of the Act shall not require that any particular form of religious

instruction or worship shall or shall not be taught or practised in any school or college." The discussion turned mainly on the training colleges, and it was marked by calm and reasonable argument, except for an outburst of a few extremists. The subsection at last stood in these terms:

A Council, in the application of money under this Part of this Act, shall not require that any particular form of religious instruction or worship, or any religious catechism or formulary which is distinctive of any particular denomination, shall or shall not be taught or practised in any school or college aided, but not provided, by the Council; and no pupil shall be excluded from or placed in any inferior position in any school or college provided by the Council on the ground of religious belief, and no catechism or formulary distinctive of any particular religious denomination shall be taught or used in any school, college, or hostel so provided.

Thus all the new higher institutions must be undenominational, and in all existing higher institutions aided by the public Authority there will operate a conscience clause; and, though the Government would not admit a conscience clause in the existing denominational colleges, they still conceded, in respect of students of such colleges living at hostels, the payment of the same contribution as is now paid to students in residential colleges. This seems to be a fairly reasonable accommodation. The second subsection, being full and explicit, was passed without alteration.

As was fully anticipated, the option of Clause 5 was decisively rejected, though it was discussed at great length, and led to considerable cross voting. The consequences of the rejection are in the future; but, at all events, it limits the complexity of Authorities to the six classes of 1,183. Clause 6, abolishing School Boards and School Attendance Committees and transferring their powers and duties to the Local Education Authority, was at length allowed to pass with small verbal amendments, in reliance on official assurances that no lowering of the standard of education would be permitted, and on Mr. Balfour's statement of intentions respecting the management of schools. These intentions were embodied in a long and complex amendment to Clause 7, constituting the board of management and introducing a "minor Local Authority," by which is meant "the Council of any borough or urban district, or the Parish Council or parish meeting of any parish, which appears to the County Council to be served by the school." In the case of all public elementary schools not provided by the Local Education Authority, that Authority appoints but two managers out of six. In spite of considerable feeling on the point as

much on business grounds as on religious grounds, the clause seems likely, at the moment of writing, to be forced through. The temper of parties hardly bodes well for permanent peace. North Leeds gives an impressive warning.

The restricted Councils have still to go to the Local Government Board for sanction to exceed the 2d. rate for higher education. The apparatus of Provisional Orders is swept away, but the requirement seems to be little more than a formality, by no means likely to exercise a real restraint. The Local Government Board, as we have already indicated, does not seem to be adequately qualified to pronounce upon any given case. Like Mr. Kelland, we should have much wished the Bill to contain "clauses similar to 4(2) and 5(1) of the Bill of 1900, safeguarding the interests of existing schools and granting them the right of appeal to the Board of Education." We can only hope that the new clauses placed on the notice paper by Mr. McArthur and Mr. Hobhouse will be accepted, in justice to the interests of private enterprise in the field of secondary education. All the private schools claim is that they should have the same rights as are accorded to other schools, and the claim is just.

**THE Nature-Study Exhibition at the Nature Study.** Royal Botanic Gardens now in progress, together with the Conference of five days just concluded, cannot fail to impart both impetus and direction to a form of early education that has already developed possibilities of far-reaching importance. While the Exhibition is of the most varied and instructive character, the Conference addresses and speeches have touched the main points of the subject with the light of experience and practical suggestion—though we should have liked to see working teachers in greater force at the front. They have dealt with the relation of both child and teacher to Nature, the attitude of the teacher to the child, the prosecution of the study both in rural and in urban schools, and in colleges and higher schools as well as in elementary schools, materials and methods of the study, the training of teachers, the relation of the study to the school and to the home, its operation as an element of culture, and the action of the County Councils in promotion of it. The proceedings have, no doubt, been fully reported, and will, we should anticipate, presently be available to the profession and to the public in a convenient form for study and reference.

The idea of Nature study has taken a firm hold of the minds of all persons that cherish a living interest in the education of the young. In the United States and Canada, in Australia, in the more advanced countries of Continental Europe, the appreciation of its value and the enthusiasm for its development are certainly not less than here. In the United States, especially, a wide and keen activity has been manifested in all the bearings of the subject. Naturally the scoff of idle trifling has been flung at the enthusiasts from careless observers and from minds arrested within the limits of an older order of things. Naturally, too, the scope and the methods of the study are as yet undetermined; and the results have not had time to be presented in such forms as to silence the off-hand disparagement of unthinking or uninstructed objectors. But the key of the

situation has evidently been mastered by the promoters of the study, and time is on their side. No one that looks at the process intelligently, whether in point of theory or in the light of actual practice, can doubt for a moment that its fundamental principles are fraught with results of incalculable value for the future of the people. Without underestimating the direct and immediate outcome, one may readily trace the indirect and eventual issues to a development of highest consequence for the nation and for the race.

With awakened consciousness and restless activity, the child wants to do things and to know things. To the uninstructed parent or nurse such enterprise and inquisitiveness are simply so much bother; and at a later stage the paternal power is apt to stave off an invasion of curiosity by arbitrary acts of summary repression. It is the part of intelligent supervision to utilize the spontaneous energies of body and mind by turning them into channels that shall distribute them so as to foster a full and equable development. By the time that the child comes into the hands of the teacher—even of the Kindergarten teacher—not a little of the original force will have been misdirected or perverted or left to expend itself in uncontrolled forms, and ideas and habits little consonant with discipline on a far-seeing outlook will have established a certain hold; so that in many, if not in most, cases there will be something to be unlearned, new channels to be opened, old channels to be closed up. It may be somewhat depressing to feel that several generations will be needed to bring the general parental mind to the idea and the practice of considered utilization of the activities of children; but the depression may be mitigated by the certainty that the educationalist is on the right road to success. At the same time, so far as concerns the years up to school age, the road had better be at once recognized as a tolerably long road.

As regards method, all the authorities appear to entertain a most judicious hesitation to lay down any rigid rules. The very materials available prescribe different courses for different localities; and the qualifications, aptitudes, and tastes of different teachers must necessarily, in the mean time at least, be very liberally considered. On both points the tendency will be towards a gradual reduction of differences. But, in any case, the training must proceed upon the materials at hand and according to the capacity and discretion of the trainers. For one thing, it seems fairly clear that the children should be put in the way of making their own observations—that the study should be made a real process of independent research; the teacher exercising a general direction and indicating the bearings and correlation of results. By-and-by, and in no long time, there will be accumulated a vast and varied mass of experience, which will form the safest, if not the only sure, ground for generalizations leading to specific rules and regulations. In the meantime, therefore, it would seem that the authorities will do well to content themselves with very general directions and to allow the spontaneous activity of teachers and taught to strike out in multifarious directions. For it is only the teachers and the children in common work that can develop a system—or, probably, rather systems—that will operate most fruitfully.

The results that may legitimately be expected will, no



doubt, manifest themselves in the most varied forms. The first thing will be a notable discipline in observation—a most fundamental and useful outcome; and one cannot keep up a habit of observation without increasing knowledge and seeking a means of co-ordinating facts in generalizations. Thus a solid foundation for scientific work and for general accuracy of thought is laid; and, at any rate, “such teaching and learning will transform education from a deadly mechanical grind to a living process.” The American boy may find it practically useful to detect and exterminate the San José scale, or the Hessian fly, or the gypsy moth, in preservation of the fruit, or the wheat crops, or the forest trees; and an English boy will be none the worse to be able to discriminate against insect pests, weed seeds, and destructive fungus spores. The economic side of the study widens out as one considers it attentively. Again, if children be habituated to cultivation of flowers, the tendance of home or school gardens, interest in leaves and buds, they are little likely to perpetrate thoughtless damage or cruelty. The æsthetic and the ethical instincts will enjoy simultaneous cultivation. It does not seem unduly sanguine, even on actual results, to expect a gradual elevation of character, personal and civic. We are looking down a long vista of anticipation, no doubt; but the known grounds of promise encourage a large hopefulness.

### NOTES.

THE Report of the Rev. Dr. Woods and Dr. Hill on the University Colleges, just issued as a Blue Book (No. 252), contains a very full account of these institutions, with much judicious and instructive criticism. It covers five years, the previous inspection having taken place in 1896. The Report is very favourable on the whole, acknowledging immense progress. The Commissioners, however, comment adversely on some lecture-rooms and laboratories as out of date and ill-equipped, and on the tendency of most colleges to lay out a large portion of their capital in buildings that cannot readily be adapted to changing needs. They also find a want of suitable common rooms and reading rooms for quiet study. They emphasize justly the waste of professorial energy, the professor too often “muffling his intellect in the multiplied classes of elementary students.” The professor ought to have more leisure for original work, so as to preserve the colleges from sinking into mere finishing academies. There is also revealed a wasteful overlapping and rivalry, not unknown in London. Worst of all, and cause of most of the mischief, is the plentiful lack of money.

WE need only draw attention to the notice issued by the Teachers' Registration Council, printed in another column. The difficulties involved in determining the status of certain classes of teachers are obviously great; and the labour will be materially lightened by “a careful study on the part of applicants themselves of the exact wording of the Order.”

THE Danish Government, too, has its new Education Bill on hand—a measure for a thorough reorganization of the

school system from top to bottom. It treats the Universities, the secondary schools, and the elementary schools as branches of one organic system. That might have been fully anticipated. But the method of realizing the object in view is more sensible than might have been expected. “The Danish Government,” we learn, “has not been content to rely upon political wisdom alone in the elaboration of the new Bill, but has submitted it, clause by clause, to the examination and criticism of a special committee of educational experts, and to representatives of all the parties, classes, professions, and trades interested in the improvement of national education.”

ELSEWHERE we refer to Sir Joshua Fitch's article on “Education” in the latest of the new volumes of the “Encyclopædia Britannica.” All educationists will peruse it with interest. Here we content ourselves with quoting two or three sentences that will not blunt the edge of expectation. With regard to the “unique history” of the public provision for the education of the people, Sir Joshua writes:

That provision is not the product of any theory or plan formulated beforehand by statesmen or philosophers. It has come into existence through a long course of experiments, compromises, traditions, successes, failures, and religious controversies. What has been done in this department of public policy is the resultant of many diverse forces and of slow evolution and growth rather than of clear purpose and well-defined national aims. It has been effected in different degrees by philanthropy, by private enterprise, by religious zeal, by ancient Universities and endowed foundations, by municipal and local effort, and only to a small extent by legislation.

Sir Joshua thinks that “the tendency to distrust theorists and to be afraid of legislation has in England been strongly reinforced, and indeed largely justified, by the fact that most of the legal enactments of the past were negative and restrictive only.” But probably the facts are open to a more incisive criticism. Even yet, as Sir Joshua acknowledges, the country has not accepted in all its fulness Matthew Arnold's view “that, if once an enlightened democracy were animated by a progressive spirit and noble ideals, it would be the part of wisdom to invoke the collective power of the State to give effect to those ideals.” The democracy needs still more light.

SIR JOSHUA concludes his review of the higher education with this sharp sentence:

Notwithstanding all the recent additions to her academic resources, England is still far behind other countries in the provision she makes for University education.

As to the training of teachers, “it is to the Universities chiefly that the public has a right to look for at least a partial solution of this difficult problem.” And the conditions appear to be these three—not one or two of them, but all three together:

(1) That the function of the teacher shall be recognized as one of the learned professions, and take honourable rank in Law, Medicine, and Theology.

(2) That the University shall provide a Professor of Didactics or Pedagogy, whose duty it shall be, by means of post-graduate courses of study and by requiring systematic practice of the art of teaching under due supervision and criticism, to give to the future schoolmaster both a practical and a theoretical acquaintance with the principles of his profession.

(3) That the University shall institute an examination for all students who may have passed through the prescribed course, and that this examination shall set up a high standard of qualification in regard to the practice and the history of education, and to so much of mental and moral philosophy as stands in the closest relation to teaching, whether considered as an art or as a science.

Here one and there another of these requirements have been fulfilled; but until they have all been fulfilled "the British Universities will fail to exercise their legitimate influence on public education, and will neglect a great opportunity of ennobling and liberalizing the teacher's profession."

AMONG the associations for educational purposes Sir Joshua gives some prominence to the College of Preceptors, which we observe with satisfaction. He writes:

The College of Preceptors, a chartered society chiefly composed of private teachers, was incorporated in 1849, and was one of the first professional bodies to institute regular courses of pedagogic lectures, and to award after due examination the titles of [Fellow and] Licentiate and Associate to teachers. It has also, by means of its system of examining pupils, given a valuable stimulus to educational progress, especially in many schools which, while distinctly above the rank of elementary, have not availed themselves of the Oxford and Cambridge Local examinations. The conferences and discussions which are held at the College during each session have proved of considerable value, both as a help to the members and other teachers in dealing with professional problems, and also as a means of enlisting the attention and sympathy of the general public in relation to these problems.

THE Carnegie Trust has disbursed in payment of fees during the first year of operation the sum of £34,916. 7s. 6d.—that is to say, £22,941. 16s. 6d. on behalf of 2,441 students during the winter session, and £11,947. 11s. on behalf of 1,595 students during the summer session—about £8. 15s. a head. It is scarcely surprising that the trustees at their recent meeting in Edinburgh decided to look a little more closely at the qualifications of applicants for profiting by Dr. Carnegie's beneficence. Clause B of the trust deed originally ran thus:

The other half of the income . . . shall be devoted to the payment of the whole or part of the ordinary class fees exigible by the Universities from students or scholars who have given two years' attendance after the age of fourteen years at such schools or institutions as are under inspection by the Scotch Education Department. They must have passed in the subject-matter of the class for which payment of fees is to be made the examination qualifying for admission to the study of that subject at the Universities, with a view to graduation.

The latter sentence has now been omitted, and in its place the following words are inserted:—

And, that they (the students or scholars) may be recognized as deserving and qualified, they must also have passed in the Leaving Certificate Examination of the Scotch Education Department or the Scottish Universities Preliminary Examinations or other examinations recognized by the Scottish Universities Joint Board of Examiners in such subjects and grades and under such conditions as the Executive Committee may from time to time determine.

The alteration, which is no doubt based on experience gained during the year, seems to be entirely reasonable. The beneficiaries will not be permitted to waste the money.

THE first clause of the trust deed—Clause A—is just on the point of being brought into operation. Under it one half of the net annual income of the Trust is to be applied towards the improvement and expansion of the Universities in the Faculties of Science and Medicine and towards the improvement and extension of the opportunities for scientific study and research. A few months back the authorities of the Universities, on the invitation of the trustees, drew up statements of their more urgent needs in the departments referred to. Of course, these needs far outrun the funds in the hands of the trustees to meet them; and the Universities are awaiting with lively expectancy the scheme that the trustees have just adopted and will "publish shortly." In

any case, each of the institutions will be immensely benefited, and local generosity ought to be stimulated to fill up any gap in the programme of their development. There is some fear, we understand, that the trustees may specify in detail how the money is to be spent. We have no doubt, however, that the University authorities will be left as much freedom as is good for the purposes of the benefaction.

In another column we quote certain statements reported to have been made by Prof. Flinders Petrie regarding the Egyptian treasures he has found and missed. Is it credible that the French Government should carelessly permit a French subject, under a concession, to plunder and destroy, with crass vandalism, the invaluable materials for the reconstruction of ancient Egyptian history and civilization? If so, then surely the British Government is bound to intervene. We cannot believe that anything more would be necessary than a simple statement of the facts. It is hardly less painful to find that the antiquities discovered by Prof. Petrie "will all go to American museums, perhaps, as hitherto." Especially ridiculous is it to say that there is no accommodation for them in this country. If the British Museum authorities can house their newspapers at Enfield, why can they not similarly house these priceless Egyptian antiquities, were it even on some uninhabited island, or on some deserted farm in one of the near counties? If the country cannot do so much for the higher studies, it is about time to put up the shutters finally.

THE working of the system of affiliation of the provincial colleges is interestingly illustrated by the case of Mr. Benjamin Davies, B.A. of St. David's College, Lampeter, who has just gained a First Class in Mathematical Moderations at Oxford. This, we learn, is the first occasion on which a student of an affiliated college has obtained this distinction without previous residence or training at Oxford. Mr. Davies was a pupil-teacher in an elementary school at Dowlais, in Glamorganshire, before he went to Lampeter; and his father is a miner. The result is most creditable all round. No fear of Lampeter, with fair play and reasonable encouragement. And there must be many more Davises in these parts. Happily we are at last beginning to see how to find them out, and how to enable them to show what is in them.

## SUMMARY OF THE MONTH.

THE alterations, amendments, or concessions in the Education Bill have in no way mollified the temper of its opponents. The Nonconformist spokesmen still maintain an attitude of uncompromising hostility. The progress of the measure in Committee of the House of Commons is outlined in our first leading article.

CARDINAL VAUGHAN writes to the *Times* as follows:—

Allow me to point out the hidden meaning of an amendment which I see from the columns of the *Times*, certain members of Parliament are anxious to introduce into the Education Bill. In days when people are so caught by phrases, the words "broad and popular control" go for a great deal. The inner value of the amendment I allude to is this, that it contains a device for capturing denominational schools. The process is a specious one. Begin by weakening the strength of the clerical managers of the denominational school—on the plea that laymen are better men of business and know less about doctrine; say, stoutly, that the clergy represent a sect, not the interests of the parents. Then call on the parents to elect their own representative to the board

of management, and let the Local Authority do the same. In other words, take care that the official, trained, and trusted representatives of the religion in which parents desire their children to be educated be placed by Act of Parliament in a helpless minority on the board. You will thus have established by law within every denominational school the desired possibility for disintegration and disruption—for the school is to be open to all comers, irrespective of their creed. The result of the Bill, if passed into law with such an amendment, will be to place every religious school in the country on a basis of permanent uncertainty and unrest. But the secularist and the Nonconformist parties will have scored. They will have secured from Parliament a chance and a right to harass, to weaken, and, if they can in the end, to capture the denominational schools. Better remain as we are, poor but free, than put our heads into such a noose.

THE BISHOP OF ROCHESTER, addressing his Diocesan Board of Education (July 3), dealt with three main points in the Education Bill. As to religious teaching, he said:

Speaking roughly, there are, it seems to me, two systems possible: (1) The system of the Church school, with all such safeguards, qualifications, and concessions as may go all the length that we can go to meet the conscientious feelings of others and to satisfy their requirements; (2) the system of a school managed by a mixed committee—we have often heard it talked of as the Board school in every parish. . . . Now, what I want to ask is, which of these two schools, from the point of view of the Nonconformist as well as the Churchman, is likely to give the best practical education in a religious sense? I do not myself feel any doubt about the matter. I feel very sure that, though there are, no doubt, cases—there are bad cases in every system—where the thing works ill, on the whole, it is a system which works, and is felt to work, for the religious good of the children generally. A mixed committee on any subject is always inclined to arrive at a *modus vivendi* by setting aside difficulties and getting along upon what everybody can agree to on the line of least resistance.

As to public control where there is public support, the Bishop remarked:

First, there is the public control from Whitehall as before . . . a powerful central public control. Second, the schools, as regards secular education, pass under the control of a powerful Local Authority, and when that Authority has prescribed what it cares to prescribe, and inspected as much as it cares to inspect, to see that its prescriptions are applied, I think you will find that the amount of local option within the walls of the schools will have been reduced to a comparatively small quantity. Then we find it is said that the influence of those whom I will call public nominees is an entirely illusory safeguard. Really, I think that can only be said under the stress of controversy. . . . It shows an extraordinarily small amount of trust in the influence of opinion, in the influence of open and often recorded debate, in the influence of the spirit of justice on the part of all members of these bodies, if the presence of one-third of the public nominees does not very largely influence the action of the body which they form.

On the subject of the religious opinions of teachers, the Bishop continued:

I know an instance with which I had to do in Yorkshire of a very efficient Church school where a leading assistant teacher was a Wesleyan. I was never aware of any ill result which followed in that case. We have got to look at this kind of instance, the instance of a school where a large number of the children are the children of Nonconformists. It would not seem at all an unreasonable thing if we have, as I think we have, in this part of the field the position of vantage, if we have the full opportunity of giving our teaching to our children in our schools, that we should have on the staff a teacher who could give what teaching they may desire to the children of Nonconformists. I know, of course, the arguments against this; I know how much it would put on many of our own people; I know they would say: You ask us to admit into our schools the teaching of what we consider to be error. Yes! there is a certain considerable force in this argument—not one of us but feels it. But I return again to the whole look of the matter. . . . I ask whether, perhaps, fairness and sympathy are not better than a strict insistence upon the full measure of our claims. Whether it would be possible to put anything of that kind into the Bill I should feel doubtful; but the Bill may give power to a managing committee to employ a Nonconformist teacher or teachers wherever there are a certain number of Nonconformist children.

THE REV. DR. CLIFFORD, writing to the *Daily News* (July 17), acknowledges that "it is a good thing (1) that the 'whisky money' must be spent on secondary education; (2) that the two-penny rate limit in county boroughs is abolished; (3) that the Local Education Authority must inquire into the educational

needs of the area over which it rules; and (4) take the training of teachers in hand." But he goes on to say:

Let us remember the "concessions" have not removed the injustice of the existing training colleges. There are still over three-fourths of these colleges, supported, to the extent of more than three-fourths of their cost, from the public funds, and yet exclusively managed by Anglicans and for Anglicans, the doors of admission being rigorously locked against the best King's Scholars if they refuse to conform to the Anglican denomination. In the mildest language, that is described as a "grievance": if looked at as it really is, it is one of the gravest wrongs inflicted upon the nation by Parliament. It is a wrong to the teaching profession, since it puts a premium upon hypocrisy and rewards incapacity; it is a wrong to the children, for it robs them of the opportunity of being served by the best trained and best drilled teachers; and it is a wrong to the State, because it tends to slacken the fibre and deprave the quality of its citizens. An educational measure that perpetuates that injustice is an affront to the intelligence, to the conscience, and to the patriotism of the people. Let the Colonial Secretary propose it to New Zealand or Victoria, and see how they will treat it. Tell an American of it, and he marvels at British stupidity, and says his countrymen would reject it with ineffable scorn.

"If this Bill passes into law as it is now shaped by the Committee of the House of Commons," says Dr. Clifford, "it will be the most reactionary measure of the last half century, as the mere attempt to carry it is the most pathetic sign of our national decadence."

A ROUND-TABLE Conference on the Education Bill, initiated by the Bishop of London, and attended by representative Churchmen and Nonconformists, was held at Fulham Palace. The discussion was carried on through two prolonged meetings, but, we understand, it issued in no definite agreement. The Churchmen are said to have held firmly to two-thirds representation on the board of management, and the Nonconformists to have been equally determined against it. But they all lunched together very amicably.

THE Nature-Study Exhibition and Conference at the Royal Botanical Gardens have proved a gratifying success. Certificates of merit were awarded for various home-made apparatus suitable for Nature-study instruction, for descriptive accounts of the best organization of a school museum as a district centre of Nature study, for school museums exhibited in whole or in part, and for other exhibits of exceptional merit.

THE DUKE OF DEVONSHIRE opened the proceedings, expressing the warmest sympathy of the Board of Education with the movement. Referring to the fear of the country gentry and farmers that efficient education might take the agricultural labourer off to town, the Duke said:

The Board of Education, being conscious of this difficulty, were anxious to provide some means of bringing education into closer relationship with rural aims and interests, and to show that there was no necessary antagonism between sound elementary education and the cultivation of the land. Within the last three years, the Board had received much necessary and valuable outside assistance, and an influential Committee had been formed to adapt rural school teaching more nearly to modern requirements. The Board had approved their suggestions, and had taken some practical steps in connexion with the changes proposed. The general idea had been to foster interest in rural schools and promote intelligent knowledge of common things. The Board now required that Nature studies should be taken as one of the subjects in teachers' examinations, and had received most cordial assistance from the great majority of training colleges and from County Councils. The Board hoped that the new departure would awaken increased interest in rural schools from parents and employers. They had not supposed for a moment that Nature study should be restricted to country schools. With certain modifications, the subject might, with great advantage, be introduced into all schools. The idea underlying the movement was that, while they recognized the vast store of knowledge to be gained from books, they yet felt that there was much to be learned from the actual facts of Nature themselves. And, while the study of books might too often be an exercise only of the faculty of memory, and might leave almost untouched the other faculties of the human mind, on the other hand the intelligent study of Nature's facts was a mental discipline which could not fail to develop those powers of the mind which it was the object of all true education to discover, to cultivate, and to strengthen.

At the first Conference meeting (July 24) Mr. R. W. Hanbury, M.P., President of the Board of Agriculture, took the Chair, and Lord Avebury delivered an admirably appreciative and stimulating address on "The Study of Nature."

Before a child is carried far in any one subject, said his lordship, it should be explained to him that our earth is one of several planets revolving round the sun; that the sun is a star, that the solar system is one of many millions occupying the infinite depths of space; he should be taught the general distribution of land and sea, the continents and oceans, the position of England and of his own parish, the elements of physics, including the use and construction of the thermometer and barometer, the elements of geology and biology. . . . With these subjects Lord Avebury would teach arithmetic, some knowledge of language, drawing (almost, if not quite, as important as writing), and, perhaps, music. . . . But specialization should not begin before the age of seventeen, or sixteen at the earliest. . . . Lord Avebury said he often grieved to think how much happiness his fellow-countrymen lost from their ignorance of science. No one with any knowledge of science could ever be dull. No one would sit and drink in a public-house if he knew how delightful it was to sit and think in a field; no one would seek excitement in gambling and betting if he knew how much more interesting science was. Science never ruined any one, but was a sort of fairy godmother, ready to shower on us all manner of good gifts if we would only let her. The study of Nature was not only most important from a practical and material point of view, and most interesting, but it would also do much to lift us above the petty troubles, and help us to bear the greater sorrows of life.

On July 25 Lord Strathcona took the Chair, and Prof. Lloyd Morgan gave an address on "Nature Study in Elementary Schools." On July 29, Lord Balfour of Burleigh in the Chair, Prof. Bickmore, of the Natural History Museum, New York, spoke on "Visual Instruction" (with illustrations). On July 31, Sir George Kekewich in the Chair, Prof. Miall discussed "Nature Study in Colleges and Higher Schools." And on August 1 (to-day) Sir W. Hart-Dyke, Bart., M.P., in the Chair, the Rev. Canon Steward, Principal of the Training College, Salisbury, addresses the Conference on "The Training of Teachers in Nature Study." On each day selected speakers also dealt with three or four different aspects of the subject. The Conference-room was crowded, and on some days many were unable to get within hearing. We refer to the meeting and the subject in our leader columns.

An Educational Conference (with closed doors) was held at the Colonial Office, we understand, on July 10, under the presidency of the Earl of Onslow, the Under-Secretary for the Colonies. It was initiated by the Oxford University authorities, and was attended also by many colonial representatives, political and educational. The subjects on the card were, we believe, (1) the present status and privileges of students from the colonies; (2) the special requirements of students from the colonies; and (3) the provision, actual or possible, for meeting such requirements. The Oxford representatives entered upon the discussion on the understanding that the exchange of views was a purely informal one, and that the object was merely to supply and obtain information. As to the present position of colonial students, it was pointed out that to obtain a degree in Arts a student must reside in Oxford for three years, and pass three examinations—Entrance, Intermediate, and Final; while to obtain a degree in Science a two years' residence and the performance of some original research are required. The University at present gets annually from twenty to thirty-five colonial students that have little or no prior University training, and about five from one or other of the colonial Universities—the Cape, Sydney, Adelaide, Melbourne, New Zealand, Toronto, the McGill University (Montreal), Tasmania, and New Brunswick. These candidates may be excused a year's residence under certain circumstances, or else one of the examinations. In addition about six students from the colonies annually enter at Oxford at from twenty-two to twenty-five years of age for special study in letters, science, or law. The University authorities sought to know if special educational needs existed in the colonies in regard to those students aiming at political careers, learned professions, commercial careers, or the Civil Service. At present the University has special courses in philosophy, psychology, history, theology, physical research, law, economics, and history and practice of education. It was suggested that additional courses could be arranged if a demand were shown to exist. It is understood that these matters have long engaged the attention of the college authorities, and that the Rhodes scheme has helped to bring the question to a head. The conclusions of the Conference, if any, are not yet disclosed. It is stated, however, that Oxford will formulate a scheme embracing the conditions under which Colonial students will be

admitted to the full advantages of the University, and that this will be officially published in the course of the next few months.

At University College, London, there was opened on July 1 a most interesting exhibition of antiquities recently found by Prof. Flinders Petrie at Abydos, and by Dr. B. P. Grenfell and Dr. A. S. Hunt in the Fayum and El Hibe, under the auspices of the Egypt Exploration Fund. A representative of the *Daily News* asked Prof. Petrie where the specimens would be permanently preserved.

"Where, indeed!" he answered, bitterly. "They will all go to American museums, perhaps, as hitherto. We have no accommodation in this country—at least, it would be ungrateful to forget that the Horniman Museum people have come forward and offered to take one tomb. . . . But, as for the British Museum, they have no space. Oh; why won't they act upon my suggestion and erect a storehouse outside London to contain what I call the 'study material,' while keeping the British Museum itself for what might be called show specimens? A huge range of premises on cheap land outside London might be provided for five years' expenditure on the growth of the Bloomsbury institution."

ANOTHER point brought out in the interview was the incredible vandalism that has been going on in Egypt. Prof. Petrie is reported as follows:—

"Every year," said he, "the plunderers work more and more havoc, so that in another decade all will be obliterated. It is ingrained in the mind of the natives that the country benefits by their depredations. In vain we pay them for assisting in our orderly researches more than they would receive from the sale of their haphazard booty. You see, it is all in the hands of the French, and they look on without protesting, regardless of the spoliation." "But why is it in the hands of the French?" "Because," was the Professor's bitter answer, "fifteen years ago Lord Cromer handed over the Department of Antiquities entirely to the French, the consideration being the completion of the Debt Conversion. What is the result? The whole of the ground I have recently covered had previously been looted, all the tombs of fifteen kings being mixed together, and no record being kept. All this indistinguishable mass of material is now on sale in Paris, but no one is permitted to see it who cannot prove that he is a possible purchaser. This is an outcome of a five years' concession made to M. Amelineau, who was given a free hand to plunder the place; so that, in attempting to work out the history, I had nothing to go by but the scraps his workmen had left behind out of sheer carelessness, for their orders had been to destroy all that they did not remove. In these matters political considerations control the situation, and the French are actuated merely by an idea of aggrandizement. They have now secured a concession of all the antiquities of Persia, and already I hear of beautiful Persian objects in the Parisian market."

It will be remembered that in January last the Drapers' Company offered the handsome sum of £30,000 for the extinction of the debt on University College, "provided that the Senate of the University and the Corporation of University College can, before February 28, 1903, agree upon a scheme for the incorporation of the College in the University, and such scheme be approved by the Company." The Senate of the University have considered the proposal in all its bearings, administrative and financial, and have approved the outlines of a scheme that had been drafted in conference with the Council of the College as a preliminary step towards its realization. Further negotiations are in progress between the University and the College with respect to certain details, and it is hoped that by the date specified a complete scheme for the incorporation of the College with the University will be agreed upon. The realization of the scheme will depend upon whether it is possible to raise the necessary money.

PRINCIPAL HOPKINSON, speaking on Degree Day at Victoria University (July 3), referred to the relation of secondary schools to the University as follows:—

It is important to notice how the Preliminary Examination of the University is becoming recognized as one for which the pupils in the secondary schools of the districts are to be regularly prepared, and on the results of which awards are to be made. Already the Councils of the city of Manchester and the county of Cheshire have arranged to award their science scholarships on the results of this examination, and it is to be hoped that other Local Authorities may adopt the same policy, thus securing the great advantage to the schools of preventing multiplication of examinations, and enabling them to prepare for an examination which will have a tendency to prevent too early specialization, and which will also make it possible for them on entering the

University to proceed to higher work in any Faculty, and to have the advantage of the certificate which exempts from the preliminary examinations of the various professions. The recognition by the Board of Education under the recent Act, and the fact that so many representatives of the University are, under schemes of the Charity Commissioners, placed on the governing bodies of secondary schools, are further indications of the growth of the close connexion between our University and the secondary schools, a connexion upon which the success of both so largely depends.

A SCHOOL of Modern Languages has been founded in the University of Birmingham. The course will extend over three years, and will be of an advanced and comprehensive character, including lectures not only on the philology and literature of modern languages, but also on the history and institutions of foreign nations and on the methods of modern language teaching. Only students that have obtained a first class in the Intermediate Examination in French, German, Latin, English, Mathematics, or Logic will be allowed to enter the school with a view to graduation in it. Candidates may, however, take the Intermediate Examination at entrance to the University in lieu of the Matriculation Examination. A special Intermediate Examination will be held for this purpose in September, 1902. After completing their course of study, and passing two examinations (one at the end of the first year, and another at the end of the third, this latter being equal in standard to the ordinary M.A. Examination) students of the school may be admitted to the degree of "Bachelor of Arts in the School of Modern Languages," and after one year of further study in this or a foreign University they may be admitted to the degree of "Master of Arts in the School of Modern Languages" on presentation of a thesis. The main purpose of the school is to train teachers of modern languages for English secondary schools. (For the scholarships, see under "Current Events.")

LAST June the Technical Education Board instructed their Higher Education Sub-Committee to inquire and report as to the need and present provision for special training of an advanced kind in connexion with the application of science (especially chemistry and electricity) to industry. The members of the sub-committee came, without a dissentient voice, to the conclusions (1) that England—and London in particular—has suffered the loss of certain industries, and that others are in danger; (2) that this loss has been largely due to defective education, especially in the higher grades; and (3) that London is still seriously behind other cities, notably Berlin, in the provision for the higher grades of scientific training and research. "We have considered the report of our sub-committee," say the Board, "and concur in the conclusions arrived at."

It was with exceptionally good reason that the Master of the Brewers' Company congratulated (July 16) Mr. Easterbrook, Head Master of Owen's School, Islington, on the success of the school during the past year. He could claim the Senior Wrangler and a good many more—for example, Mr. E. V. Goodall, head of his year at the Royal Engineering College, who had taken all the prizes open to him. Among other successes were ten London County Council scholarships of the annual value of from £30 to £40. Owen's had gained sixty of these scholarships since they had been instituted, by far the largest number awarded to any one school during the past seven years. They had also secured three out of the five Middlesex Intermediate Scholarships. In the Cambridge Local examinations they had again the largest number of honours, first classes, and distinctions in the country, as well as the largest number of certificates awarded to any one school. They had gained the largest number of honours in these examinations for eleven years in succession. Successes had also been obtained at the University of London examinations. During the year a number of Owen Scholarships and Exhibitions had been awarded.

The Bishop of London presided at the annual distribution of prizes at the North London Collegiate School for Girls (July 4). The honoured name of Buss, known to him already in East London, he now found, he said, to be no less honoured in North London. This was one reason of the great pleasure it gave him to come to the school; another was that it was a pioneer school: common as high schools are to-day, it was this school that began the whole movement. He then spoke of the influence for good

such a great school possessed—an influence affecting the home life of wives, mothers, and sisters, as well as that more public life now open to women in so many capacities. The prizes were given away by the Countess Grosvenor.

### THE NEW PROFESSORS OF EDUCATION.

MR. JOHN ADAMS, Rector of the United Free Church Training College, Glasgow, and Lecturer on Education in Glasgow University, has been appointed Professor of Education in the University of London.

Prof. Adams is M.A. and B.Sc. of Glasgow University, and he gained the first place in the Fellowship Examination of the College of Preceptors. Before going to the Glasgow Training College he was Rector of the Free Church Training College, Aberdeen. He was a candidate for the Chair of Education at St. Andrews, but withdrew his application before the election.

At a meeting of the University Court held at St. Andrews on July 17, Mr. Andrew Carnegie, LL.D., Lord Rector, presiding, Mr. John Edgar, M.A., classical master, Royal High School, Edinburgh, was elected to the Chair of Education, rendered vacant by the death of Prof. Meiklejohn.

Mr. Edgar received his school education at Dumfries Academy, where he was *dux* in both classics and mathematics. At the University of Glasgow he graduated with First Class Honours in Classics, and was awarded the Snell Exhibition. After studying for four years at Balliol College, Oxford, he graduated with Honours in Classical Moderations, and in the Final School of Literæ Humaniores (1882). At Oxford Mr. Edgar spent much time on the study of modern languages and the theory of education. As a practical teacher Mr. Edgar has had long experience. For a short time he taught English and classics in Dumfries Academy, but the chief part of his professional experience has been obtained in the Royal High School of Edinburgh. There he has not only done a large part of the advanced classical work, but has from time to time taught classes in most of the other subjects included in secondary education. For a time Mr. Edgar acted as Secretary of the Secondary Schoolmasters' Association in Scotland. He has devoted a large part of his leisure to literary work on educational lines. He has written and published "A History of Early Scottish Education" (1893); translations of the "Homeric Hymns" and of "Æschines in Ctesiphontem," with introductory essays; a book on "Latin Unseens," with essay on "Method in Translation"; and various articles and reviews on educational subjects. Mr. Edgar takes up his duties at St. Andrews on the opening of the winter session in October.

### REGISTRATION OF TEACHERS.

#### DIRECTIONS BY THE REGISTRATION COUNCIL.

THE following communication has been issued by the Teachers' Registration Council:—

"Applicants for admission to Column B of the Register of Teachers, instituted by the Order in Council of March 6, 1902, may obtain the necessary forms from the Registrar, Mr. G. W. Rundall, 49 and 50 Parliament Street, London, S.W. Before filling up the forms applicants are recommended to study the precise terms of the Order, which is to be obtained, price 1½d., from Messrs. Eyre & Spottiswoode, East Harding Street, Fleet Street, E.C. The head master or head mistress of a 'recognized school' who has held office for not less than one year may be put upon Column B of the Register at any time during the three years following March 6, 1902, without further qualification.

"No announcement that a school has been recognized for the purposes of Section 4 of the Schedule to the Order in Council of March 6, 1902, will, as a rule, be made until recognition is required for purposes of registration. The authorities, therefore, of any school desiring to obtain recognition for it, under the terms of the Order, should submit an application for registration on behalf of one or more of its teachers who appear to fulfil the requirements of the Order.

"The application in each case should state clearly under which provision of the Order in Council recognition of the school is required. The Registration Council will then submit the name of the school for recognition by the Board of Education. The difficulties involved in determining the status of certain classes of teachers are so great that the work of registration must inevitably be slow, to begin with. It will be much accelerated if there is a careful study on the part of applicants themselves of the exact wording of the Order."

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## CURRENT EVENTS.

THE first annual conference of persons in Fixtures. the North of England concerned in primary, secondary (including technical), and other forms of higher education will be held at Manchester on January 2 and 3, 1903. It will proceed on the lines of the conferences established by the Technical Education Board of the London County Council and held in London during the Christmas vacation for some years past. The subjects of discussion will be: "(1) The Curriculum in different types of Schools, showing the proportionate time which should be allotted respectively to Mathematics and Science on the one hand and to Literary and other Subjects on the other; (2) The Co-ordination and Delimitation of Science teaching in various grades of Schools; (3) The Methods of teaching Experimental Science (Physics and Chemistry) in its early stages; and (4) The Methods of Nature Study."

THE University Extension Summer Meeting at Cambridge, we may remind our readers, runs on from August 1 to August 26. Dr. M. E. Sadler opens the Educational Conference to-morrow (August 2) with a consideration of the question: "In what sense can, and ought, schools (primary or secondary) to prepare boys and girls for life?" Prof. Sir Richard Jebb takes the chair.

THE Sixth Annual Conference of the British Child-Study Association will be held at Edinburgh during the first fortnight of May, 1903.

MR. J. K. CAIRD, manufacturer, Dundee, has Endowments. offered to the Council of Dundee University College £13,000 to provide and equip a new laboratory for the Chair of Physics. A few months ago Mr. Caird gave £18,500 towards the erection of a hospital for the treatment of cancer, with £1,000 a year for five years, to facilitate investigation into the cause and cure of the disease. Some years ago Mr. Caird provided £5,000 for the erection of a maternity hospital.

AN anonymous donor has given £1,000 towards the fund for extinguishing the mortgage on Aberdare Hall, Cardiff. Lord Tredegar adds £500; Lord and Lady Aberdare, £200; Mr. John Cory, £200; and there are numerous smaller yet substantial contributions.

MR. FREDERICK W. VANDERBILT has given real estate and a building valued at half a million dollars to Yale University for the purpose of establishing a dormitory for the Sheffield Scientific School, from which he graduated in 1876.

PRINCIPAL REICHEL announces that the University of North Wales will soon receive £2,500 for scientific and technical scholarships to perpetuate the memory of the late Sir G. Osborne Morgan.

THE honorary degree of D.C.L. has been conferred by the University of Oxford upon Sir Edmund Barton, G.C.M.G., Prime Minister of Australia.

THE University of Aberdeen has conferred its honorary D.D. on the Rev. William MacGregor, M.A., Principal of the Theological College, Amoy.

PROF. ASHLEY has most appropriately been made the first M.Co. (Master of Commerce) of the University of Birmingham.

THE Board of Education learn, through the Foreign Office, that, in accordance with the terms of the legacy bequeathed to the city of Barcelona by Señor Don Francisco Martorell y Pena, a prize of 20,000 pesetas will be offered for the best original work on Spanish Archaeology. The essays may be written in Latin, Spanish, Catalan, French, Italian, or Portuguese, and must reach the Municipal Offices at Barcelona not later than noon on October 23, 1906. It is suggested that British competitors should send in their works through the British Consulate in that town. A copy of the regulations under which this competition will be held may be seen at the Board of Education Library, St. Stephen's House, Cannon Row, London, S.W.

MR. AND MRS. CHARLES HARDING have founded some valuable scholarships in connexion with the new School of Modern Languages in the University of Birmingham (see "Summary"). Four of £50 a year each, tenable by students of German for three years, may be awarded—two in 1902, and two in 1903. At the close of the third year travelling scholarships of £100 each, tenable for one year at a German University, may be awarded to scholars that have taken the B.A. degree in the Birmingham School of Modern Languages.

THE London School of Economics and Political Science again offer six studentships for competition in the session 1902-3 among University Extension students. The awards will be made at the end of the session to those students that are recommended by the lecturers and examiners in economics and political science as most likely to profit by more advanced or more specialized work in the subject. Holders will be entitled to free admission to the lectures and classes of the school for one year, renewable for a second and a third year if the reports on their diligence are satisfactory. Further particulars from the Director of the School, 10 Adelphi Terrace, W.C.

BEDFORD COLLEGE FOR WOMEN (University of London) offers six open Pfeiffer Scholarships, fifteen guineas each, to candidates holding a degree (or equivalent) in arts or science and wishing to train as secondary teachers. Apply to Miss H. Robertson, Head of the Training Department, by December 13.

SIR ALFRED L. JONES gives five scholarships, £30 a year each, for three years, at Aberystwyth University College, to encourage technical education.

THE Board of Education have approved the appointment by the Teachers' Registration Council of Mr. G. W. Rundall as their Registrar. Mr. G. W. Rundall, who is an M.A. of New College, Oxford, was a Master at Marlborough from 1877 to 1891, and Head Master of the High School, Newcastle-under-Lyme, Staffordshire, from 1891 to 1900. He is a member of the Head Masters' Conference and of the Incorporated Association of Head Masters, and Chairman of the West Midland Divisional Committee of that Association. He is also a member of the Political Committee and of the

Educational and Library Committee of the Teachers' Guild. During the past year Mr. Rundall has been an occasional inspector of secondary schools for the Board of Education. He has also acted as an examiner for the Oxford and Cambridge Joint Board and for the Civil Service Commission.

THE Vice-President of the Committee of Council on Education has appointed Mr. E. Hackforth as his private secretary, in place of Mr. R. L. Morant, resigned.

MR. R. L. MORANT has been appointed additional private secretary to the President of the Board of Education.

SIR HENRY ROSCOE, ex-Vice-Chancellor of the University of London, has been elected a member of the Academic Council, the Council for External Students, and the Board to promote the Extension of University Teaching, in the room of the Rev. Principal Robertson, who vacated these positions on election to the Vice-Chancellorship.

THE Senate of London University have appointed Dr. Samuel Smiles Assistant Teacher in Organic Chemistry at University College; Dr. F. G. Donnan, Assistant Teacher in General Chemistry at University College; Mr. J. W. Hayward, Principal Laboratory Assistant in Civil and Mechanical Engineering at the Central Technical College. Dr. E. H. Turpin has been elected Dean of the Faculty of Music, in place of Dr. James Higgs, deceased.

THE Board of Advisors for the Chair of Education in the University of London was constituted as follows:—The Vice-Chancellor; Miss H. Robertson and Miss Alice Woods (recognized teachers); Mrs. Bryant, Sir Philip Magnus, the Rev. T. W. Sharpe, C.B., and Mr. Sidney Webb (not recognized teachers).

THE new Professors of Education in the Universities of London and St. Andrews are specially mentioned in another column.

MR. LAWRENCE R. DICKSEE, Fellow of the Institute of Chartered Accountants, has been appointed Professor of Accounting in the Faculty of Commerce in Birmingham University.

THE Cambridge University Local Examinations and Lectures Syndicate have appointed Mr. D. H. S. Crange, M.A., of King's College, to be their secretary for lectures, in succession to Dr. R. D. Roberts.

MR. C. T. PREECE, B.A., has been appointed Lecturer in Mathematics in Birmingham University.

MISS M. PORTER, B.A. (R.U.I.), has been appointed science-mistress, and Miss E. MacGiffen, B.A., language mistress, at the Cork High School for Girls.

THE Technical Education Board of the London County Council have appointed Mr. A. H. Christie, teacher of design at the Council's Central School of Arts and Crafts, to be Inspector of Art Schools and Classes; Mr. A. J. Newton, chief assistant at the Bolt Court School, to be Principal of the School of Photo-engraving and Lithography; Mr. D. R. Harris, assistant master of mathematics and Lecturer on Education at Aberystwyth University College, to be Normal Master at the London Day Training College; and Miss Margaret Punnett, Principal of the Cambridge Day Training College, to be Normal Mistress at the London Day Training College.



DR. W. H. WILLCOX, M.D., D.P.H., has been appointed Lecturer in Hygiene at Bedford College for Women.

MR. JAMES CLARK, M.A. (Aberd.), B.A. (Oxon.), Rector of Dumfries Academy, has been appointed one of His Majesty's Inspectors of Schools.

THE REV. ARCHIBALD RICHARD FRITH HYSLOP, M.A., for the past ten years an assistant master at Harrow, has been elected Warden of Trinity College, Glenalmond, in succession to the Rev. Canon Skrine.

MISS CHARLOTTE E. AINSLIE, B.A. (Lond.), L.L.A. (St. Andrews), Senior Lecturer in the Cambridge Training College, has been appointed Head Mistress of George Watson's Ladies' College, Edinburgh.

MISS M. GERTRUDE FRODSHAM, B.A. (Lond.), Resident Lecturer at the Cambridge Training College, has been appointed Head Mistress of the New St. Saviour's and St. Olave's Grammar School for Girls, New Kent Road, Southwark, which will probably be opened in January next.

MR. A. M. ABRAHAMS, one of the senior teachers of the Jews' Free School, has been appointed Head Master of the Jewish School at Johannesburg.

THE Head Mastership of the Whitgift Grammar School, Croydon, will become vacant at Christmas. Applications to be lodged by September 25.

Literary Items. THE first volume of "The Cambridge Modern History" will appear on November 1; the last—the twelfth—six years hence. The general scheme of the work was drawn up by the late Prof. Lord Acton, and the editors are Dr. Ward, Dr. Prothero, and Mr. Stanley Leathes. The first volume, which is to treat of the Renaissance, will contain, as preface, a general statement of the plan and scope of the entire work. "By a universal modern history," say the editors, "we mean something distinct from the combined history of all countries; in other words, we mean a narrative which is not a mere string of episodes, but displays a continuous development. It moves in a succession to which the nations are subsidiary." For each of the twelve volumes of the History some historical fact of signal importance has been chosen as the central idea "round which individual developments are grouped, not accidentally, but of reasoned purpose."

THE lectures delivered by the late Lord Acton as Regius Professor of Modern History at Cambridge have been arranged for publication by his son, and will be issued by Messrs. Macmillan. Lord Acton delivered two courses—one on the French Revolution and the other on the General History of Modern Times. They are to appear in two volumes, with Lord Acton's inaugural lecture. It is hoped that a volume or two of his essays may be issued at a later date. The forthcoming volumes have been edited by Mr. R. Vere Laurence, Fellow of Trinity College, Cambridge.

MESSRS. FUNK & WAGNALLS, of New York and London, have the second volume of their great "Jewish Encyclopædia" ready for publication. It contains the articles from "Apocrypha" to "Benash." The head of the publishing company, Dr. I. K. Funk, is an ex-Lutheran minister. It has been the subject of remark that the greatest of Jewish literary enterprises "since the Talmud" should have been taken up by a Christian firm. The publishers of the "Encyclopædia" are also the publishers of the well known "Standard Dictionary."

MR. FISHER UNWIN has just published in the "Climbers'

Guide" series the first volume of a detailed guide to the Bernese Oberland, by Mr. Hasler, a well known climber in that region. It comprises the portion lying between the Gemmi Pass and the Mönch-Joch. A second volume (on to the Grimsel Pass) is in preparation for issue next summer. Other volumes are in contemplation.

THE Walter Scott Publishing Company announce a work on "Tolstoy: his Life and Works," by Mr. John C. Kenworthy, an intimate friend of the great Russian writer; and a new illustrated series of "The Makers of British Art," edited by Mr. James A. Manson.

THE second of the Rev. Dr. Stokoe's "Manuals of the New Testament"—"Life and Letters of St. Paul"—is promised by the Clarendon Press for September 1. The third volume—"Early Days and Letters of the Church"—will appear "shortly."

THE *Athenæum* of July 5 contains a useful series of articles reviewing the literature of the Continent during the last twelve months.

MR. FISHER UNWIN has in the press a translation of M. Emile Boutmy's "Essai d'une Psychologie Politique du Peuple Anglais au XIX<sup>e</sup> Siècle"—a study of the English nation of the present day in its political, social, and moral aspects, and of the causes that have led to the formation of the British character.

RECENT Parliamentary Papers include a Report of the Historical MSS. Commission on Manuscripts in the Welsh Language, Vol. II., Part I. (1s. 9d.); Education, Scotland, Report by the Accountant-General (6d.); Report of the Proceedings of the Charity Commissioners for England and Wales under the Endowed Schools Act for the Year 1902 (1d.); Board of Education, Draft Order in Council modifying regulations contained in the Order of March 6, 1902 (1d.); Supplementary Regulations for Secondary Day Schools and for Evening Schools (4d.); and a Blue-book, containing Lists of Associations constituted under the Voluntary Schools Act, 1897, Associated Schools and Amounts of Aid Grant paid, and Unassociated Schools and Amounts of Aid Grant paid (8½d.).

THE following Further Regulation for the Intermediate Examinations of Internal Students of the University of London has been approved:—"A student who fails in one subject only at a Special Intermediate Examination may take that subject alone at the next Special Intermediate Examination at the same school."

WESTFIELD COLLEGE has been admitted a school of the University of London in the Faculty of Arts.

WE cut the following instructive paragraph from the June number of the *Educational Review* (St. John, N.B.):—

Prof. Jeffrey, Toronto University, who has shown ability for research work (in botany), was enjoying a salary of 1,800 dols. Harvard wanted him, and made the inducement much larger. Toronto responded by meeting the figure of Harvard. The latter bid again, more than doubling the first salary. The professor goes to Harvard.

What public institution in this country can select the man it wants after this businesslike fashion?

THE *Schoolmaster* (July 19) very properly gibbets two educational enormities. (1) The Llandinam School Board in February last appointed a lady "assistant teacher, under Article 68, at a salary of £8 per annum, the appointment to date from April 1 next." "Three shillings per week for one whose duty and privilege it is to develop the faculties and mould the characters of the little ones in their most plastic stage!"

The date, at any rate, is strictly appropriate. (2) "The Norwood (Middlesex) School Board, known commonly as the Southall Board, not only retains the stupid C.P. rules in its Code, but has inflicted a novel task on its teachers, as undignified as it is unnecessary. Belfries have been erected on all the schools of the Board, and to the teachers has been delegated the delightful duty of ringing the school bells six times a day. We are positively informed that the teachers are not allowed to avail themselves of the assistance of a boy, but must personally pull the rope for the space of three minutes!"

THE British Child Study Association has published in a convenient pamphlet (G. Street & Co., 164 Piccadilly) the proceedings at the Conference on Child Study held at Normansfield, Hampton Wick, on June 24.

THE Board of Education have decided that there shall in future be one continuous course of study at the training colleges, lasting for two years, with periodical inspection during the period, and an examination at the end of it sufficient to test the efficiency of each student, and invite the training colleges to submit for approval their proposed two years' course for 1902-3, "complying generally with the requirements of the outline curriculum" suggested by the Board.

BEDFORD COLLEGE FOR WOMEN (University of London) is giving special attention to its course of scientific hygiene, theoretical and practical, which is recognized by all qualifying authorities, and, indeed, far exceeds their requirements. The course extends from October to June.

THE Johns Hopkins programme for next session provides, in the Oriental Seminary, three courses on Philippine dialects—two on Tagalog and one on Visayan.

THE University question is contested in the North with unabated warmth. Liverpool is backed up by Chester; Owens is supported by Salford. Yorkshire is engaging counsel "to oppose all proposals for breaking up the Victoria University."

THE Council for the Extension of Higher Education in the Potteries are calculating the cost of a projected college in North Staffordshire. "It is hoped that the school of pottery, in addition to training men, will act as a central advisory and analytical department for the manufacturers."

*Vanity Fair's* July cartoon effectively hits off "Marlborough College" (Rev. G. C. Bell).

THE Royal University (Ireland) Graduates' Association unanimously adopted (June 29) this resolution:—"That we, as citizens of Ireland, have been convinced by the evidence already given before the Royal Commission, by public correspondence, and from various other sources of information, that both primary and secondary education are in a deplorably inefficient condition, notwithstanding the lavish expenditure by the State, and that an impartial Royal Commission to investigate the relation of the State, the Local Authorities, and the various Churches to primary and secondary education is urgently required."

HARTLEY COLLEGE (Southampton) and Reading College have been recognized by the Board of Education as University colleges.

BEDFORD COLLEGE FOR WOMEN is following the example of University College and King's College in making a public appeal for funds "to enable it to extend its premises and to endow some of its lectureships."

## COLLEGE OF PRECEPTORS.—HALF-YEARLY GENERAL MEETING.

THE ordinary half-yearly General Meeting of the Members of the Corporation was held at the College, on Saturday, July 19. The Secretary having read the notice convening the Meeting, Dr. WORMELL was appointed Chairman.

The Report of the Council was laid before the Meeting, and was taken as read; a copy having previously been sent to every member of the College. It was as follows:—

### REPORT OF THE COUNCIL.

THE Council beg to lay the following Report of their proceedings for the past half-year before the Members of the College:—

1. They have to report that the number of candidates entered for the Midsummer Examination for Certificates is about 3,950, while the number of entries for the Lower Forms Examination is about 1,300. These figures show a slight increase as compared with last year's returns.

2. The Professional Preliminary Examination for intending medical students and others was held as usual in the second week in March, and was attended by 217 candidates. This is a considerable increase as compared with the last Examination held at the same period of the year.

3. For the Midsummer Examination of Teachers for the College Diplomas 3,640 candidates have entered (including 18 who enter for the practical examination for Certificates of Ability to Teach). This number shows an increase of 30 as compared with the number of teachers who presented themselves for the corresponding Examination last year, and is larger than at any previous Diploma Examination conducted by the College at the same period of the year. The forthcoming Examination will be held in London and at the following Local centres:—Birmingham, Bristol, Leeds, Manchester, Arbury (I. of Man), Boston, Burton-on-Trent, Dorchester, Hereford, Jersey, Liskeard, Lowestoft, Spalding, Truro, Cowdenbeath (Scotland), and Calcutta.

4. In addition to their own Examinations of pupils and teachers, the Council have conducted during the past half-year the Examination of a number of Schools by Visiting Examiners.

5. The Thirty-first Annual Series of Lectures to Teachers on "The Science and Art of Education" commenced on the 21st of February, with a Course of Twelve Lectures on "Intellectual Education" by Professor James Sully, M.A.; and a Course of Twelve Lectures on "The Practice of Education" will be delivered in the autumn by the Rev. Canon Daniel, M.A.

6. The usual Monthly Evening Meetings of the Members have been held, at which the following lectures have been delivered:—"Histories of Literature, and their use in the Earlier Stages of Literary Study," by H. C. Bowen, M.A.; "Impending Reforms in the Teaching of Elementary Mathematics," by J. J. Findlay, M.A., Ph.D.; "The Feelings as a Factor in School Training," by J. L. Paton, M.A.; "Some Notes on American Universities," by Professor W. Knight, LL.D. (in conjunction with the Assistant Masters' Association). The lectures and the discussions on them have been reported, as usual, in the *Educational Times*.

7. The Council have carefully considered the provisions of the Order in Council relating to the Registration of Teachers, and they regret that they are unable to regard these provisions as likely to secure the objects aimed at by those who have for many years striven to have the principle of professional registration embodied in a legislative act. The non-recognition of teaching certificates which have for many years been accepted as evidence of the possession of adequate knowledge and the capacity to impart it is calculated to inflict a grave injustice on many deserving teachers who do not possess University degrees. The defects of the regulations in this regard have been brought under the notice of the Board of Education, but the Council regret that up to the present no steps have been taken to remedy the anomalies which have been pointed out. Although several questions on the subject have been put in the House of Commons, and answers given by the official representative of the Board of Education, there still remain ambiguities as regards the conditions of registration. The uncertainty as to these conditions must, the Council fear, seriously hamper the work of the Registration Council, who have no power to do more than make recommendations for amendment to the Board of Education, and it is not improbable that the impediments placed in the way of those who possess the necessary academic qualifications may have the effect of seriously restricting applications for registration.

8. The Education Bill which was introduced by the Government before Easter has now reached the Committee stage. In view of the great diversity of opinion of the subject, the Council abstain from pronouncing any opinion on its merits. They note with satisfaction that the Bill does not repeat the restrictions to the action of the Local Authority in aiding secondary education out of public funds which were contained in the Bill of last year, to the prejudice of voluntary enterprise.

9. During the past half-year, the Diploma of Fellow has been conferred on 2 candidates, that of Licentiate on 7, and that of Associate on 110, who had passed the required examinations. Eleven new members have been elected, and notice have been received of the withdrawal of one, while thirty-one names have been struck off the list on account of non-

payment of subscriptions. The Council regret to have to report the deaths of the following members:—Mr. S. Chester; Miss M. C. Crombie; Sir Richard Temple; Professor Meiklejohn; Mr. J. Newton; Mr. A. Paul, L.C.P.; Rev. W. J. Savell; Mr. L. Sergeant; and Mr. D. Slater, F.C.P.

Mr. RADFORD said it was high time that the Council should take active and vigorous measures for restoring the prosperity and influence of the College. A survey of the records of the exertions made by former Councils showed, in his opinion, the incompetency of the present directorate to deal with present emergencies. He thought the Council would do well to imitate the methods of commercial firms in extending their business. The members of the College had a right to demand that measures should be taken and a vigorous policy pursued in order to secure an extension of the College examinations. He referred to the way in which the diplomas of the College had been ignored in framing the regulations for admission to the Teachers' Register, and urged the Council to take energetic measures to have this matter rectified.

Mr. KING asked if any steps had been taken by the Council to secure more adequate recognition of the College Diplomas in connexion with the registration of teachers.

The DEAN said this matter had been most carefully considered by the Council, and very strong representations on the matter had been made to the Board of Education. He was in hopes that the efforts of the Council would eventually result in justice being done to the work of the College in this department. With regard to Mr. Radford's recommendation that they should imitate the methods of commercial firms in extending their operations, he did not think that the suggestion would commend itself to the majority of the members of a body like theirs. It was well known that the falling off in the numbers of candidates at the pupils' examinations was due to the setting up, some years ago, of the Oxford and Cambridge Preliminary Examinations. The recent reports of the Council, however, showed that the effects of the competition had practically subsided, and that they were beginning to make up a little of the lost ground.

Mr. PINCHES said, with regard to the Associateship and Licentiatehip, he hoped they would succeed in getting these diplomas recognized in an amended Order in Council. After what had fallen from the Dean he did not think there was much to answer in Mr. Radford's remarks. He had now been a member of the Council for forty years, and he was convinced that never had they men who were more able and zealous than those on the Council at the present time in devoting themselves to extend the influence and good work that the College had been doing. As Treasurer he could not be indifferent to anything that concerned the financial prosperity of the College, but he certainly could not approve the adoption of commercial methods for extending their examination work. He might, indeed, mention that the Council had recently resolved to spend money in improving their educational machinery without considering whether or not they would get a corresponding pecuniary return.

Mr. BEDWELL asked whether some steps could not be taken with regard to the training of teachers in connexion with the College.

The DEAN said they had already spent a good deal of money in this direction; but their difficulties had been that they could not get students to come forward to be trained. Whether they would renew the attempt must depend on circumstances.

Mr. PINCHES observed that paragraph 5 of the Report showed that for twenty-eight years past systematic courses of lectures to teachers had been given which had been largely attended by probationers and others.

Mr. BEDWELL said he had attended some of these lectures, and was perfectly satisfied with them; but comparatively few students availed themselves of the opportunity. Merely giving two series of lectures during the year could hardly be regarded as doing very much in the way of training.

Mr. ORCHARD said he noticed in paragraph 8 that, in view of the great diversity of opinion on the subject of the Education Bill, the Council abstained from pronouncing any opinion on its merits. There were two points on which no great diversity of opinion existed. One was that, since the education was to be paid for out of the rates, there ought to be popular control. Secondly, the education given ought to be efficient, and there could be no satisfactory test of efficiency of school teaching unless there was inspection. Inspection should be compulsory. The great majority of the schools would be either Church of England or Nonconformist, and, as the Church of England claimed to represent the majority of the Protestant population, they would

not object to popular control; if they did object, it would be a confession that they did not represent the majority. The Non-conformists did not object to popular control. The only people who would object would be a small minority, who ought to give way to the majority.

Mr. SOUTHEE said what Mr. Orchard suggested was already being carried out to some extent in the case of secondary schools. The Board of Education had inspected his own school more than a year ago. He had some difficulty, however, in ascertaining from the Board what was implied by the elaborate report they had sent in, and he could not even learn whether the inspection was sufficient for the purposes of registration.

The Report of the Council was then adopted.

The DEAN then presented his Report, which had been printed and distributed among the members present. He stated that the statistics, which were incomplete, would be supplied when the Report was published in the *Educational Times*.

THE DEAN'S REPORT.

In addition to the general statement of the examination work of the College during the past half-year, which has been embodied in the Report of the Council, I have now to submit to you, in detail, the statistics and results of the various examinations.

The Midsummer Examination of candidates for Certificates took place on the 1st to the 5th July at 155 Local Centres and Schools. In the United Kingdom the Examination was held at the following places:—Abingdon, Alvechurch, Anerley, Aylesbury, Banagher, Barnstaple, Bath, Belfast, Bentham, Birmingham, Blackburn, Blackpool, Borden, Boston Spa, Bournemouth, Brewood, Brighton, Bristol, Broxbourne, Bruff, Camelford, Cardiff, Carlisle, Carnarvon, Cheltenham, Coleraine, Croydon, Douglas (Isle of Man), Dublin, Dumfries, Dundalk, Durham, Ealing, Eccles, Edgbaston, Ely, Epsom, Erith, Exeter, Eye (Suffolk), Falmouth, Faversham, Felixstowe, Forest Gate, Forest Hill, Glasgow, Goudhurst, Greenwich, Grimsargh (Preston), Hartlepool, Hastings, Hatfield, Hawkhurst, Hereford, Herne Bay, Horsham, Huddersfield, Hunstanton, Hutton (Preston), Hythe, Ipswich, Iron Bridge, Jersey, Kirkby Stephen, Kirkwall (Orkney), Leeds, Leytonstone, Liskeard, Liverpool, London, Ludlow, Lymm, Manchester, Margate, Market Bosworth, Market Harborough, Melksham, Merthyr Tydfil, Midhurst, Newcastle Emlyn, Newcastle-on-Tyne, Northwich, Norwood, Nottigham, Oswestry, Pencader, Plymouth, Pontefract, Portmadoc, Portsea, Portsmouth, Ramsgate, Richmond (Surrey), Richmond (Yorks), Ripley (Surrey), Rochester, Ruabon, Ruthin, Rye, St. Leonards-on-Sea, Seaford, Shebbear, Sheffield, Snettisham, Southampton, Southend, Southport, Stroud, Sunderland, Taplow, Taunton, Tavistock, Tenby, Thirsk, Tunbridge, Tunbridge Wells, Uckfield, West Lavington, Weybridge, Wimsalov, Winslow, Wirksworth, Worcester, York. The Examination was also held at Colombo (Ceylon), Grenada, Lagos, Gibraltar, Constantinople, and Ghistelles (Belgium).

The total number of candidates examined (not including 72 examined at Foreign and Colonial Centres) was 3831—2638 boys and 1193 girls.

Taking the Christmas and Midsummer Examinations together, the total number of candidates examined during the year ending Midsummer, 1902 (not including those who attended the supplementary examinations in March and September) has been 9542.

The following table shows the proportion of the candidates at the recent Midsummer Examination who passed in the class for which they were entered:—

	Examined.	Passed.	Percentage.
First Class [or Senior] .....	359 .....	171 .....	48
Second Class [or Junior] ...	1402 .....	685 .....	49
Third Class .....	1819 .....	1341 .....	74

The above table does not take account of those candidates who obtained Certificates of a lower class than that for which they were entered, nor of those (251 in number) who entered for certain subjects required for professional preliminary purposes.

The number of candidates entered for the Lower Forms Examination (not including 7 examined at Foreign and Colonial Centres) was 1242—725 boys and 517 girls. Of these 973 passed, or 78 per cent.

At the Professional Preliminary Examination for First and Second Class Certificates, which was held on the 4th to 6th of March, in London and at seven Provincial Centres, viz, Birmingham, Bristol, Edinburgh, Glasgow, Inverness, Leeds, and Liverpool, 216 candidates presented themselves.

The Examination of Teachers for the College Diplomas took place on the 8th of July and four following days in London and at the following Local Centres:—Arbory (Isle of Man), Birmingham, Boston, Bristol, Burton-on-Trent, Cowdenbeath (Fifehire), Dorchester, Jersey, Leeds, Liskeard, Manchester, Newcastle-on-Tyne, Rugby, Scarborough, Spalding, Truro, and at Calcutta, Hay (N.S.W.), and Namur. It was attended by 327 candidates—199 men and 128 women. In addition to these, 20 candidates (11 men and 9 women) were examined for Certificates of Ability to Teach. On the results of this Examination, 6 candidates have obtained the Diploma of Licentiate, and 117 that

of Associate, while 17 candidates have obtained Certificates of Ability to Teach.

The Report was adopted.

The Rev. J. O. BEVAN moved the following resolution, of which due notice had been given :—

Recognizing the fact that the present Government is pledged to pass a measure for the organization and co-ordination of the various educational agencies at work in our midst, this meeting welcomes the introduction of an Education Bill, approves of the principle of one Authority for the supervision of elementary, technical, and secondary education, and considers that such Authority should be mainly derived from the County and County Borough Councils.

He said he would invite the members to confine themselves to the terms of the resolution. They were dealing at the present time with a very practical question. They were not met together to consider whether an Education Bill should be prepared and brought in and presented to Parliament on the lines on which such a measure should be developed, but to deal with an existing state of things. A Bill had been prepared and submitted to the judgment of the nation and to Parliament, and it seemed to him that, as a body engaged in secondary education, it was their bounden duty to express some judgment on the form that that Bill had assumed up to the present time. They would all be prepared to agree with the statement that there had been for many years past a tendency on the part of the Government to assume a larger measure of control than formerly in reference to all classes of education except perhaps the highest; and since the Royal Commission's Report some few years ago it was inevitable that a Government measure should have been brought in for the organization of the different classes of education. That being so, seeing that the measure was inevitable, that it had been brought in by the Government, that it had been accepted more or less by a certain number of educational associations, that it had been sustained in Parliament, on the second reading, by a considerable majority, it was incumbent upon them in their turn to say whether they accepted the position and approved the leading principles of the Bill; and, if so, to consider what modifications they would suggest whereby the principles of the Bill might be the better adapted to carry out the objects for which they as an institution existed. He asked the meeting to say that they welcomed the introduction of the Bill. If they were not prepared to say that, the alternative had to be considered, namely, that there must be a prolonged delay in the organization of all classes of education. Now, were they prepared to submit to that delay, or did they not think the time had arrived when the many controversies that surrounded this question should be laid? If there were further delay, could they suppose that in ten or twenty years, when a new order was introduced and a new party in power, they would have a Bill that they would like better than the one before them? He asked them to assent to the principle that, if there was to be an Authority under Government for the settlement of this question, that Authority should be one; that they should have one Authority dealing with primary, secondary, and technical education. As to the constitution of that Authority opinions of course differed. Some, no doubt, would desire that there should be an absolutely new Authority, constituted *ad hoc* for dealing with the question; but he believed that the members of the College were not prepared to assent to that principle. Others might desire that the bodies which existed over a certain part of the kingdom for taking charge of elementary and technical education should have the duty devolved upon them of supervising secondary education also. That, again, was a proposition against which many very cogent reasons might be urged. In the first place, the School Boards in their operations only covered part of the kingdom; they took the greater number of the large towns and a certain proportion of the country districts; but, so far as area was concerned, they did not cover more than a third part of England and Wales. Again, he did not think the members of the College would desire themselves and their schools to be supervised by the existing School Boards. Then they came to the third proposition, which was embodied more or less in the Bill before Parliament, according to which the County Councils and County Boroughs had been selected to have charge of this duty, and there were various reasons why this policy should be supported by the members of the College. In the first place, these bodies were already in existence; and, in the second place, they were uniform, and covered the whole ground. They possessed certain powers, and very important powers, with

respect to rating; and, furthermore, they had had put upon them during the past few years certain educational functions which in many cases had been carried out with great assiduity and success. But the proposal of the Government was not that these County Councils should stand alone or appoint their own Committees exclusively to deal with this subject; it was suggested that the Committees should be strengthened by the presence of educational experts. He would say nothing about the mode of electing these experts; he simply said they were to be added to the members of the Council in order that the requisite special knowledge should be supplied in cases where it was lacking. In a measure of this kind, which was in some degree novel, and in all respects complex, one was prepared to allow that certain objections would naturally arise in the minds of most men who had studied the Bill; but, because there was a diversity of opinion in a body like theirs, it was almost ridiculous to say that no judgment should be expressed on a measure of this kind in which they were all so extremely interested. If they did not take the line which he ventured to suggest, they would fall out of touch with other educational bodies who were actively dealing with this matter in the interests of those whom they represented, and it would be a serious misfortune for the members of the College that the Council should elect to stand aside and put altogether out of their power the possibility of making such changes in the Bill as seemed desirable. There was an educational problem before them. They had to deal with that as educationists. Mr. Orchard seemed to think that the main interest in the Bill was that which had reference to elementary education; but he ventured to say that was not so. They were not so much concerned with elementary education as other bodies, in whose hands they could leave that portion of the Bill. They were secondary teachers, and were concerned with the important element which dealt with the organization of secondary and technical education. He ventured to hope that he had adduced arguments which would receive favourable consideration, and lead, he hoped, to the adoption of the resolution.

Mr. KING, in seconding the resolution, said that most of them had read the statement about the Council abstaining from pronouncing an expression of opinion on the Bill as a confession of weakness. It was of great importance for associations that wished to get their views considered in Parliament to devote a good deal of time to interviewing members, and this was no doubt the reason why the National Union of Teachers had attained to the position and influence they now held. He was inclined to think that the College had adopted a *laissez faire* policy which was not suited to the present emergency. He thought it would have been better if the Council had come forward, with its experience of past years, and had endeavoured to lead the country into a proper course; but, as they had not thought fit to bring forward some such resolution as this, he had much pleasure in seconding the motion.

The DEAN, while acknowledging the temperate character of the resolution and the temperate way in which it had been proposed, thought it would be a great pity if Mr. Bevan pressed the question to a division. The institution of one Authority really meant in plain language the extinction of School Boards, and that was a burning political question on which there was the utmost diversity of opinion. It was not merely an educational question, but one on which sides were taken with the greatest enthusiasm. On one side they had the supporters of His Majesty's Government, the Irish Nationalists, and the majority of the clergy of the Established Church, while on the other they had the great bulk of the Nonconformist denominations, with the exception of the Roman Catholics, and the whole of the Liberal Party, with one or two exceptions. If the Council had expressed a definite opinion on such a political question, they would have been very likely to give offence to many of the members. That was why he was very anxious that the question should not be pressed to a division, as it would put many of them in an embarrassing position. He thought there was a tendency to exaggerate the importance of a single Authority. In past times they had been very anxious for the solution of the delimitation question, but he thought that might have been effected in a simpler way. It was not necessary to burn down a house to roast a pig. Had the motion been limited to an approval of making the County Councils the Authorities for Secondary and Technical Education, he should most heartily have supported it. His own feeling about it had been that, whatever the ultimate result was to be, they should at once have been made the Secondary Education Authority, and given time to organize their work before any

further steps were taken. He appealed to the meeting not to take a step which would alienate many of their friends.

The CHAIRMAN said he was not sure that Mr. Bevan had not done a good thing in bringing forward the resolution, but he would counsel him to accept the suggestion of the Dean for reasons which he would point out. The College was an unsectarian institution, and was, fortunately, free from many of those embittered controversies which concerned other sections of the community. They were also free from some of those political considerations which prevailed in the House of Commons. He would try to show the members that they could not trust too implicitly to politicians, and he would prove that the politician was as a rule a sorry educationist. Last year there was a Secondary Education Bill introduced, and on the second reading the Opposition proposed the rejection of the Bill because it did not include elementary education. The same Opposition very early complained of the present Bill because it included elementary education. And if the action on these two occasions was compared it would be seen that there was a want of consistency on the part of politicians in dealing with the question. Teachers in secondary schools had reason to be nervous at the present moment in view of the dangers which were contained in the Bill. He should be inclined to adopt a view approving the principle that all forms of education—elementary, secondary, and technical—should be put under one duly elected and representative Authority, though he was not so sure it would be wise of the Council of the College, in the present critical position of matters, to put down a definite statement to that effect in their Report. The object of the College was to improve secondary education, public and private, and they had this charge in particular, to safeguard the liberty of private enterprise in education. They could not very well make up their mind to agree to the one Authority unless they knew the powers which were to be given to it. If they complained afterwards that the new Authority would put an end to private schools, or injure the interests of private schools, they must expect the retort: "Why did you say beforehand in your own Report that you approved of the new Authority?" For the co-ordination of the different branches of education it was advisable to have one Authority; but he wanted an Authority with powers which would enable it to look after the interests of all kinds of education impartially. Although he had had no hand in the framing of the Report, he thought it was wise on the part of the Council not to condemn the Bill. In fact, it would be absolutely wrong to do so, because they still hoped it would go through in such a form as would be to the advantage of the country and also to the advantage of those who were associated with the College. Approving, as he did, the principle that underlay the words of Mr. Bevan's resolution, he nevertheless thought it would be wise of him to withdraw it, and to leave the matter in the somewhat indefinite language of the Report; because they knew there was still the possibility that it might be necessary for the Council to rouse all their energies and to spend all the money at their command to defend the interests of private schools against the establishment of an Authority with power to swallow them up and to sweep them off the face of the earth. He might just refer to one other subject which was now engaging public attention. In France a so-called Association Law had recently been passed. The Government at the time of its passing intimated that it might lead to the closing of 130 schools. The law was passed, and the Government so interpreted the law now that they had determined to close 2,500 schools, employing 6,000 teachers, and providing education for 150,000 pupils. The same thing might be done in England, if they were not very watchful with regard to the last stages of the Bill.

Mr. SOUTHER said that private secondary schools had either to sink or swim, and therefore he felt that at such a time as the present the body that represented these schools should have an opinion and maintain it. It was important that the College should encourage its members to take an active interest in seeing that proper persons were put upon the local Councils and Education Committees. The Council might also advocate the desirability of having as large an area as possible for the Local Authorities; for if they got little Borough Councils they would be at the mercy of corporations who might not be over-anxious to preserve private enterprise. If the Act came into force, it would be the bounden duty of the College to get its members to apply for representation on the bodies which were to carry out its provisions.

Mr. KELLAND rose to move the previous question.

The CHAIRMAN said this was in the nature of an amendment, and the by-laws did not allow him to receive it, as previous

notice had not been given. Unless the resolution was withdrawn a vote must be taken upon it.

Mr. KELLAND said he regretted that the by-laws did not allow of the resolution being amended, or of the previous question being put, because there was much in the resolution with which he cordially agreed, and he should have been only too glad if the meeting had had the opportunity, with the full facts before them, of pronouncing an opinion upon the Education Bill. He did not so much refer to what was included in the resolution as to what was omitted. What he would have liked to propose was to add the following words:—"and prays the Government to introduce into the Bill clauses similar to 4 (2) and 5 (1), (2) of the Bill of 1900 safeguarding the interests of existing schools and granting them the right of appeal to the Board of Education." Had it been possible to add these words to the resolution, he should have voted for it. If they voted for the resolution, it would go forth to the world that the College approved of the Education Bill as it stood, when in fact it was clear they did not do so. He did not think that even Mr. Bevan approved of it, and yet the resolution was tantamount to a full approval.

Mr. BEVAN observed that the resolution stated "*an* Education Bill," not "*the* Education Bill."

Mr. KELLAND said, if the resolution went forth as it stood, every one would suppose they were referring to the Education Bill before the country. It could not be otherwise. It might be that "*an* Education Bill" did not mean "*the* Education Bill in Committee," but ninety-nine people out of every hundred would certainly read it as approving of "*the* Education Bill." That was the reason he could not vote for the resolution, much as he regretted opposing it. As the Bill now stood, they could hardly pronounce on its merits or demerits, for it was being changed from day to day. The part with which they were more immediately concerned had been passed, and they knew pretty well what the Bill would be in regard to secondary education. It began by saying that there should be one Authority, and then amendment after amendment increased the number of Authorities until now there were no less than 1,183 Authorities. Then it provided that a certain rating limit should not be exceeded, that the County Council should have the power of rating up to 2d. for secondary education, and the urban districts an additional 1d. limit—that was stated distinctly by Mr. Bevan—but now an amendment had been accepted according to which the County Boroughs had the power of unlimited rating for secondary education, and the sixty-seven County Boroughs could levy any rate they pleased. It was evident that this would be accepted as a precedent, and as soon as ever the County Councils came forward and applied for further rating powers the Government would be bound to grant their request. Then the Boroughs and Urban Districts would come forward and ask for the same thing, so that there would be 1,183 Authorities with unlimited power to raise rates for secondary education. It might be that this would be altered on the third reading, but at present they were asked to support a Bill giving power to raise an unlimited rate for secondary education, while, at the same time, there were no safeguards whatever for existing schools. The clauses put forward in the Bill of 1900, to which he referred in his amendment, were most moderate, and, at the same time, thoroughly practicable; they would protect all existing efficient schools. Quite recently the Duke of Devonshire had told the representatives of the County Councils that he approved of the preservation of private schools, and asked why they wished to destroy them, and they had no answer to make except that they thought that to allow them to be aided would increase jobbery and canvassing. A more ridiculous reason to allege it was impossible to conceive. He did not wish private schools to be separated from others and made into a class apart. The Bill, as it stood at present, separated them, and created a division between schools in secondary education analogous to that of Voluntary and Board schools in elementary education which the Bill was abolishing. This he desired to avoid in the interest of education, and in the interest of justice he claimed that private schools, so long as they were proved by public tests to be efficient, should have exactly the same rights as all other schools.

Dr. MOODY appealed strongly to Mr. Bevan to withdraw his resolution. He ventured to think that, instead of showing weakness, the eighth paragraph of the Report showed that the Council were possessed of great business tact and judgment; and, in his opinion, it would be a great misfortune for the College if any resolution were passed which was in any sense a vote of censure on the Council. The Council was representative, and the members ought to accord their strongest support to them.

Mr. ORCHARD suggested that the resolution could the more easily be withdrawn as the object of it had already been affirmed by Parliament. As the resolution would accomplish practically nothing, the mover might well be satisfied with the discussion which had taken place.

Mr. BAUMANN was exceedingly sorry to have to oppose the motion; the resolution appeared to him to be either too short or too long. Mr. Bevan had not been explicit enough in explaining the ground on which he welcomed the Bill. Different views had been put forward by the speakers, but no one had suggested how the private schools would be benefited by its provisions. In Germany the State had done all that was possible for the organization of education, but it had certainly crushed private schools out of existence. Would the new Authorities who would be created by the Bill act in the same manner? There was, in fact, in Germany at the present time a reaction in favour of private schools, as every child was not fitted to be sent to a State school. Every one would sympathize with the aim which Mr. Bevan had in view, but he could not welcome without reservation a Bill which in its scope included elements dangerous to the existing order.

Mr. GUTTERIDGE strongly disapproved of the policy of sitting on the fence, and he congratulated the mover of the resolution on his energy and also on his courage in bringing forward this motion. In dealing with it many side issues had been introduced into the discussion. No doubt Mr. Bevan had fully considered his action in all its bearings, and was therefore deaf to all the appeals that had been made to him to withdraw the resolution.

Mr. BEVAN, in reply, said that very much of what had been said by the speakers was *ad rem*. For instance, Mr. Kelland referred to certain modifications which he wished in the Bill. There was nothing in the resolution which would prevent such modification, and, as Mr. Kelland was a member of the Council, he could bring forward his amendments, which would be duly considered. He regretted that he could not accede to the appeals that had been made to him to withdraw the resolution. By voting against the resolution they would not destroy the Bill. The Bill was certain to pass, and, if the resolution were passed, the members of the College would be in a better position to suggest amendments that ought to be made in it.

The Chairman then put the resolution to the meeting, when it was negatived by a large majority.

A vote of thanks to the Chairman concluded the proceedings.

#### ADJOURNED MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.

AN Adjourned Meeting of the Council was held on July 19. Present: Mr. Eve, in the Chair; Mr. Baumann, Rev. J. O. Bevan, Dr. Breul, Mr. Butler, Miss Crookshank, Rev. Dr. Hiron, Mr. Holland, Mr. Kelland, Mr. Pinches, Mr. Storr, and Dr. Wormell.

The Report of the Examination Committee was adopted, and Prof. T. Gregory Foster and Mr. A. J. Ashton, M.A., were added to the list of Examiners in English Language and Literature.

Diplomas were awarded to the successful candidates at the Midsummer Examination for Diplomas as follows:—

<i>Licentiate-ship :</i>		
Abbott, W.	Longstaff, J. L.	Stansfield, S.
Horsely, E. P.	Shuard, W. D.	Ternent, W. H.
<i>Associate-ship :</i>		
Armitage, L.	Dirken, J. A.	Lambourne, Miss A.
Bailey, C. J.	Edwards, J. J.	Lancaster, J.
Baillie, Miss H. J. M.	Emery, E. J.	Leather, H.
Baker, B. W.	Garratt, Miss B.	Lockwood, H. P.
Barker, A.	Goodyear, A. V.	Logan, J.
Barnfather, D. J.	Gould, Miss R.	Lord, J.
Bate, G. E.	Grayshon, L. N.	Marris, Miss F. M.
Bird, Miss C. I.	Griffiths, J.	Mayo, H. W.
Blake, J. W.	Griffiths, J. H.	Mileson, F. W.
Bott, H. E.	Gulliver, J. D.	Morrell, J. A.
Bothroyd, Miss E. M.	Hampton, F. G.	Mosedale, G. H.
Boughton, J.	Hardie, Miss A. P.	Mullen, Miss A. J.
Bowden, A.	Harries, F. T.	Murphy, Miss E. A.
Bowes, W. J.	Hatchard, E. S.	Overton, Miss E.
Bowyer, G.	Haughton, W. G.	Paine, E.
Brow, D. P.	Hayden, J. H.	Parker, Miss C. G.
Brown, Miss M. E.	Hayes, F. T.	Parson, Miss M. K.
Brunslon, Miss I. M.	Hesketh, R. H.	Peacocke, B.
Burgess, R.	Henderson, W. D.	Peirce, Miss M. E.
Bye, J.	Higgins, T.	Phillips, Miss E. M.
Clements, Miss G. C. M.	Holden, E.	Phillips, Miss M. G.
Cook, C. H.	Houseman, W.	Pickard, J. C.
Cook, F. W.	Howells, S.	Pollard, R. J.
Cooke, D. G.	Hull, Miss M.	Poulton, F. E.
Cooper, C. O.	Johnson, L. F. E.	Price, Mrs. M. W.
Crooks, Miss J.	Jones, Miss M. F. W.	Read, C. B.
Davies, H. B.	Keen, Miss E.	Reed, A. T. S. E.
Dickinson, S.	Kennedy, W.	Reid, Miss A. E.

Richards, Miss F.	Stedman, D. C.	Turner, T. H.
Rider, J. B.	Stephens, J. S.	Ward, H. E.
Rogers, Miss S. E.	Stribling, E. H.	Wardle, R.
Rowson, R. H.	Sumner, Miss J.	Warth, Miss H.
Sharp, F. E.	Taylor, Miss H. E.	Watson, Miss A. E. I.
Skyrm, L. I.	Taylor, Miss L. M. R.	Westber, E.
Smith, Miss E.	Teare, W. R.	Westwood, W. T.
Smith, Miss M. E. I. S.	Thomas, Miss E.	Williams, Mrs. A. M.
Smith, W. J.	Thomas, W. G.	Winch, Miss M. T. M.
Spinney, Miss M. A.	Timmons, C.	Winstone, Miss M. E.
Sohns, Miss L. H.	Torbitt, Miss M. C.	Woodward, Miss M. E.

Certificates of Ability to Teach were awarded to the following who had passed the required practical examination:—Miss H. Astill, Miss A. Bunston, A. C. Clark, Miss M. H. Cole, J. A. Dirken, Miss E. M. Dobbs, J. H. Griffiths, A. C. Norton, A. E. Roberts, Miss B. Scott, Mrs. E. M. M. C. Shipham, W. D. Shuard, A. M. Skinner, Miss F. B. Smith, Miss M. E. I. S. Smith, Miss F. E. Soper, J. Young.

## REVIEWS.

### THE "ENCYCLOPEDIA BRITANNICA."

*The New Volumes of the Encyclopædia Britannica*, Vol. III. (being Vol. XXVII. of the complete work). (A. & C. Black and the Times.)

The present volume runs from "Chicago" to "Elduayen," and it is marked by the same care and ability as its predecessors. It is introduced by a comprehensive and suggestive prefatory essay on "The Influence of Modern Research on the scope of World History," from the pen of Dr. H. S. Williams, who lays special stress on the development of archaeology, and points to the effects of "such discoveries as have led to broad historical generalizations regarding such subjects as the antiquity of man, the antiquity of culture, the chronology of ancient history, the status of Bible history, the credibility of early classical history, the origin and development of the art of writing, and the evolution of the fine arts." The article on the King includes his recent illness, and leaves him "progressing favourably" on July 1—a *tour de force* of endeavour to be up to date. "Education" is fully and capably handled by Sir Joshua Fitch for Great Britain and Ireland (with France, Belgium, Holland, and Germany in small type), and by President Butler of Columbia for the United States. We refer to points in Sir Joshua's article elsewhere (see "Notes"). Theological interests are represented by important articles on "The Christian Church," "Biblical Chronology," "Codex Bezae," "Congregationalism," "Creeds," &c.; science by such various matters as "Chronograph," "Cholera," "Colours of Animals," "Combinatorial Analysis," "Comets," "Earthquakes," "Eclipse," "Egyptology," &c.; business, public and private, by "Civil Service," "Commercial Treaties," "Coaling Stations," "Co-operative Societies," "Dockyards," "Economics," and many notable articles on legal subjects—contract, conveyancing, copyright, divorce, &c. Naturally a considerable number of countries and great cities fall to be described; and among men of eminence are Darwin, Edison, Lord Derby, Lord Randolph Churchill, George Eliot, Jefferson Davis, Du Bois Reymond, Du Maurier, and several judges (the sketch of Sir Alexander Cockburn, by Mr. E. A. Armstrong, being notably discriminating and characteristic). These are only chance indications; but they may serve to suggest the remarkable variety and the wide and immediate importance of the subjects. At the same time the minor matters are not to be forgotten; they will be found to be treated with as much care as those that run into pages and are signed by acknowledged experts. The illustrations are abundant, appropriate, and effective.

### NATURE STUDY.

*Nature Study and Life*. By Clifton F. Hodge, Ph.D., Assistant Professor in Clark University. (7s. Ginn.)

Dr. Hodge's book comes with an introductory commendation from Dr. Stanley Hall, the President of his University. That will certainly do him no harm over here; but it is not necessary. The book will commend itself, and will at least go some considerable way to fulfil President Hall's prediction that it will exercise "a most wholesome, widespread, and immediate influence upon the primary and grammar school grades of education." The purpose of Nature study, which, as Dr. Hodge says, we need to have clearly before us at every step, he expresses in these terms: "Learning those things in Nature that are best worth knowing, to the end of doing those things that make life most worth living." This looks like a special application of Huxley's saying: "To learn what is true in order to do what is right is the summing up of the whole duty of man for

all who are not able to satisfy their mental hunger with the east wind of authority." Dr. Hodge refuses to be cramped by an arrangement of his matter according to the seasons and the terms of the school-year. His purpose is "to bring Nature into relation to child life, rather than to school life—to make it a continuous source of delight, profit, and highest education, rather than a formal school task." He has pondered the phenomenon that progress in learning is most rapid in the first three or four years of life, and he thinks he has found the secret of this in the fact that "touch with Nature at first hand—original research, if you please—is the very breath of mental life." The problem before him for solution, then, is this: "How may this splendid growth process of infancy be prolonged through life?"

While "the paramount value to be aimed at is character, will to do good, power to create happiness," Dr. Hodge expounds the economic, æsthetic, educational, ethical, and religious "values of Nature study," laying special stress on the economic value, "because all other plans of Nature study ignore them almost completely." He gives emphatic prominence to life forms over inanimate forms of material on the ground of earlier interest. His first chapter of exposition (after general preliminaries) deals with children's animals and pets—"the child's natural introduction to animal life"; then, in natural order, insects of the household, lessons with plants (for "the love of a flower in the heart of a child is the highest thing that Nature study can hope to develop"), garden studies, propagation of plants, garden insects (beneficial and otherwise), insectivorous animals, common frogs and salamanders, common birds (domestication, taming, and feeding), elementary forestry, aquaria, miscellaneous animals, and flowerless plants. Finally Dr. Hodge suggests a "grade plan" for graded schools, "by which progression and co-ordination of subjects may be secured, and confusion and repetition may be avoided." The subject-matter, then, is at once seen to be rich and varied, as well as adapted to the early instincts and activities of children, girls as well as boys. But one has to follow the deft handling of the materials in order to appreciate the efficiency of the system. The tone is elevating and inspiring. Dr. Hodge is a born naturalist, as well as a trained biologist; and, as President Stanley Hall says, "his love of Nature and children, which is infectious, is not less, but more, because he does not forget Nature's uses to man." The whole of the book, we should add, has been thoroughly tested in actual school work.

#### A DISCIPLE OF FROEBEL.

*The Life of the Baroness von Marenholtz-Bülów.* By her Niece, Baroness von Bülów. 2 vols. (The American School and College Text-Book Agency, for W. B. Harison, New York.)

Apart from the personal interest, which is great and sustained, these volumes furnish a striking commentary on Froebel's thoughts and aspirations. "That all children should be protected from what her own child had had to suffer," says the Baroness's biographer, "was the task to which my aunt had pledged to devote herself over the body of her Alfred, and an unbroken apostleship of forty years for the new theory of education was the fulfilment of her vow." Dr. W. T. Harris calls the Baroness von Marenholtz-Bülów "the most gifted of Froebel's commentators." Here are revealed from her diaries (*Gedankenbücher*), in much more helpful detail than in her published works, her "intellectual struggles to seize in its full depths the meaning of the educational ideas of the founder of the Kindergarten." The volumes also exhibit the ways of thinking and acting prevalent in wide circles, German and other, and thus incidentally present an instructive picture of the obstacles that lie across the path of the educational reformer. Dr. Wichard Lange, Froebel's editor, wrote (1867):

This woman achieved what ten men could not have brought about. She alone is to be thanked for the removal of the prohibition which a Prussian Ministry had enacted against the kindergartens. It was she who carried the ideas which lie at the foundation of these institutions into France, England, Holland, Belgium, Russia, Switzerland, Italy, Austria; indeed, it almost seemed as if the German work was to be transplanted into foreign soil, there first to be developed, and thence to return once more to Germany. However, the Fatherland was not left behind, and the Baroness had a greater share in the work achieved on native soil than all other votaries of the Froebel cause.

The biography naturally takes the reader over all the ground. The Baroness von Bülów-Wendhausen has commemorated her famous aunt with affectionate devotion, in fine harmony with the spirit of her noble and beautiful missionary life; and no educational library will henceforth be complete without these most interesting and instructive memorial volumes.

#### SCOTT-LAND.

*The Scott Country.* By W. S. Crockett. (6s. Black.)

Mr. Crockett knows the Border and its literature as well as any living man. He was born and bred and has passed his life under the spell of its associations. There could thus have been found no writer more fully furnished with the facts or more capable of presenting them in the spirit of the genius of the place. With deft pen he has woven into a charming volume the ever-fascinating story of the Borderland, and especially the associations of it with its greatest son, Sir Walter Scott. In fact, he makes his description follow the events of Scott's life. He commences with Smailholm, Sandyknowe, and Kelso, where Scott spent his early years. From Hawick it is easy to reach Harden, the seat of Auld Wat, prince of Border reivers, who wedded "the Flower o' Yarrow," ancestress of Scott, and Brauxholme, the Branksome of the "Lay." The lore of Liddesdale runs through the novels, and is more specially concentrated in the "Minstrelsy." Scott's first Border home was Ashestiel; and the proudest of his titles was "Sheriff of Ettrick Forest." Traquair (the most likely or the main original of Tully-veolan), Innerleithen (St. Ronan's, with the Cleikum Inn), picturesque Peebles (with Neidpath and the Black Dwarf), and the Tweed uplands (with Oliver, Drummelzier, Timis, Stobo, and Drochil Castles, and Merlin's grave) recall most interesting historical and literary associations. Then there is Abbotsford, the making of which deserves and obtains a chapter to itself. Melrose may be taken as the capital of the Scott country; "the personality of Scott is seen most of all about Melrose." "No one knew the Abbey better or bore a truer regard towards it than Scott, and its architecture is nowhere more faithfully described than in the magnificent setting of the 'Lay.'" There is no need but to mention Yarrow and Ettrick, and to cast a glance out to the East Border, with reminiscences of "Marmion" and Flodden Field. Last scene of all is, of course, St. Mary's aisle in Dryburgh Abbey. In connexion with Ettrick, much attention is naturally devoted to the Shepherd; at Ednam; to the poet of "The Seasons"; at Deulholm, to John Leyden; at Yetholm, to the gypsies; and at Earlston (primitive Erclidoune), to the dim figure of Thomas the Rhymer. There are no fewer than 162 excellent illustrations. The volume is an admirable companion and guide to the Scott country, whether in fact or in spirit.

#### LORE OF A HIGHLAND LOCH.

*The Lake of Menteith: its Islands and Vicinity, with historical accounts of the Priory of Inchmahome and the Earldom of Menteith.* By A. F. Hutchison, M.A. (Stirling: Mackay.)

Many are the tourists and other visitors that are attracted to the lovely Lake of Menteith—the only sheet of water in Scotland, we believe, that is designated a "lake," the change from "loch" being later than Sir Walter Scott's time and due not to local but to literary influences. Mr. Hutchison first describes the region of Menteith in the narrower sense of the term, the region lying more immediately around the lake—its topography, history, and traditions. Within one of the two distinct masses of the hilly backbone of the district we are scarcely surprised to chance upon "the fine Loch Drunkie, of old times held by wild Macfarlanes and Macphersons." Near the middle of the lake lies the largest of the islands (about five acres), Inchmahome, which derives its name by elaborate processes of corruption from St. Colman or Colmóc, believed to be an Irish saint of the sixth century, who established a religious settlement on it. The ruins of the priory afford scope for interesting description and illustration; and the account of the priors and commendators from the foundation of the priory (Augustinian) in 1238 down to the abolition of the "monastery and superstitions thereof" early in the seventeenth century, with the subsequent history of the priory lands, which were annexed to the Crown, embraces much curious lore, political and social as well as ecclesiastical. King Robert the Bruce visited the island several times; and Mary Queen of Scots sought shelter in it for some three weeks after the disaster of Pinkie. The Commendators (with one exception) were Erskines, and so a good deal of the family history is involved. Then "almost the whole surface of the island, Inchtalla, is covered with the ruins of the old castle buildings and their central court-yard"—the principal residence of the Earls of Menteith after Doune Castle was taken into the King's hands (1427). Mr. Hutchison gives a plan of the buildings, and an inventory of the last earl's belongings—the "haill Household Stuffe and Plenishing"—"enables us to obtain glimpses of the mode of living in this island mansion at the time" (May 22, 1694). The history of the earldom is traced

from the twelfth century in the families of Menteith, Comyn, Stewart, and Graham, a special chapter being devoted to "the fause (false) Menteith," Sir John, who captured Sir William Wallace. The local legends are not very prolific, but the local mode of catching pike in the lake "is somewhat novel and diverting." The volume is a handsome quarto, beautifully printed (at the *Sentinel* Press, Stirling), and liberally illustrated with pen and ink drawings by Mr. Walter Bain. It is not merely a book of local descriptions, but essentially a work of serious and competent research, historical and archaeological. It raises high expectations of Mr. Hutchison's forthcoming history of his old school, the High School of Stirling.

## GENERAL NOTICES.

### CLASSICS.

"Blackie's Illustrated Latin Series."—*The Odes of Horace*. Edited by Stephen Gwynn.

The introduction sets out compactly and admirably the life of Horace, with references at the bottom of the page. We are not so sure as Mr. Gwynn, indeed, that Horace's recommendation to keep a poem nine years before publication is based on the idea that a man capable of doing good work does not know when he has done it. The notes are very full (about 200 pages out of 350) and thoughtful. A good few of them might have been dispensed with, and it may be that in this number are some of those that point out the order of construction of the text. There are also occasional repetitions, as *pietas* (pages 217 and 282) and *Tibur* (pages 172 and 224), and, curiously enough, there is a discrepancy between the last pair of notes as to the foundation of *Tibur*. We very much doubt Mr. Gwynn's amended punctuation in I. ii. 40, but rather agree with him in I. xii. 21, and in I. xxviii. The *male pertinaci* of I. ix. 24 does not seem easy, but we cannot think "faintly resisting" hits it off, though it is an improvement on "haughtily stubborn," which is sufficiently bad. Is not *male* simply "wickedly," "mischievously," "coquettishly"? Mr. Gwynn has evidently laboured hard at his translations, and yet they very often sound strangely wooden. For example, in IV. xi. 31-36, "hereafter I will burn (*calebo*) for no other woman . . . song shall diminish dark anxieties" (*minuentur atrae carmine curae*). At the same time this is a very useful edition, and it is capably got up and effectively illustrated.

*Homers Ilias*: Schulausgabe von Paul Cauer. (Price 3s. net. Williams & Norgate, for G. Freytag, Leipzig.)

In preparing a second edition, Dr. Cauer has corrected some blunders in the text and added some useful matter in appendices. The text shows a good number of variations from the Oxford text elaborated by Messrs. Monro and Allen. In I. 5 it gives *οἰωνοῖσι τε δαῖτα* (not *οἰωνοῖσι τε πᾶσι*), after Zenodotos; in I. 27, *δηθύνοντα ἦ*, as compared with *δηθύνοντ' ἦ*; I. 92, *ἠῦδαε*, against *ἠῦδα*; I. 153, *μαχεσόμενος*, against *μαχησόμενος* ("nobis compertum est," say Monro and Allen, "futurum μαχίσσεται vel μαχέσεται . . . apud Homerum fuisse"); VI. 6, *φῶος*, against *φῶος*; VI. 61, *ἀδελφεόο*, against *ἀδελφείου*. Both editions read *Ἀργεῖοι*, but, while the Oxford gives *Ἀργεῖων*, Dr. Cauer gives *Ἀργεῖων*. The Oxford reads *ἔδ* only (we think) before a vowel, Dr. Cauer seems to read *ἔδ* generally, but not always (for example, I. 164, *ἔδ ναῖόμενον*). Forms like *ἀντιόωσαν* (I. 31), *λαμπετόντι* (I. 104); *τηλεθόουσα* (VI. 148), are opposed to the Oxford *ἀντιόωσαν*, *λαμπετόντι*, &c. And there are slighter variations here and there. We are not inclined to lay stress on this, however; a text that is good enough for *Prima* in German *Gymnasien* cannot be far amiss for wider use. An interesting appendix contains "Stimmen des Altertums über Homer"; another, "die Handlung der *Ilias* nach Tagen geordnet"; a third, a full list of the contents of the various "Gesänge." The indexes of proper names and of subjects are most serviceable, especially the latter. The text is admirably printed—a pleasure to read; and the volume is well bound.

### MODERN LANGUAGES.

"Siepmann's Elementary French Series."—*Napoléon*. Par Alexandre Dumas. Adapted and Edited by W. W. Vaughan, M.A. (Macmillan.)

The text has been freely adapted to suit the length proposed for the series; and Dumas's account of the battle of Waterloo has been excluded by reason of its many small inaccuracies, Léon Meyniel's brief description being substituted. The life of Napoleon is sketched by way of historical introduction, and a useful map illustrates the Waterloo campaign. The notes are sufficient, though the St. Helena episode might have borne somewhat fuller and more pointed historical remark. The alphabetical list of irregular verbs occurring in the text might have been dispensed with. The vocabulary leaves some thinking to be done by the pupils. There are appended (1) words and phrases for *viva voce* drill, (2) sentences on syntax and idioms for *viva voce* practice, and (3) continuous passages for translation into French—all of them profitable devices for utilization of the material of the text.

A key to the three appendices is published separately; and so also is a key to the "words and phrases" alone. The reading-book has been thoughtfully conceived and carefully and judiciously executed; and it is well printed on toned paper and strongly bound.

"Siepmann's Elementary German Series."—(1) *Friedrich der Grosse und der Siebenjährige Krieg*. Von Ferdinand Schrader. Adapted and edited by R. H. Allpress, M.A. (2) *Wilhelm der Siegreiche: ein Kaiser und Heldenbild aus der Neuzeit*. Von Karl Zastrow. Edited by E. P. Ash, M.A. (Macmillan.)

The German series is laid out on the same plan as the French series, with similar appendices and word- and phrase-books. Both these sets of the German series are furnished with all the aids necessary to the student; the text is simple and interesting; and generally our remarks on the treatment of the "Napoléon" are equally applicable to them. Both series are thoroughly practical and likely to be effective.

### HISTORY AND GEOGRAPHY.

*The Harmony of the Empire*: being a Series of Sketches in Pictorial Geography of the British Possessions and Spheres of Influence. (Manchester: Abel Heywood & Son.)

The author, who is already favourably known by other works on similar lines, veils his identity under the designation "Nemo." His design now is "to stimulate the cultivation of the delightful study of geography"; and his work "is not intended as a substitute for, but as supplementary to, the ordinary text-book." A general introduction treats broadly of such matters as sea-power, trade routes, steam as a motor power, coals, coaling stations, and naval head-quarters. Then the various extra-colonial dependencies of Great Britain are reviewed in groups in historical order. Incidentally, the author throws in freely remarks of various kinds—historical, political, economic, &c.—"to induce reflection and independent thought": remarks that enhance materially the vividness and practicality of the descriptions, and that certainly need no apology. This is a valuable book for the school library, and for general reading as well. The treatment is well informed and businesslike, and the critical interpolations are always piquant and suggestive, whether the reader accept them or not. Boys and girls will read a book like this with avidity when they turn away from a regular text-book.

*Grammar School Geography*. By Alexis Everett Frye, former Superintendent of Schools of Cuba. General Edition. (12½ × 10¼ in.; pp. 200. Price 6s. Ginn.)

A very elaborate work, most carefully compiled and handsomely printed and got up. "Every line of type, every picture, every map, has been prepared," says the author, "with a single purpose, namely, to present the earth as the home of man—to describe and locate the natural features, climates, and products that largely determine his industries and commerce, as well as his civic and other relations." Commerce and industry are kept well in front; and the originals of the illustrative maps "were prepared expressly for this series of geographies by Mr. Henry Gannett, Chief Geographer of the United States." The illustrations—maps (full-page, sectional, coloured, sketches, reliefs) and pictures—are abundant, excellent, and arranged with great judgment. The description is very simple and clear; the topics are presented "in such order as will enable pupils to reason from one step to another"; and questions are placed at the end of the various lessons. We do not remember any other book in English that reminds us so much of MM. Dubois and Guy's "Album Géographique."

### ENGLISH LITERATURE.

*Englische und Französische Schriftsteller der neueren Zeit für Schule und Haus*.—Band XII.: *Macbeth*. Edited by Prof. Dr. K. Deutschbein. (Glogau: Carl Flemming.)

Prof. Klapprich's admirable series, which now counts a dozen volumes, aims at providing the "höheren Knaben- und Mädchenschulen, Lehrerseminaren, Lehrerinnen-Bildungsanstalten, Handelsschulen und ähnlichen Anstalten" with examples of the best English and French literature, combining variety and excellence of style with illustration of the "Leben, Sitten, Gebräuche, Einrichtungen und Geistesbestrebungen" of the two nations. Care and judgment in the selection and treatment of the subjects are conspicuously manifest. Prof. Deutschbein has selected "Macbeth" as "belonging undoubtedly to those compositions of the poet which attract the special interest of more advanced German pupils on account of the impressive power of its events and the profundity of its thoughts." He has taken the text of the "Globe" edition, without criticism, holding that "textual criticism is a matter out of place in school," prefixed an introduction (on the history of the English drama before Shakespeare, the works of Shakespeare, and the metre and language of the play), and added brief and pointed notes—all in English, with an occasional German word of explanation in brackets. The remarks appended to the notes on each scene briefly indicate the development of the characters and the structure of the drama. Here and there the German idiom crops up, but the work is marked by constant care, competent knowledge, sober judgment, and great ability.



TEACHERS' DIPLOMA EXAMINATION—PASS LIST, JULY, 1902.

*Theory and Practice.*

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Crowe, Miss N. E.  
Davis, C.  
Herlihy, W. J.  
Hughes, C. B.  
Leighton, P. T.  
Simpson, J. C.  
Theakstone, J. H.

**ASSOCIATESHIP.**  
Cowling, W. J.  
Duncombe, W.  
Garner, E.  
Hammond, J. W.  
Hancock, T. H.  
Harrison, Miss M. E.  
Hart, Miss O. I.  
Horsfield, Miss A. M. M.  
Kingsbury, J. W.  
Knowles, J. W.  
Newington, G. C.  
Partington, Miss A. F.  
Peart, J. A.  
Peel, Miss E. E.  
Scott, Miss B.  
Taylor, H.  
Wardle, R.  
Warner, P. E.  
West, Miss L. E.  
Williams, J. A.

**Botany.**  
**FELLOWSHIP.**  
Bunston, Miss A.  
Loftus, F.

**LICENTIATESHIP.**  
Cardwell, J. J.  
Crowe, Miss N. E.  
Heath, C.  
Horsley, E. P. (hon.)

**ASSOCIATESHIP.**  
Hancock, T. H.  
Harrison, Miss M. E.  
Peel, Miss E. E.  
Phillips, G.  
Schultz, Miss M.

**Geology.**  
**ASSOCIATESHIP.**  
Bailey, C. J.

**MATHEMATICS.**

**14955.** (ALETROP.)—Donner la règle pour trouver tous les termes de nombres consécutifs chacun desquels soit une somme de deux carrés entiers; e.g.:  $72 = 6^2 + 6^2$ ,  $73 = 8^2 + 3^2$ ,  $75 = 7^2 + 3^2$ .

Solutions (I.) by H. M. TAYLOR, M.A., F.R.S.; (II.) by J. H. TAYLOR, M.A.; (III.) by Lt.-Col. ALLAN CUNNINGHAM, R.E.

(I.) As every square number is of one of the forms  $4n$ ,  $4n+1$ , or  $4n+2$ , it follows that, if each of three consecutive integers be the sum of two squares, the integers in ascending order of magnitude must be of the form  $4n$ ,  $4n+1$ , and  $4n+2$ .

Let the three integers be  $4x^2+4y^2$ ,  $(2x+a)^2+(2y+b)^2$ , and  $(2x+c)^2+(2y+d)^2$ . Then

$$4ax+4by+a^2+b^2=1 \text{ and } 4cx+4dy+c^2+d^2=2.$$

Hence we see that the integers  $a$  and  $b$  are one even and one odd, of opposite sign, and prime to one another; that the integers  $c$  and  $d$  are both odd, of opposite sign, and prime to one another; and that the integers  $x$  and  $y$  are both even or both odd.

If any combination of numbers  $a, b, c, d$ , satisfying the relations just stated, be such that the above equations admit of an integral solution in  $x$  and  $y$ , then we obtain a set of three consecutive integers such as is required.

This is the case for all combinations of the numbers  $a, b, c, d$  which make  $ad-bc = \pm 1$ .

To find solutions, take  $b$  and  $c$  any two odd integers; take one of the two even integers  $bc \pm 1$ ; then any pair of even and odd complementary factors of the number last selected may be chosen for  $a$  and  $d$ .

If the letters  $a, b, c, d$  receive the values 7, 4, 5, 3, respectively, we are led to the following solutions:—

$$32^2+48^2=3328, \quad 25^2+52^2=3329, \quad 27^2+51^2=3330;$$

$$\text{and } 160^2+272^2=99584, \quad 153^2+276^2=99585, \quad 165^2+269^2=99586.$$

If  $c=1$  and  $d=-1$ , then  $x=y$ .

This case leads to a series of solutions which may be written  $2(n^2+n)^2$ ,  $(n^2+2n)^2+(n^2-1)^2$ ,  $(n^2+n+1)^2+(n^2+n-1)^2$ , where  $n$  is any integer. The example given in the question is a particular case of this solution.

[Rest in Vol.]

**9309.** (Professor HUDSON, M.A.)—A cage, mass  $M$ , is drawn up a mine by an engine, at first with uniform acceleration, then with uniform velocity  $v$ , and then for a distance equal to the first portion with uniform retardation; the whole time of ascent is  $t$ , and the greatest horse-power at which the engine is worked is  $H$ . Prove that the depth of the mine is

$$\frac{550Hgt - Mv^2(gt+v)}{(550H - Mr)g}$$

Solution by Professor SIRCOM.

Let  $t_1$  be the time of the accelerated motion; then, by the question,

$$x = \frac{1}{2}vt_1 + v(t-2t_1) + \frac{1}{2}vt_1,$$

and  $vt_1 = vt - x$ .

Let the mass of the cage be  $M$  pounds. The greatest horse-power will be exerted when the velocity is on the point of reaching  $v$ . Then the power is equal to the tension of the chain multiplied by the velocity, or  $Tv = 550Hg$ , in absolute units, and  $T = 550Hg/v$ , and the work done during the period of acceleration is  $550Hg/v \cdot \frac{1}{2}vt_1$ ; this is equal to the work done in raising the weight together with that done in communicating the velocity  $v$ . Hence

$$550Hg/v \cdot \frac{1}{2}(vt-x) = Mg \cdot \frac{1}{2}(vt-x) + \frac{1}{2}Mv^2,$$

whence 
$$x = \frac{550Hgt - Mv^2(gt+v)}{(550H - Mv)g}$$

**14987.** (T. MUIR, M.A., F.R.S.)—Given

$$u \equiv (a, b, c, d) \begin{vmatrix} x & y \\ y & x \end{vmatrix}^3 + e = 0,$$

show that 
$$\left(\frac{d^2y}{dx^2}\right) \left(\frac{du}{dx}\right)^3 = 2e \begin{vmatrix} a & b & c \\ b & c & d \\ y^2 & -xy & x^2 \end{vmatrix},$$

and generalize.

Solution by Professor NANSON.

Denoting the determinant in the question by  $\Delta$ , we have, using SALMON'S notation,

$$\left(\frac{d^2y}{dx^2}\right) \left(\frac{du}{dy}\right)^3 = \left(\frac{u}{y}\right) = \frac{3e}{2} H = 54e\Delta,$$

since  $H$  is the Jacobian of the quadrics  $u_x, u_y$ , and therefore equal to  $36\Delta$ .

**14999.** (R. CHARTRES.)—If the in-circle of a triangle passes through the centroid, (1) show that  $5\Sigma(a^2) = 6\Sigma(ab)$  (Question 12641); (2) give an

easy method of writing down in integers the sides of any number of such triangles; and (3) find the mean value of the in-radius as the smallest side takes all possible values between 1 and 2 units.

Solution by the PROPOSER.

(1) This easily follows since  $r$  = the distance between the two points, the in-centre and centroid.

(2) It is satisfied by  $a = n^2+1$ ,  $b = (n+1)^2+1$ ,  $c = n^2+(n+1)^2$ ,  $n$  being different from zero.

If  $n = 1, 2, 3, \dots$ , the sides are (2, 5, 5), (5, 10, 13), (10, 17, 25), ... If  $n$  be fractional, we get other series of values.

$$(3) \quad r = \frac{\Delta}{s} = \frac{n(n+1)}{\sqrt{2}\sqrt{(n^2+n+1)}};$$

therefore mean value of  $r$ , when the smallest side lies between 1 and 2,

$$= \frac{1}{\sqrt{2}} \int_0^1 \left( \sqrt{(n^2+n+1)} - \frac{1}{\sqrt{(n^2+n+1)}} \right) dn$$

$$= \frac{1}{\sqrt{2}} \left\{ \frac{3\sqrt{3}-1}{4} - \frac{1}{2} \log \left( \frac{3+2\sqrt{3}}{3} \right) \right\}.$$

Note by Professor SANJANA, M.A.

In Question 12641 I first drew attention to the analytical condition given above. It is readily obtained by taking the in-circle in trilinear coordinates,  $\Sigma \sqrt{(a \cos^2 \frac{1}{2}A)} = 0$ , and making the centroid fall upon it; we obtain  $\Sigma \sqrt{(\cos^2 \frac{1}{2}A + a)} = 0$ , which gives  $\Sigma \sqrt{(s-a)} = 0$ . On rationalization this becomes  $5s^2 = 4(ab+bc+ca)$ , i.e.,  $5\Sigma(a^2) = 6\Sigma(ab)$ .

An easy way, and the most natural one, of obtaining such triangles is to give one side a numerical value; an indeterminate equation of the second degree between the remaining sides results, which can be solved by ordinary algebraical methods. Without loss of generality, we can take

$$a = 1; \text{ then } b = \frac{1}{2} \{ 3(c+1) \pm 4\sqrt{(3c-c^2-1)} \}.$$

If the value of  $b$  is fractional, multiply out by its denominator, and the sides may be written down in integers. The process thus depends on solving the diophantine equation  $c^2-3c+1+\square=0$ . The only isosceles solutions are the line-triangle 1, 1, 2 and the triangle 2, 5, 5; and by various artifices all other triangles may be made to depend on these, or rather on the first. Thus among many series of such triangles I have found those in the margin. They are obtained thus: Write down the line-triangle 1, 2, 1; take 2 for the smallest side of the next, and the other sides of this are the remaining sides of the first increased by 4; taking this triangle, make 5 the smallest side of the next, and the other sides of this third are the remaining sides of the second increased by 8; and so on. The increments are seen to be the terms of 4, 8, 12, 16, 20, ..., for the several derivative triangles. It will be found that the excess of any two sides of a triangle of this series over the third is of the form  $2p^2$  (a theorem generally true); and these excesses are in order  $2(1^2, 0^2, 1^2)$ ;  $2(1^2, 1^2, 2^2)$ ;  $2(1^2, 2^2, 3^2)$ ; ...  $2(1^2, 3^2, 4^2)$ ; and so on.

1	2	1
2	5	5
5	10	13
10	17	25
17	26	41
26	37	61
37	50	85
50	65	113
65	82	145
...	...	...

[Rest in Vol.]

**15087.** (Professor E. B. ESCOTT.)—In *Nature* for May 6, 1897, we have the following "Sieve for Primes" given:—"In order that a number  $n$  be prime, it is necessary and sufficient that the  $\frac{1}{2}(n+1)$ -th term of the following recurrent series give a remainder 1 when divided by  $n$ :-

$$1, 4, 11, 29, 76, 199, 521, \dots,$$

where the scale of relation is  $u^n = 3u_{n-1} - u_{n-2}$ ." Show, by a numerical example, that this condition is not sufficient.

Solution by the PROPOSER.

If we consider the recurring series 1, 3, 4, 7, 11, 18, 29, ..., where the scale of relation is  $V_n = V_{n-1} + V_{n-2}$ , the  $(2n+1)$ -th term of this series will be the  $(n+1)$ -th of the series considered by Mr. ESCOTT, and the theorem will be that  $V_n$  gives a remainder 1 when divided by  $n$ .

It is easily proved by taking residues of the terms to the moduli 3, 5, 7, ... that  $V_n \equiv 1 \pmod{3}$ , when  $n \equiv 1, 3, \text{ or } 4 \pmod{8}$ ;  
 $V_n \equiv 1 \pmod{5}$ , when  $n \equiv 1 \pmod{4}$ ;  
 $V_n \equiv 1 \pmod{47}$ , when  $n \equiv 1, 15 \pmod{32}$ .

If we let  $n = 3 \times 5 \times 47 = 705$ , since  $705 \equiv 1 \pmod{32}$ , and therefore  $\pmod{4}$  and  $\pmod{8}$ ,  $V_{705} \equiv 1 \pmod{705}$ , which disproves the theorem, since 705 is not a prime number.

A test somewhat like this was proposed in Question 1484, *J'Intermédiaire des Mathématiciens*, 1899, p. 76. Although it seems probable that the test is not sufficient, it has not been disproved. In the series

$$0, 2, 3, 2, 5, 5, 7, 10, 12, 17, 22, 29, 39, \dots,$$

where the law of recurrence is  $W_n = W_{n-2} + W_{n-3}$ , in order that  $n$  be a prime number, it is necessary and sufficient that  $W_n \equiv 0 \pmod{n}$ .

Remarks by R. W. D. CHRISTIE.

The "sieve" was discovered many years ago in the course of some

investigations into the properties of the roots of  $x^2 \pm 1 = 0$ . I soon found that the "continuant" series was the real prime series, e.g. :

$$\frac{(\omega_4 + \omega_3)^n - (\omega_2 + \omega_1)^n}{(\omega_4 + \omega_2) - (\omega_2 + \omega_1)} = 1, 1, 2, 3, 5, \dots$$

There are other series besides from which the primes are recoverable.

Let  $a, b$  be any two consecutive elements of the series; then it is not difficult to establish  $a^2 - b^2 + 4ab - 1 = P(Q)$ , where  $P$  is any prime; and, since  $a^2 - b^2 - ab = \pm 1$ , it follows that  $5ab = P(Q)$  if  $P$  be of form  $4m + 1$ , and  $5ab - 2 = P(Q)$  when of form  $4m - 1$ . Consequently,  $P_{4m+1}$  is a factor of either  $a$  or  $b$ , e.g. :

$$a_n = 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, \dots;$$

$$\text{primes} = 1, 3, 5, 7, (9), 11, 13, (15), 17, 19, \dots$$

Here for 13 we have  $8, 13 = b, a$ ;  
therefore  $5ab = P(Q)$ , since  $13 = 4m + 1$ ;  
and for 11 we have  $5, 8 = b, a$ ;  
therefore  $5ab - 2 = P(Q)$ , since  $11 = 4m - 1$ .

Another series of the same kind as given by me in *Nature* is

$$a_n = 1, 7, 41, 239, 1393, 8119, 47321, 275807, 1607521, 9369319, \dots;$$

$$\text{primes} = 1, 3, 5, 7, (9), 11, 13, (15), 17, 19, \dots$$

Of course, in the example mentioned, we should not, in practice, think of using the "sieve" for any number ending in 5. It is, I find, a complete exception which apparently acts as a quasi-prime and does not vitiate the theorem.

Incidentally, I may mention the integral primitive roots of every prime have their origin in the above "continuant" series, and can be proved to be composite.

**15130.** (Professor LANGHORNE ORCHARD, M.A., B.Sc.)—An equilateral triangle, of side-length =  $a$ , is thrown "at random," from a height =  $na$ , upon an indefinite horizontal plane which is ruled with equidistant horizontal lines, crossed with equidistant vertical lines, so as to form a number of squares, each of side-length  $2a$ . Find the "probability" that a side of the triangle will cut one of the lines.

*Solution by D. BIDDLE*

Assuming the height from which the triangle falls to be sufficient to render the position of the triangle, as it lies on the floor, "random," it would appear that, if  $p$  = the chance that the figure lies between two parallels of one set,  $p^2$  = the chance that it will lie wholly within a square, and  $1 - p^2$  = the chance that it will lie across a line of one or both sets. The last-mentioned chance may be broken up as follows:— $p - p^2$  = the chance that it lies across one side only, and that belonging to a particular set of parallels;  $2(p - p^2)$  = the chance that it lies across one side only, and that irrespective of the set of parallels to which it belongs;  $1 - 2p + p^2$  = the chance that it lies across two lines (one of each set). The sum of the two last chances exactly makes  $1 - p^2$ .

By reference to Question 10219 (Professor SYLVESTER) and the italicized portion of my solution of it on p. 98, Vol. LII., the following law will be found enunciated (not for the first time):—"The ratio borne to the periphery of the given circle (touching two adjacent parallels) by the length of a string drawn tightly round any plane figure whatsoever (capable of lying in all positions between the parallels) is invariably the probability that such figure will be cut by a parallel, if disposed at random on a ruled floor." Consequently,

$$1 - p = 3/(2\pi) \text{ and } P = 1 - p^2 = (12\pi - 9)/(4\pi^2) = P_1 + P_2,$$

where  $P_1 = 2(p - p^2) = (6\pi - 9)/(2\pi^2)$  and  $P_2 = 1 - 2p + p^2 = 9/(4\pi^2)$ .

Numerically, the values are nearly as follows:—

$$P_1 = .498984, \quad P_2 = .227973, \quad P = .726957.$$

The chance that the triangle shall lie wholly within a square is .273043.

**15103.** (J. S. LAWSON, M.A.)—Show that the sum of the harmonic series  $\frac{1}{a} + \frac{1}{a+b} + \frac{1}{a+2b} + \dots$  to  $n$  terms  $> \frac{2n}{2a + (n-1)b}$ .

*Solutions (I.) by Professor SANJANA, M.A., A. M. NESBITT, M.A., and A. W. POOLE, B.A.; (II.) by CONSTANCE I. MARKS, B.A.*

(I.)  $a$  and  $\beta$  being real and positive,  $(a + \beta)^2 > 4a\beta$ , and hence we have  $1/a + 1/\beta > 4/(a + \beta)$ .

Hence, when  $n$  is even, and  $a$  and  $b$  real and positive,

$$\frac{1}{a} + \frac{1}{a+(n-1)b} > \frac{4}{2a+(n-1)b}, \quad \frac{1}{a+b} + \frac{1}{a+(n-2)b} > \frac{4}{2a+(n-1)b}, \dots$$

$$\text{Thus } \frac{1}{a} + \frac{1}{a+b} + \frac{1}{a+2b} \dots \text{ to } n \text{ terms} > \frac{4 \times \frac{1}{2}n}{2a+(n-1)b} > \frac{2n}{2a+(n-1)b}.$$

When  $n$  is odd the middle term will be  $\frac{1}{a + \frac{1}{2}(n-1)b}$  or  $\frac{2}{2a + (n-1)b}$ ; the remaining  $n-1$  terms may be shown greater than  $\frac{2(n-1)}{2a + (n-1)b}$ .

(II.) All the terms of the series being first considered not only real but positive, if  $n = 2$ , the theorem to be proved is

$$\frac{1}{a} + \frac{1}{a+b} > \frac{4}{2a+b}, \quad (2a+b)^2 > 4a(a+b), \quad b^2 > 0 \text{ (which is true).}$$

If  $n = 3$ , the theorem to be proved is

$$\frac{1}{a} + \frac{1}{a+b} + \frac{1}{a+2b} > \frac{6}{2(a+b)} \text{ or } \frac{3}{a+b},$$

that is  $(a+b)(a+2b) + a(a+2b) + a(a+b) > 3a(a+2b)$ ,  $2b^2 > 0$

(which is true). Suppose the law holds for all integral values of  $n$  from 2 up to  $r$  inclusive, so that

$$\sum_{k=0}^{r-1} \frac{1}{a+kb} > \frac{2r}{2a+(r-1)b}.$$

Then  $\sum_{k=0}^r \frac{1}{a+kb}$  is certainly greater than  $\frac{2(r+1)}{2a+rb}$ , if

$$\frac{2r}{2a+(r-1)b} + \frac{1}{a+rb} > \frac{2(r+1)}{2a+rb},$$

if  $2(a+rb)(2a+rb) + \{2a+(r-1)b\}(2a+rb) > 2(r+1)(a+rb)\{2a+(r-1)b\}$ , which readily reduces to the condition  $r(r+1)b^2 > 0$  (which is true).

Hence, if the theorem holds up to  $n = r$ , it will also hold for the next value of  $n$ . But it does hold when  $n = 2$  and when  $n = 3$ ; therefore it is true when  $n = 4$ , and so on universally.

If the terms of the series are all negative, the sign of the inequality must be reversed. The case in which at some point in the given series the sign of the constituent terms changes may be regarded as compound, the above results applying to the two portions considered separately.

**15110.** (Professor SANJANA, M.A.)—Prove that the solution in rational numbers (integral or fractional) of the equation  $M^2 - 2xN^2 = x^2 - 1$  will serve to factorise quantities of the form  $N_1^4 + N_2^4$ ; and show that  $x$ , supposed a positive integer, will always be of the form  $4q^2 + 1$ .

*Solution by Lt.-Col. ALLAN CUNNINGHAM, R.E.*

Let  $F = N_1^4 + N_2^4$  be the number to be factorised. Assume

$$F = (N_1^2 + x \cdot N_2^2)^2 - (N_2 \cdot z)^2 \dots \dots \dots (A),$$

a difference of squares, and therefore directly factorisable. This requires

$$z^2 = 2x \cdot N_1^2 + (x^2 - 1) N_2^2 \dots \dots \dots (B).$$

Writing  $z/N_2 = M$ ,  $N_1/N_2 = M$ , and rearranging, reduces this to the proposed equation  $M^2 - 2x \cdot N^2 = x^2 - 1 \dots \dots \dots (B')$ .

Evidently every integer solution of (B), or every integral or fractional solution of (B'), yields values of  $F$  along with their reduction to a difference of squares.

This method of factorisation was introduced by the present writer to the London Mathematical Society (see *Proceedings*, Vol. XXXII., p. 1) in a verbal communication. It was then shown that every number  $F$  of above form yields several (at least four) values of  $x$ , which may be + or - , and integral or fractional. Each such value of  $x$  leads to an easily solvable diophantine equation of type (B) or (B'), termed the *factorisant*, which has an infinite number of integral solutions. Each such solution ( $N_1, N_2$ ) gives a factorisable number of form  $F$ , with the value of  $z$  needed for its factorisation.

Ex.—Take  $F = 17 = 1^4 + 2^4 = 9^2 - 8^2 = n_1^4 + n_2^4$ .

Here (1),  $n_1 = 1, n_2 = 2$ ; then, by (A),  $n_1^2 + x \cdot n_2^2 = \pm 9$ , whence

$$x = \frac{1}{4}(\pm 9 - 1) = 2 \text{ or } -\frac{3}{4},$$

or (2),  $n_1 = 2, n_2 = 1$ ; then, by (A),  $n_1^2 + x \cdot n_2^2 = \pm 9$ , whence

$$x = \pm 9 - 4 = 5 \text{ or } -13.$$

Thus the prime  $F = 17$  has yielded four suitable values of  $x$ , each of which will yield a solvable factorisant (B).

Thus, selecting the value  $x = 2$ , the factorisant (B) is  $(2N_1)^2 + 3N_2^2 = z^2$ . An interesting train of solutions is obtainable with  $N_1 = \text{constant} = 1$ ; then, by known methods,

$$N_2 = 2, \quad 8, \quad 30, \quad 418, \quad 1560, \quad \&c.;$$

$$z = 4, \quad 14, \quad 112, \quad 724, \quad 2702, \quad \&c.$$

Thus  $F = 1^4 + 1560^4 = (1^2 + 2 \cdot 1560^2)^2 - (1560 \cdot 2702)^2 = 652081 (313.29017)$ .

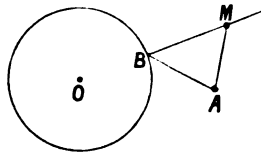
Note that the base number ( $F = 17$ ) above, being prime, has yielded only four suitable values of  $x$ . A composite base number ( $F$ ) would yield four values of  $x$  for every way in which it could be expressed as a difference of squares.

[The above example shows that, even if  $x$  be a positive integer, it is not necessarily of form  $x = 4q^2 + 1$ , as stated in the Question; but, to give the full advantage of the method (which is really one of considerable power),  $x$  should not be limited to being either positive or integral. For another

application of the same process see the present writer's Solution of Question 14971. The present writer has further used this method with great success for factorisation of other quartic forms, e.g.,

$$F = N_1^4 - N_1^2 N_2^2 + N_2^4, \text{ \&c.}$$

**15017.** (Professor COCHEZ.)—On donne une circonférence O et un point fixe A. On joint A à un point B de la circonférence, et sur AB on construit un triangle ABM semblable à un triangle donné. Lieu de M quand B décrit la courbe.



Solutions (I.) by J. PRESCOTT, B.A., H. L. TRACHTENBERG, and others; (II.) by LIONEL E. REAY, B.A., and A. W. POOLE, B.A.

(I.) Since ABM is similar to a given triangle,  $AM/AB = a$  constant; Also  $\angle BAM$  is constant. Take a point P along AM, making  $AP = AB$ . Then as B describes the given curve P describes a similar and equal curve, which could be obtained by rigidly connecting the given curve with A and then rotating it about A through an angle  $= \angle BAM$ .

Now, since  $AM/AP = a$  constant, M describes a curve similar to the one described by P, and therefore similar to the given curve. Hence, if the given curve is a circle, M describes a circle.

(II.) If  $AO = c, OB = a, AB = r, BAO = \theta, BAM = \beta, MBA = \alpha$ , then  $a^2 = r^2 + c^2 - 2cr \cos \theta$ . If  $AM = \rho, MAO = \beta + \theta = \phi$ , say, then  $\rho \sin(\beta + \alpha) = r \sin \alpha$ ; therefore

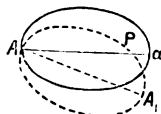
$$a^2 = \rho^2 [\sin^2(\beta + \alpha) \sin^2 \alpha] + c^2 - 2c\rho [\sin(\beta + \alpha) \sin \alpha] \cos(\phi - \beta),$$

or  $a^2 \lambda^2 = \rho^2 + c^2 \lambda^2 - 2c\rho \cos(\phi - \beta)$ , where  $\lambda = \sin \alpha \operatorname{cosec}(\alpha + \beta)$ ; therefore locus of M is a circle whose centre is the point  $(c\lambda, \beta)$  and radius  $a\lambda$ .

**15055.** (Rev. T. ROACH, M.A.)—If two ellipses have equal major axes and a common vertex, show that they meet in only one other point.

Solution by the PROPOSER.

Let  $Aa, AA_1$  be axes. Then every chord AP of the lower curve is  $< AA_1$ ; therefore  $< Aa$ ; therefore above  $Aa$  the lower curve lies inside the upper, and, since  $AA_1 > AP$ , it crosses between  $a$  and  $A_1$ . Similarly, below  $A_1$  the upper curve lies inside the lower; therefore the curves cut in only one other point.



**15002.** (R. KNOWLES, B.A.)—From a point T ( $h, k$ ), tangents TP, TQ are drawn to meet the parabola  $y^2 = 4ax$  in P and Q. Prove that (1) the coordinates of the symmedian point of the triangle TPQ are

$$[(a+h)(k^2+2ah), k(k^2+2ah+6a^2)]/2(k^2-ah+3a^2);$$

(2) if PQ be a focal chord, this point is on the tangent at the vertex.

Solutions (I.) by R. TUCKER, M.A.; (II.) by LIONEL E. REAY, B.A.

(I.) (1) The following results are easily got, if we suppose the parabola to be  $y^2 = 4x$ . Equation to PQ,

$$ky - 2x - 2h = 0 \dots\dots\dots(i.);$$

therefore perpendicular from T is  $(k^2 - 4h)/\sqrt{k^2 + 4}$ , and

$$PQ = \sqrt{(k^2 + 4)(k^2 - 4h)};$$

hence

$$2\Delta = (k^2 - 4h)^{3/2},$$

also

$$\Sigma(PQ)^2 = 2(k^2 - 4h)(k^2 - h + 3);$$

therefore perpendicular from symmedian point on PQ

$$= \frac{\sqrt{(k^2 + 4)(k^2 - 4h)}}{2(k^2 - h + 3)} \dots\dots\dots(ii.).$$

But this point lies on ST  $\dots\dots\dots(A).$

therefore, if (X, Y) are its coordinates, we have perpendicular from it on

$$PQ = (kY - 2X - 2h)/\sqrt{k^2 + 4} \dots\dots\dots(iii.).$$

From (ii.) and (iii.) after reduction, we get

$$kY - 2X = \frac{k^4 + 2k^2 - 4h - 4h^2}{2(k^2 - h + 3)} \dots\dots\dots(iv.),$$

also, from (A),

$$kX - (h - 1)Y = k \dots\dots\dots(v.);$$

hence

$$(k^2 - 2h + 2)X = \frac{k^4 + 2k^2h + 2k^2 + k^4h + 4h - 4h^3}{2(k^2 - h + 3)},$$

i.e.,

$$X = (k^2 + 2h)(1 + h)/2(k^2 - h + 3),$$

i.e.,

$$X = (k^2 + 2ah)(a + h)/2(k^2 - ah + 3a^2) \text{ for } y^2 = 4ax.$$

Hence Y can be verified.

(2) is obvious, since  $\angle T$  is in this case a right angle.

From the above result we can at once answer my Question 14774 (August, 1901), of which a solution is given on p. 325.

[Rest in Vol.

QUESTIONS FOR SOLUTION.

**15153.** (R. TUCKER, M.A.)—Mr. TUCKER restates this question as follows:—In the "ambiguous" case of triangles, if the projection of  $b$  on BC is constant, and  $r, r'$  are the radii of the in-circles, then, if the circles touch one another,  $rr'$  is constant.

**15165.** (Professor SANJANA, M.A.)—Show that, when  $6n + 3$  is not a power of 3,  $(x^{6n+3} + 1)/(x^3 + 1)$  has three factors at least,  $n$  being a positive integer and  $3x$  a perfect square.

**15166.** (Professor NANSON.)—Prove that the sum of the quadratic residues of a prime of the form  $4m + 1$  is equal to the sum of the quadratic non-residues.

**15167.** (Lt.-Col. ALLAN CUNNINGHAM, R.E.)—Let

$$N = (x^{\eta} - 1)(x - 1)/(x^{\eta} - 1)(x^3 - 1)$$

and

$$N' = (x^{\eta} + 1)(x + 1)/(x^{\eta} + 1)(x^3 + 1),$$

where  $\eta$  is odd in  $N$ , and  $\eta$  is odd or even in  $N'$ ; and let  $a, b, c, \dots$  be the incongruous roots ( $< p$  or  $p^2$ ) of  $N \equiv 0 \pmod{p}$  or  $p^2$ ; and  $a', b', c', \dots$  the incongruous roots ( $< p$  or  $p^2$ ) of  $N' \equiv 0 \pmod{p}$  or  $p^2$ . Show that the roots may be arranged in triads such that

$$(1) \text{ } \eta \text{ odd; } a + b + c \equiv 0, \quad a' - b' + c' \equiv 0;$$

$$(2) \text{ } \eta \text{ even; } a' + b' + c' \equiv 0, \quad a_1' - b_1' + c_1' \equiv 0,$$

the same modulus ( $p$  or  $p^2$ ) being used throughout. Give examples when

$$\eta = 1, 2, 3, 5.$$

**15168.** (ROBERT W. D. CHRISTIE.)—Prove the following theorems:—

$$(1) \text{ } a^3 + b^2 = 0 \pmod{p_{4m-1}}; \quad (3) \text{ } a^m + b^2 = 0 \pmod{p_{6m+1}} \text{ (} m \text{ even)};$$

$$(2) \text{ } a^2 + b^2 = 0 \pmod{p_{4m+1}}; \quad (4) \text{ } a^2 + b^2 = 0 \pmod{p_{8m+1}}.$$

E.g., (3)  $109 = 8^2 + 46^2 = 1^2 + (\frac{1}{2} \cdot 9)^2 + 10^2 + (\frac{1}{2} \cdot 9)^2 = 10^2 + (\frac{1}{2} \cdot 9)^2 = 10^2 + 3^2$ .

**15169.** (A. M. NESBITT, M.A.)—A man tosses a coin; he scores 1 for each head that turns up and 2 for each tail. Find the chance of his scoring exactly  $n$ .

**15170.** (V. DANIEL, B.Sc.)—A curve such that the rectangular axes intercept equal lengths on tangent and normal is the logarithmic spiral whose angle is  $\frac{1}{2}\pi$ .

**15171.** (A. M. NESBITT, M.A.)—Discuss the curves—

$$(1) (y - x^2)^2 = xy^4, \quad (2) (y - x^2)^2 = x(x^4 - y^4).$$

**15172.** (Professor NANSON.)—Sum to infinity the series

$$\frac{1}{1.2} - \frac{1}{3.4} + \frac{1}{6.7} - \frac{1}{8.9} + \frac{1}{11.12} - \dots$$

**15173.** (Professor NEUBERG.)—Si  $\tan \alpha, \tan \beta, \tan \gamma$  sont les racines de l'équation  $ax^3 + 3bx^2 + 3cx + d = 0$ , former l'équation qui a pour racines  $\tan \alpha \tan(\beta + \gamma), \tan \beta \tan(\gamma + \alpha), \tan \gamma \tan(\alpha + \beta)$ .

**15174.** (W. H. BLYTHE, M.A.)—(Suggested by Question 10198.)—A rectangular hyperbola passes through the centres of the inscribed, escribed, and nine-point circles of a triangle ABC. Any point upon the hyperbola is the centre of a conic touching the lines AB, BC, CA, the auxiliary circle of which touches the nine-point circle. Let a rectangular hyperbola be described through the centres of the inscribed and escribed circles and through F a focus of one of the above conics. The polar with regard to this rectangular hyperbola of the circum-centre of the triangle passes through F.

**15175.** (R. KNOWLES.)—PQ is a chord of a conic at right angles to the transverse axis; the diameter through Q meets the normal at P in R. A circle is described with centre R and radius RP, cutting the conic in MM'. Prove that MM' (1) is a diameter of the circle; (2) is parallel to the tangent at Q.

**15176.** (Professor COCHEZ.)—On donne une ellipse et une droite  $\Delta$ . Un point M décrit la droite. Par M on mène les tangentes MT, MT' à la courbe. On prend sur TT' un point P tel que  $TP = \frac{1}{3}TT'$ , et l'on abaisse MH perpendiculaire sur TT'. (1) Lieu de P; (2) lieu de H; (3) lieu du milieu K de TT'; (4) lieu du pied D de la bissectrice de l'angle TMT'.

**15177.** (R. TUCKER, M.A.)—In the "ambiguous" case  $AC = AC'$ : AL, AL' are the respective symmedians (through A) of the triangles ABC, ABC', cutting BC in L, L' respectively. Find (i.) LL', (ii.) the value of BC when AC' is the symmedian of ABC.

**15178.** (C. A. LAISANT.)—(Suggérée par la Question 9946.)—Soient un quadrilatère convexe; O le point de rencontre de ses diagonales; OA, OB, OC, OD les perpendiculaires abaissées sur les quatre côtés. Si O est situé sur l'une quelconque des bissectrices intérieures du quadrilatère ABCD, ce dernier est circonscriptible à un cercle qui a précisément le point O pour centre.

**15179.** (C. E. YOUNGMAN, M.A.)—Three given circles have a common tangent. Show how to draw across them a straight line on which they will intercept equal chords.

**15180.** (Professor SANJANA, M.A.)—Given one angle of a triangle and the sums of the sides containing the other two angles, to construct the triangle. (The construction and proof are required to be strictly Euclidean.)

**15181.** (D. BIDDLE.)—In a section perpendicular to the axis of a hollow cylinder, whose inner surface is a perfect reflector, are two points A, B, the one of observation, the other of illumination, and these subtend an angle  $\theta$  at O, the centre of the circle. A series of images appears. Find the curve on which the apparent positions lie, and consider the case in which A and B are supposed to coincide.

**15182.** (G. HEPPEL, M.A.)—The three forces represented by the perpendiculars from the symmedian point to the sides of a triangle are in equilibrium.

**15183.** (A. F. VAN DER HEYDEN, M.A.)—If a mass  $m$  be placed at the centre of a sphere S, the potential due to  $m$ , at any point external to S, will be equal to that due to a distribution over S, equal in sum to  $m$ . Hence deduce that, if a surface S include any number of particles, and if N be the change in the normal force due to these particles on crossing the surface, a distribution over S of density  $N/4\pi$  will produce the same potential throughout all space external to S as the masses referred to.

**15184.** (H. BATEMAN.)—O is a fixed point on a curve, P a variable point, G the centre of gravity of the arc OP for multiples  $(du/ds)ds$  on an element of arc  $ds$ ,  $u$  being function of position which has the value zero at O. OQ is drawn parallel to GP and equal to  $u$ . GP. Prove that the tangent at Q to the locus of Q is parallel to the tangent at P, and that the radius of curvature of the locus of Q is  $\rho u$  ( $\rho$  being the radius of curvature at P). Consider the cases  $u = s/\rho$ ,  $du/ds = p$ .

OLD QUESTIONS AS YET UNSOLVED (IN OUR COLUMNS).

**4763.** (Professor GENESE, M.A.)—An ellipse turns about its centre; find the envelope of the chords of intersection with the initial position. Also, if the ellipse move parallel to its major axis, find the envelope of the chords of intersection with the initial position of the axes.

**8871.** (Professor MAHENDRA NATH RAY, M.A., LL.B.)—If  $S_r = \frac{1}{2r+1} - \frac{1}{2n+2r+1} + \frac{1}{4n+2r+1} - \frac{1}{6n+2r+1} + \dots$  to  $\infty$ ,  $n$  being a positive integer, show that  $S_0 - kS_1 + \frac{k(k-1)}{2!}S_2 - \frac{k(k-1)(k-2)}{3!}S_3 + \dots$  to  $k+1$  terms  $= \int_0^{\pi} \frac{x \sin^{2k+1} x dx}{\pi(1 + \cos^{2n} x)}$ .

**9193.** (A. GORDON.)—Show how to inscribe a polygon (pentagon, for example) similar to a given polygon (pentagon) in another given polygon, having one of its angular points at a given point in one of the sides of the latter (see extension of Prob. 21 in CATALAN's *Géométrie*, p. 152).

**12072.** (H. J. WOODALL, A.R.C.S.)—Prove that  $1^n + 2^n + \dots + (p-1)^n$  is divisible by  $p$  when  $p$  is prime. [The Proposer thinks that a direct proof may be obtained, also that the problem may be attacked, indirectly, in several ways.]

**12143.** (Major P. A. MACMAHON, R.A., F.R.S.)—Show that the number of permutations of the quantities in the product  $x_1^{\xi_1} x_2^{\xi_2} \dots x_n^{\xi_n}$  which possess the property that no quantity is in a place originally occupied by a like quantity, is the coefficient of  $x_1^{\xi_1} x_2^{\xi_2} \dots x_n^{\xi_n}$  in the development of the fraction  $1 / \{1 - \sum x_1 x_2 - 2 \sum x_1 x_2 x_3 - 3 \sum x_1 x_2 x_3 x_4 - \dots - (n-1) x_1 x_2 \dots x_n\}$ .

**12193.** (Professor MATHEWS, M.A., F.R.S.)—The focus of a parabola is S, and its vertex is A; on SA produced points B and C are taken, so that SA . SC = SB<sup>2</sup>, and through B a straight line BD is drawn perpendicular to SB. Prove that, if P is any point on the parabola, and the bisector of the angle ASP meets BD in Q, the triangles SPQ and SQC are similar. Employ this theorem to show that the oblique trajectory of a system of confocal parabolas is another system of confocal parabolas.

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## OF CANDIDATES WHO HAVE PASSED THE CERTIFICATE EXAMINATION OF THE COLLEGE OF PRECEPTORS.—MIDSUMMER, 1902.

[Throughout the following List, bracketing of names implies equality.]

### PRIZES.

#### General Proficiency.\*

##### FIRST CLASS [or SENIOR].

- |   |  |
|---|--|
| 1. Goldsmith, A. O.<br><i>(Isbister Prize.)</i> | Mr. Rymer, Douglas Higher Grade School, Isle of Man.   |
| 2. Storer, F.<br><i>(Pinches Prize.)</i>        | Rev. L. H. Pearson, Market Bosworth Grammar School.  |
| 3. May, P.<br>(Elliott, C. W.)                  | Messrs. Butler and Brown, Tollington Schools, N.   |
| 4. Uttley, W. W.                                | Mr. Ellis, Rutherford College, Newcastle-on-Tyne.<br>Rev. T. J. Cunningham, Hutton Grammar School, near Preston. |

##### SECOND CLASS [or JUNIOR].

- |                    |  |
|--------------------|--|
| 1. Loseby, Miss D. | Rev. L. H. Pearson, Market Bosworth Grammar School.      |
| 2. Carritt, H. W.  | Messrs. Champness and Stuart, Northgate School, Ipswich. |
| 3. Peace, S. M.    | Mr. Norton, Yorkshire Society's School, S.E.             |
| 4. Adair, E. E.    | Messrs. Butler and Brown, Tollington Schools, N.         |

##### THIRD CLASS.

- |                        |   |
|------------------------|---|
| 1. Loseby, Miss E. M.  | Rev. L. H. Pearson, Market Bosworth Grammar School. |
| 2. Heywood, Miss D. M. | Miss Carter, The Laurels, Herne Bay.                |
| 3. Mee, W.             | Mr. Francis, People's College, Nottingham.          |
| 4. Powell, A. D.       | Mr. Francis, People's College, Nottingham.          |

#### English Subjects.

- |                    |   |
|--------------------|---|
| 1. Hurst, A. W.    | Rev. L. H. Pearson, Market Bosworth Grammar School. |
| 2. Craddock, G. J. | Mr. Ruddle, Bible Christian College, Shebbear.      |

#### Classics.

- |                  |  |
|------------------|--|
| 1. Grundy, G. F. | Mr. Hammond, Market Harborough Grammar School. |
| 2. Craigs, G. S. | Private tuition.                               |

#### Mathematics.\*

- |                     |  |
|---------------------|--|
| 1. Goldsmith, A. O. | Mr. Rymer, Douglas Higher Grade School, Isle of Man. |
| 2. Elliott, C. W.   | Mr. Ellis, Rutherford College, Newcastle-on-Tyne.    |

#### Modern Foreign Languages.

- |                        |   |
|------------------------|---|
| 1. Daye, Miss R. V. G. | Private tuition.  |
| 2. Burgino, J.         | Rev. Brother Attale, St. Joseph's College, Denmark Hill, S.E. |

#### Natural Sciences.

- |                     |  |
|---------------------|--|
| 1. Hurst, A. W.     | Rev. L. H. Pearson, Market Bosworth Grammar School.  |
| 2. Goldsmith, A. O. | Mr. Rymer, Douglas Higher Grade School, Isle of Man. |

#### Taylor-Jones Prize for Scripture History.†

- |                |  |
|----------------|--|
| Roberts, E. H. | Rev. W. P. Whittington, Ruthin Grammar School. |
|----------------|--|

#### Pitman Medals for Shorthand.

- |                                       |   |
|---------------------------------------|---|
| Jemmett, V.<br><i>(Silver Medal.)</i> | Mr. Teller, Wright's School, Faversham. |
|---------------------------------------|---|

- |  |   |
|--|---|
| (Pearce, C. T.)<br><i>(Bronze Medals.)</i> | Mr. Alexander, Tavistock Grammar School.<br>Mr. Teller, Wright's School, Faversham. |
|--|---|

#### Scholarships for Intending Teachers.

- |                    |   |
|--------------------|---|
| Melvin, Miss J. I. | Miss Parkes, Wincham Hall College, Northwich.   |
| Wall, Miss A.      | Mrs. Hiatt, Ladies' College, Wellington, Salop. |

\* Hurst, A. W., Market Bosworth Grammar School, was disqualified for the First Prize for General Proficiency in consequence of having obtained it at a previous Examination; and for the Second Prize for Mathematics in consequence of having obtained the First Prize at a previous Examination.

† E. T. Dyson, Ruthin Grammar School, was disqualified for the Taylor-Jones Prize for Scripture History in consequence of having obtained it at a previous Examination.

### List of the Candidates who were FIRST and SECOND in each Subject of Examination.

<p><i>Scripture History.</i></p> <p>1. Dyson, E. T. Rev. W. P. Whittington, Ruthin Grammar School.</p> <p>(Roberts, E. H.) Rev. W. P. Whittington, Ruthin Grammar School.</p> <p>2. Wall, Miss A. Mrs. Hiatt, Ladies' College, Wellington, Salop.</p> <p><i>English Language.</i></p> <p>1. Wall, Miss A. Mrs. Hiatt, Ladies' College, Wellington, Salop.</p> <p>2. Melvin, Miss J. I. Miss Parkes, Wincham Hall College, Northwich.</p> <p><i>English History.</i></p> <p>1. Wall, Miss A. Mrs. Hiatt, Ladies' College, Wellington, Salop.</p> <p>2. Dyson E. T. Rev. W. P. Whittington, Ruthin Grammar School.</p> <p><i>Geography.</i></p> <p>1. Hurst, A. W. Rev. L. H. Pearson, Market Bosworth Grammar School.</p> <p>(Craddock, G. J.) Mr. Ruddle, Bible Christian College, Shebbear.</p> <p>Lee, A. J. Mr. Ruddle, Bible Christian College, Shebbear.</p> <p>2. May, P. Messrs. Butler and Brown, Tollington Schools, N.</p> <p>Slater, W. P. Dr. Isherwood, University School, Southport.</p> <p><i>Arithmetic.</i></p> <p>1. Grundy, G. F. Mr. Hammond, Market Harborough Grammar School.</p> <p>(Peace, S. M.) Mr. Norton, Yorkshire Society's School, Westminster Bridge Road, S.E.</p> <p>2. Uttley, W. W. Rev. T. J. Cunningham, Hutton Grammar School, nr. Preston.</p> <p><i>Algebra.</i></p> <p>1. Hurst, A. W. Rev. L. H. Pearson, Market Bosworth Grammar School.</p> <p>2. Neal, E. Rev. Brother Attale, St. Joseph's College, Denmark Hill, S.E.</p> <p><i>Euclid.</i></p> <p>1. Hurst, A. W. Rev. L. H. Pearson, Market Bosworth Grammar School.</p> <p>(McWalters, W. M.) Private tuition.</p> <p><i>Trigonometry.</i></p> <p>1. Goldsmith, A. O. Mr. Rymer, Douglas Higher Grade School, Isle of Man.</p> <p>2. Wright, H. N. Rev. E. Waterfield, Cheltenham College.</p>	<p><i>Mechanics.</i></p> <p>1. Goldsmith, A. O. Mr. Rymer, Douglas Higher Grade School, Isle of Man.</p> <p>2. Hurst, A. W. Rev. L. H. Pearson, Market Bosworth Grammar School.</p> <p><i>Book-keeping.</i></p> <p>(Morris, A. E.) Mr. Dickinson, Grove House School, Highgate, N.</p> <p>1. Wren, H. Rev. J. Bothams, Stafford College, Forest Hill.</p> <p><i>Mensuration.</i></p> <p>1. Jemmett, V. Mr. Teller, Wright's School, Faversham.</p> <p>(Ager, A. D.) Mr. Solomon, The Dauntsey Agricultural School, West Lavington.</p> <p>2. Goldsmith, A. O. Mr. Rymer, Douglas Higher Grade School, Isle of Man.</p> <p><i>French.</i></p> <p>1. Lenz, Miss J. T. E. Miss Mulliner, Sherborne School for Girls, Dorset.</p> <p>(Bontard, Miss H.) Private tuition.</p> <p>Millan, L. Rev. Brother Attale, St. Joseph's College, Denmark Hill, S.E.</p> <p>2. Renshaw, R. W. M. Rev. F. W. H. Palmer, Snettisham School, King's Lynn</p> <p><i>German.</i></p> <p>1. Lenz, Miss J. T. E. Miss Mulliner, Sherborne School for Girls, Dorset.</p> <p>2. Meikleham, Miss B. I. Private tuition.</p> <p><i>Italian.</i></p> <p>1. Ricci, M. Rev. Brother Attale, St. Joseph's College, Denmark Hill, S.E.</p> <p><i>Spanish.</i></p> <p>1. Gonzalez, T. S. Private tuition.</p> <p>2. Eguia, H. J. Rev. Brother Elst, St. Aloysius College, Hornsey Lane, N.</p> <p><i>Latin.</i></p> <p>1. Dyson, E. T. Rev. W. P. Whittington, Ruthin Grammar School.</p> <p>2. McWalters, W. M. Private tuition.</p> <p><i>Greek.</i></p> <p>(Grundy, G. F.) Mr. Hammond, Market Harborough Grammar School.</p> <p>1. Winter, G. P. Mr. Leighton, Bristol Grammar School.</p> <p><i>Hebrew.</i></p> <p>(Blumenthal, Miss J.) The Misses Holland, Crofton House School, Manchester.</p> <p>Levy, I. Private tuition.</p>	<p><i>Sound, Light, and Heat.</i></p> <p>1. Hurst, A. W. Rev. L. H. Pearson, Market Bosworth Grammar School.</p> <p>(Crocker, W. C.) Mr. Parkinson, Queen's Park College, W.</p> <p>2. Goldsmith, A. O. Mr. Rymer, Douglas Higher Grade School, Isle of Man.</p> <p><i>Electricity and Magnetism.</i></p> <p>(Crawford, D. McF.) Mr. Walmsley, Grammar School, Eccles.</p> <p>1. Elliott, C. W. Mr. Ellis, Rutherford College, Newcastle-on-Tyne.</p> <p><i>Chemistry.</i></p> <p>1. Storer, F. Rev. L. H. Pearson, Market Bosworth Grammar School.</p> <p>2. Hurst, A. W. Rev. L. H. Pearson, Market Bosworth Grammar School.</p> <p><i>Natural History.</i></p> <p>1. Hodgson, E. W. Messrs. Butler and Brown, Tollington Schools, N.</p> <p>2. Beer, Miss E. B. Private tuition.</p> <p>Hurst, A. W. Rev. L. H. Pearson, Market Bosworth Grammar School.</p> <p><i>Drawing.</i></p> <p>1. Rippingille, E. V. A. Messrs. Butler and Brown, Tollington Schools, N.</p> <p>2. Miller, Miss E. Miss Hahnel, Collegiate High School, W. Didsbury, Manchester.</p> <p><i>Music.</i></p> <p>1. Meaker, Miss E. M. Mrs. Loveday, Weirfield School for Girls, Taunton.</p> <p>(Carter, R. E.) Mr. Savage, Seaford College.</p> <p>2. Wickham, Miss L. M. The Misses Perry and Roberts, Elson House High School, Leytonstone.</p> <p><i>Political Economy.</i></p> <p>1. Wall, Miss A. Mrs. Hiatt, Ladies' College, Wellington, Salop.</p> <p>2. Addenbrooke, A. C. J. L. Private tuition.</p> <p><i>Shorthand.</i></p> <p>1. Jemmett, V. Mr. Teller, Wright's School, Faversham.</p> <p>(Pearce, C. T.) Mr. Alexander, Tavistock Grammar School.</p> <p>2. Wilson, V. Mr. Teller, Wright's School, Faversham.</p> <p><i>Domestic Economy.</i></p> <p>1. Scholey, Miss M. A. R. S. Miss Pinchard, Harringay Park School, Green Lanes, N.</p> <p>2. Scott, Miss F. D. Miss Wright, 52 Cromwell Avenue, Highgate, N.</p>
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- a. = Arithmetic. al. = Algebra. b. = Botany. bk. = Bookkeeping. ch. = Chemistry. d. = Drawing. do. = Domestic Economy. e. = English. el. = Electricity. eu. = Euclid. f. = French. g. = Geography. geo. = Geology. ge. = German. gr. = Greek. h. = History. he. = Hebrew. i. = Italian. l. = Latin. m. = Mechanics. ms. = Mensuration. mu. = Music. nh. = Natural History. p. = Political Economy. ph. = Physiology. phys. = Elementary Physics. s. = Scripture. sd. = Sound, Light, and Heat. sh. = Shorthand. sp. = Spanish. tr. = Trigonometry. z. = Zoology.

The small figures 1 and 2 prefixed to names in the Second and Third Class Lists denote that the Candidates were entered for the First and Second Classes respectively.

In the addresses. Acad. = Academy, C. or Coll. = College, Coll. S. = Collegiate School, Comm. = Commercial, End. = Endowed, Found. = Foundation, H. = House, Inst. = Institute, Int. = International, Inter. = Intermediate, Prep. = Preparatory, S. = School, Tech. = Technical, Univ. = University.

FIRST CLASS [or SENIOR]. Honours Division.

- Hurst, A.W. h.a.a.al.eu.m.sd.el.ch.geo. Market Bosworth Gram. S. Goldsmith, A.O. eu.tr.m.ms.sd.ch. Douglas Hr. Grade S., I. M. Storer, F.al.ch. Market Bosworth Gram. S. May, P.g. TOLLINGTON SCHOOLS, N. Elliott, C.W. a.al. Rutherford Coll., Newcastle-o.-T. Uttley, W.W. a. Hutton Gram. S. Clark, A.s.ms.d. Snettisham School Grundy, G.F. a.ms.f.g.r.d. Market Harborough Gram. S. Slater, W.P. s.g. University S., Southport Holzgren, E.W. z. TOLLINGTON SCHOOLS, N. Wilson, V.eu.ch.d.sh. Wright's S., Faversham Dyson, E.T. s.h.f.l. Ruthin Gram. S. Jenmett, V.eu.ms.d.sh. Wright's S., Faversham Craddock, G.J. s.g.ms. Bible Christian Coll., Shebbear Ford, F.J. al.sh. WIRKSWORTH GRAM. S. Kendall, A.J. Hutton Gram. S. Shepherd, E.ch. Market Bosworth Gram. S. Gray, F.H. ch. Market Bosworth Gram. S. Taylor, R.L. al.d. Hutton Gram. S. Borrow, E.J. d. TOLLINGTON SCHOOLS, N. Hurst, H.T. Market Bosworth Gram. S. Jones, W.R. Gram. S., Eccles Jacobs, C.E. ch. Brewdow Gram. S. Piper, W.S. h.al.sh. Argyle H., Sunderland Davies, G.s.f.ch. Ruthin Gram. S. Bisiker, F.W. TOLLINGTON SCHOOLS, N. Meredith, J.C. sh. Snettisham School Thurston, H.M. sh. Wright's S., Faversham Sampson, F.P. f.j.p. Stafford Coll., Forest Hill Methvin, D. Stationers' Compy.'s S., Hornsey Ager, A.D. ms. Dauntsey Agricultural S., W. Lavington Soper, R.G. ms.r.d. Taunton Trade S., Southampton McWatters, W.M. en.l. Private tuition Edgar, E.J. ch. Douglas Hr. Grade S., I. M. Anderson, R. Argyle H., Sunderland Greenough, T.R. University S., Southport Connor, L.R. Stationers' Compy.'s S., Hornsey Shepcott, S.T. s.e.eu. North Devon S., Barnstaple Wren, H. bk. Stafford Coll., Forest Hill Brace, C.C.C. Private tuition Christopher, H.E. Private tuition

FIRST CLASS [or SENIOR]. Pass Division.

- Backus, C.H. m. Private tuition Bayliss, A.D.E. TOLLINGTON SCHOOLS, N. Davies, H.G. TOLLINGTON SCHOOLS, N. Wright, H.N. Cheltenham College Hinkel, L.E. ch. Private tuition Cox, E.A. L. ch. Kelly Coll., Tavistock Patterson, T. d. Hutton Gram. S. Gillinson, J.H. Heath Gram. S., Halifax Gilbert, B.J. sh. St. Kilda's Coll., Waterlooville Burton, F.W. TOLLINGTON SCHOOLS, N. Turner, R.S. Hutton Gram. S. Carter, R.E. sh. Seaford College Witty, B. Hutton Gram. S. Roberts, E.H. s. Ruthin Gram. S. Harding, C.A. ms. Southampton Boys' Coll. Hayter, C. ms.sh. Argyle H., Sunderland Rawlinson, C.S. Market Bosworth Gram. S. Stowe, A.J. Brixton Gram. S. Marshall, J.A. Gram. S., Eccles Chettle, G.H. Stationers' Compy.'s S., Hornsey Bottomley, H.S. sh. Hatfield College

SECOND CLASS [or JUNIOR]. Honours Division.

- Carritt, H.W. s.a.al. Northgate S., Ipswich Peace, S.M. e.p. Yorkshire Society's S., S.E. Adair, E.R. h.g.g. TOLLINGTON SCHOOLS, N. Marsh, A.W. Market Bosworth Gram. S. Platt, H. a.al.f.g.e.d. WILMSLOW GRAM. S. Whitelaw, R.A. g.a.al.bk. TOLLINGTON SCHOOLS, N. Pescod, S.H. al.f.ch.d. Taunton Trade S., Southampton Millan, L. g.f.d. St. Joseph's Coll., Denmark Hill Tresise, E.J. a.ms.d. Barnstaple Gram. S. Curphey, E.S. a.al.eu.phys.ch. Douglas Hr. Grade S., I. M. Barguno, J. f.d. St. Joseph's Coll., Denmark Hill Partridge, C.H. a.al.bk. Barbourne Coll., Worcester Kelly, J.C. a.ch.d. Douglas Hr. Grade S., I. M. Waid, C.S. a.al.phys.ch. Douglas Hr. Grade S., I. M. Grimes, T.A. g.eu.ch. Higher Grade S., Carlisle Pearce, C.T. h.al.sh. Tavistock Gram. S. Marrable, R.G. a.phys.d. Parmiter's S., Victoria Park, N.E. Hickox, E.B. a.al.f. TOLLINGTON SCHOOLS, N. Egginton, A.T. Market Bosworth Gram. S. Kemp, H.G. s.f. Northgate S., Ipswich Caine, J.W. a.eu.phys.ch.d. Douglas Hr. Grade S., I. M. Hinkins, C.H. g.ch.d. Taunton Trade S., Southampton Nuttall, T.H. bk. University S., Southport Rigby, P.J. tk.d. St. Aloysius Coll., N. Haydon, L.R. Lewisham H., Weston-s.-Mare Meldrum, J. a.d. Hr. Grade S., Carlisle Walters, W.L. ch.d. Taunton Trade S., Southampton Kendall, J.P. a.ch. Farnham Gram. S. Spink, H.H. M. s. WIRKSWORTH GRAM. S. Clark, R.D. a. Osborne High S., W. Hartlepool Kittle, E.A. L. TOLLINGTON SCHOOLS, N. Sankey, T.A. s.g. Gram. S., Blackpool Meek, H.M. University S., Southport Steel, B.S. TOLLINGTON SCHOOLS, N. Avisa, D. s.d. Borden Gram. S. Earle, G.O. The Limes, Croydon Mace, D.W. Hythe S., Kent Wheeler, W.S. a. Ruthin Gram. S. Sargent, F.V. a. Dauntsey Agricultural S., W. Lavington Mooney, J.J. s.l.ch. Private tuition Budgen, S.N. Borden Gram. S. Freer, J.W. al. Market Bosworth Gram. S. Loetschert, W.H. a.al. St. Aloysius Coll., N. Mitchell, R.H. f. Tavistock Gram. S. Parker, T.P. al. Private tuition Parker, W. d. Higher Grade S., Carlisle Fainsborn, J.G. University S., Southport Ramsbottom, R. University S., Southport Teare, L.H. ch. Douglas Hr. Grade S., I. M. Worsley, G. al.ch. Hutton Gram. S. Ravasio, D. i. St. Joseph's Acad., Kennington Stratford, L.E. phys.d. Parmiter's S., Victoria Park, N.E. Whellens, M.J. ms.d. Ripley Comm. S., Woking Colyer, W.J. a. Wright's S., Faversham Radcliffe, E.H. ch.d. Douglas Hr. Grade S., I. M. Williams, R.B. d. Easingwold Gram. S. Jackson, J.T. d. Osborne High S., W. Hartlepool Ketterer, A.V. f.d. St. Olave's Gram. S., S.E. Babb, G.H. a. Bible Christian Coll., Shebbear Gibson, F.G. g.phys. Dauntsey Agricultural S., W. Lavington Harvey, H. al. Brent Hill S., Hanwell Redman, C. ch. Dean Close S., Cheltenham

Private tuition

- Private tuition Jones, C.M. al. WIRKSWORTH GRAM. S. Keeling, W.B. Wilsford H., Devises Hough, F.H. d. Wittou Gram. S., Northwich Knowlson, L.A. ch. Yorkshire Society's S., S.E. Newman, C.F. ch. Taunton Trade S., Southampton Sharp, G.G. a.al. Private tuition MacEwan, E. Private tuition Hibbert, F. d. Gram. S., Eccles Rowan, W. TOLLINGTON SCHOOLS, N. Stockeley, J. ch. Technical Day S., Walsall Wright, C. d. Widnes Hr. Grade S. Clacs, C.M. L. bk.f. St. Joseph's Coll., Dumfries McKenzie, H.E. s. University S., Southport Weber, H.P. f.l. Private tuition Parr, M. a.al. North Devon S., Barnstaple Squires, E.H. d. St. Olave's Gram. S., S.E. Bennett, J.S. Bible Christian Coll., Shebbear French, G.T. f. Parmiter's S., Victoria Park, N.E. Mercer, J.D. m. Gram. S., Eccles Westall, N.Y. University S., Southport Rothwell, S. d. Ripley Comm. S., Woking Ward, F.S. a. Dauntsey Agricultural S., W. Lavington Bugden, F.J. d. Borden Gram. S. Potts, T.F. ch.d. Wright's S., Faversham Rookledge, F.O. Easingwold Gram. S. Welch, C. H. Alwyne Inst., Gower St., W.C. Witham, J. Higher Grade S., Carlisle Withall, D.B. ch. Hutton Gram. S. Davis, A.G. ms. Barbourne Coll., Worcester Hyde, C.C. Ludlow Comm. S. Potter, A. a. d. WIRKSWORTH GRAM. S. Sparks, H.B. Borden Gram. S. Gorringe, E.C. f. Brighton Gram. S. Lees, E.A. a. Technical Day S., Walsall Merritt, B.T.B. Private tuition Redgrove, H.R. phys.d. Parmiter's S., Victoria Park, N.E. Woods, P.J. a. Eye Gram. S. Green, T.P. ch. Douglas Hr. Grade S., I. M. Loly, A.L. phys.d. Parmiter's S., Victoria Park, N.E. Bird, W. a. Brent Hill S., Hanwell Denby, T.P. f. Private tuition Taylor, W.T. Parmiter's S., Victoria Park, N.E. Barker, J.F. a. Parmiter's S., Victoria Park, N.E. Goodrich, H.F. TOLLINGTON SCHOOLS, N. Jackson, H.A. a. St. John's Coll., Southend Kimber, H.E. a.ch. Taunton Trade S., Southampton Price, C.E. Private tuition Coast, T.S. d. Queen's Park Coll., W. Graves, G.A. f. Finsbury Park Coll. Green, J.H. ch. Douglas Hr. Grade S., I. M. Lyster, F.O. St. John's Coll., Southend Marshall, C.E. Gram. S., Eccles Steele, R.R. a. Cambridge H., Bradford Whitebread, C.R. Sir A. Judd's Comm. S., Toubridge Addenbrooke, A.C.J.L. Private tuition Cowie, J. d. Barnstaple Gram. S. Leckie, V.C. Sherborne School Mead, G.H. I. Private tuition Newman, R.G. Ludlow Comm. S. Short, R.R. Rutherford Coll., Newcastle-o.-T. Stearn, E.S. Northgate S., Ipswich Byrne, J. St. Joseph's Acad., Kennington Nye, L.V. ch.sh. Bible Christian Coll., Shebbear Osman, W.S. ch.d. Taunton Trade S., Southampton Robinson, W.G. d. Worsworth Road S., Stoke Newington Smith, J.N. a. Parmiter's S., Victoria Park, N.E. Land, E.T. f.g.e. Private tuition Mullerhausen, W.S. d. Parmiter's S., Victoria Park, N.E. Shoebottom, J.W. Brewdow Gram. S.

BOYS, 2ND CLASS, HONS.—Continued. Fox, F.W. Market Bosworth Gram. S. Jeans, F.G. Taunton Trades, Southampton Perks, W.R. d. Higher Grade S., Carlisle Tingley, F.E. d. St. Olave's Gram. S., S.E. Wilkins, H.T. d. Brighton Gram. S. Apperly, R.E. Wycliffe Coll., Stonehouse, Glos. Brooks, W.H. Bible Christian Coll., Shebbear Little, J.H. The Model S. Training Coll., York Mart, J.N. ch.d. Hutton Gram. S. Pettitt, A. J. Brighton Gram. S. Roberts, A.E. Ruthin Gram. S.

SECOND CLASS [or JUNIOR]. Pass Division.

Lee, A.J. s.a. ch. Bible Christian Coll., Shebbear Dawson, H.D. ms. sh. Wright's S., Faversham Owen, F.J. ch. Brewood Gram. S. Crawford, D. McF. d. Gram. S., Eccles Heath, A.H. ch. Brewood Gram. S. Johns, H.A. ms. Salway Coll., Leytonstone Sanders, A. ch. d. Technical Days, Walsall O'Reilly, C. ms. Dauntsey Agricultural S., W. Lavington Ferns, J. Catholic Collegiate Inst., M'chester Quirk, R.L. Douglas Hr. Grade S., I.M. Dawkins, W.H. Borden Gram. S. Greenwood, W.G. ms. ch. Dauntsey Agricultural S., W. Lavington Leader, T.H. sh. Dauntsey Agricultural S., W. Lavington O'Reilly, H.W. Dauntsey Agricultural S., W. Lavington Shaw, A.T. d. Wright's S., Faversham Bradshaw, J.A. St. Joseph's Coll., Dumfries Bullock, A.E. Wright's S., Faversham Irving, S.G. Tollington Schools, N. Usher, H. Hutton Gram. S. Crofts, H. Dauntsey Agricultural S., W. Lavington Emery, J.E. Snettisham School Pile, J.E. sh. St. Kilda's Coll., Waterloo Hill Gardner, S.F. Staifford Coll., Forest Hill Hughesdon, A.H. Tollington Schools, N. Barnes, O.F. Horsnonden School Bazell, W. Dauntsey Agricultural S., W. Lavington Hawthorn, J. Hutton Gram. S. Hughes, E.P.L. Private tuition Green, V.H. Market Bosworth Gram. S. Bensted, W.P. Wright's S., Faversham Morgan, F.J. z. Tollington Schools, N. McDermott, D. Private tuition Roper, G. Brewood Gram. S. Edwards, W.W. Gram. S., Camelford Jones, H.S. Gram. S., Eccles Wheeler, J.W. Birkbeck S., Kingsland Booth, R.W. d. University S., Southampton Hargreaves, J.K. Grafton H., Manchester Lloyd, J.S. d. Huntingdon S., Kington Mahon, P. St. Joseph's Coll., Denmark Hill Mundy, A.W.H. High S., Sutton, Surrey O'Reilly, B.C.N. St. Edmund's Coll., Ware Stocker, E.P. Mount Radford S., Exeter Weekes, W.H. Tavistock Gram. S. Duncan, A.W. Bedford Gram. S. Jacques, H. Market Bosworth Gram. S. Millan, O. St. Joseph's Coll., Denmark Hill Fendred, W.R. Sir A. Judd's Comm. S., Tonbridge Reynolds, H.L. St. George's Coll., Weybridge Shefford, H.M. Oxford H., Sutherland Avenue, W. Stover, W.G. Arnold Coll., Bournemouth Lauderdale, T.M. Ripley Comm. S., Woking Owen, P.H. z. Ludlow Comm. S. Speedy, R.C. Whitby Middle Class S. Stewart, A.V. m. Private tuition Atkins, R.M. Tollington Schools, N. Knight, H.F. St. George's Coll., Weybridge Taylor, L.J. Farmiter's S., Victoria Park, N.E. Jones, W.H.T. Private tuition Marshall, T. Yorkshire Society's S., S.E. Metcalfe, A.T. d. High S., Sutton, Surrey O'Hare, T.A. St. Joseph's Coll., Dumfries Richardson, G. d. Kent House Coll., Anerley Russell, R. ch. Taunton Trade S., Southampton Sirn, Sanra J. Oundle School Stephens, T.F.V. Gram. S., Camelford Tidy, W.J. Uckfield Gram. S. Bingley, E.J. Grove H., Highgate Fairclough, R.D. Oswestry School Gatis, W.H. d. St. George's Coll., Weybridge Maw, W.R. d. Yorkshire Society's S., S.E. Posso, H. Line Wall Coll., Gibraltar Beare, C.C. ch. Taunton Trade S., Southampton Crowthier, H.W. Mercers' S., Holborn Lea, J.H. Barbourne Coll., Worcester Kendall, F. ch. Private tuition

Turner, H.W. ms. Barbourne Coll., Worcester Bonass, G.J. St. George's Coll., Weybridge Cremer, H. d. Wright's S., Faversham Daniels, R.W. Private tuition Sook The Oaks, Deal Wright, H.B. d. Kent House Coll., Anerley Davies, J.T. Gram. S., Pencader Graham, D. Sir A. Judd's Comm. S., Tonbridge Hatch, E.V. Sir A. Judd's Comm. S., Tonbridge Hine, H.F. d. Wright's S., Faversham Jackson, W.H. North Devon S., Barnstaple Lavis, S. Holloway College, N. Russo, J.J. sp. Line Wall Coll., Gibraltar Stocks, J. Fartown Gram. S., Huddersfield Wilson, C.A. Mercers' S., Holborn Blewett, H.J. ch. Bible Christian Coll., Shebbear Welch, P.W. Manchester Gram. S. Yeoman, E.W. ch. Taunton Trade S., Southampton Bowen, J.S. ch. Gram. S., Pencader Dowell, W. Higher Grade S., Carlisle Morgan, S.W. ch. Taunton Trade S., Southampton Norman, C.L. ch. St. Peter's Coll., Brockley Twiss, J.O. St. Joseph's Coll., Dumfries Twiss, P.J. St. Joseph's Coll., Dumfries Castle, A.F. d. Duncan H., Gt. Yarmouth Couch, D.L. phus. d. Battersea Polytechnic Science S. Crane, J.R. Private tuition Lawson, J. Barbourne Coll., Worcester Morasso, A. sp. Line Wall Coll., Gibraltar Oliver, F.M. Salway Coll., Leytonstone Onion, L. s.ch. Brewood Gram. S. Parkinson, S.S. h. Private tuition Runting, E.A. Private tuition Sanders, H. Ludlow Comm. S. Sanderson, W.E. d. Bentham Gram. S., Yorks. Stratford, H.A. d. Farmiter's S., Victoria Park, N.E. Watson, J.N. J. Learnington College Gorman, J. bk. Catholic Collegiate Inst., M'chester Milligan, C.C. Fartown Gram. S., Huddersfield Morris, E.J. University S., Rochester Morton, L.W. Fartown Gram. S., Huddersfield Seldon, N.A. Bible Christian Coll., Shebbear Spurgeon, E. Le M. New Coll., Worthing Atton, F.G. d. Market Harborough Gram. S. Carlyle, E.J. University S., Southampton Cowen, E.G.H. Epsom College Gaynor, W.C. St. Boniface's Coll., Plymouth Holgate, J.E. University S., Southampton Latham, C.E. Mostyn H., Chester Robinson, C.A.E. sf. Snettisham School Rogers, L. Taunton Trade S., Southampton Smith, W.D. Grove H., Highgate Wilde, T. d. Boys' High S., Iron Bridge Edwards, A.B. Yorkshire Society's S., S.E. Halliday, H.H. d. Easingwold Gram. S. Lucas Tooth, A.L. Private tuition Newton, C. Tollington Schools, N. Uren, J. The Abbey S., Penzance Watson, W.C. Osborne High S., W. Hartlepool Bemrose, P.R. Boys' High S., Iron Bridge Bocking, E.F.C. University College, W.C. Conlan, B.D. f. Brighton Gram. S. Cormac, W.F. St. George's Coll., Weybridge Froggatt, A.E. d. Ludlow Comm. S. Pearce, F.W. Bible Christian Coll., Shebbear Ridge, A.J. Douglas Hr. Grade S., I.M. Russ, W. ch. Bible Christian Coll., Shebbear Twidale, J.H. a. Hall Gate S., Doncaster Winter, J.M. al. University S., Southampton Anness, W.P. Eye Gram. S. Blackmore, R.B. Bible Christian Coll., Shebbear Bray, F. Gram. S., Camelford Harrison, G.R. Bethany H., Goudhurst Isaac, W.G. a. Barnstaple Gram. S. Knollys, F.R.A.N. ch. Private tuition Smith, A. The Model S. Training Coll., York Lake, W.J. ch. d. Taunton Trade S., Southampton Mallet, R.B. bk. Oxenford H., Jersey Rowley, L.B. Yorkshire Society's S., S.E. Sak, Chatchoo Oundle School Westbrooke, A.D. Brighton College Agerup, H. d. Montrose Coll., Brixton Hill Aldred, J.H. Gram. S., Eccles Bennet, L.G. Farmiter's S., Victoria Park, N.E. Berry, J.N. Fartown Gram. S., Huddersfield Burrell, F.W. d. St. Olave's Gram. S., S.E. Green, F. St. Joseph's Coll., Dumfries

Henry, A.M. Watford H., Folkestone Johnson, W.B. Old Elvet S., Durham Packham, G. al. Private tuition Smyth, R.H. Falmouth Gram. S. Bail, L.C. d. Sir A. Judd's Comm. S., Tonbridge Bridson, H. f. Hutton Gram. S. Carter, A. University S., Southampton Chandler, F.P. Tollington Schools, N. Clayton, N. a. Borden Gram. S. Eskell, R.L. Private tuition Harman, H. St. John's Choir S., Up. St. Leonards Hatton, E.C. Barbourne Coll., Worcester Mead, G. Bethany H., Goudhurst Moore, A.E.C. Tollington Schools, N. Routs, P.W. University S., Rochester Thistlethwaite, B. Ellesmere S., Harrogate White, H.H. d. Private tuition White, R.G. d. Private tuition Wilmshurst, W.A. ch. d. Uckfield Gram. S. de Trafford, O. d. Stonyhurst Coll., Blackburn Eden, J.A. ch. Taunton Trade S., Southampton Furse, J.J. Hoe Gram. S., Plymouth Hinge, E.J. Wright's S., Faversham Hughes, J.A. Ruthin Gram. S. Norman, T.E. Kingswood H., Epsom Redgrove, E.R. phus. d. Farmiter's S., Victoria Park, N.E. Walters, T. St. Joseph's Acad., Kennington Band, F. Ruthin Gram. S. Brown, J.H. f. Anglo-Saxon S., Auteuil, Paris Hemmings, F. St. Joseph's Coll., Denmark Hill Paxman, R. Barbourne Coll., Worcester Stables, W.A. Epsom College Streeton, S.H. Epsom College Adams, R.B. Portsmouth Gram. S. Bisson, W.G. f. Oxenford H., Jersey Butcher, J.L. phus. Farmiter's S., Victoria Park, N.E. Huxley, A.S. f. West Monmouthshire S., Pontypool Johnson, F. St. Joseph's Coll., Dumfries Laslett, W.H. Hutton Gram. S. Metcalfe, W.W. High S., Kirkby Stephen Sandys, E.A. a. Culham Coll. Practising S. Sparks, L.B. Borden Gram. S. Wheatley, J.H.L. d. Private tuition Dudderley, F.R. Private tuition Gresham, C.E. Tollington Schools, N. Harris, E.S. Wright's S., Faversham Labbett, B.G. Dunn's End S., Crediton Penrith, C.A. High S., Kirkby Stephen Renouf, D. Oxenford H., Jersey Amorin, F. f. St. George's Coll., Weybridge Earley, F.H. Catholic Collegiate Inst., M'chester Hodge, H.P. 38 Tavistock Place, Plymouth Oakley, R.E. d. Oswestry School O'Neill, J.W. St. Aloysius Coll., N. Ridley, E.H. Hutton Gram. S. Tombs, W.D.R. Holmwood H., Hampstead Langford, S.C. h. Private tuition McLennan, A. Osborne High S., W. Hartlepool Pillers, A.W.N. f. d. Private tuition Tillyard, G. Private tuition Wood, A.H. Taunton Trades, Southampton Armstrong, A.J.C. Boys' High S., Iron Bridge Black, J.H. Catholic Collegiate Inst., M'chester Brown, W.T. Eye Gram. S. Colwill, R.M. North Devon S., Barnstaple Dougherty, V.W. Richmond Hill S., S.W. Douglas, J.M. f. Ulster Provincial S., Lisburn Dowson, W.H. Gram. S., Bishop Auckland Graham, J.A. Private tuition Harvey, L. The Abbey S., Penzance Jones, A.H. d. Taunton Trade S., Southampton Lloyd, J.R. s. Brewood Gram. S. Maccabe, A.J. d. St. Joseph's Coll., Dumfries Mayoh, H. Gram. S., Eccles Scott, A.B. Poyntington, Bournemouth Stewart, C.A. Ripley Comm. S., Woking Davies, T.H. Oswestry School Kirby, V.H. South Norwood College Lewin, J. Douglas Hr. Grade S., I.M. Maginnis, A.B. St. Bede's Coll., Manchester Morrison, M.W. Private tuition Peake, R.M. Private tuition Thomas, B. Oswestry School Alexander, A.L. Gram. S., Eccles Anderson, A.J. sp. Line Wall Coll., Gibraltar Bacarese, A.W. sp. Line Wall Coll., Gibraltar Boileau, P.G. Monkton Combe S., nr. Bath Jepson, F.P. Quernmore S., Brimley, Kent Lee, C.R. Ludlow Comm. S. Silby, A.C. Queen's Park College, W. Williams, E. Barbourne Coll., Worcester Bamford, C.J. St. George's Coll., Weybridge Batten, K. Bible Christian Coll., Shebbear

Blake, H.S. Hounslow Comm. Coll. Evans, E.J. Hounslow Comm. Coll. Harris, W.H. Private tuition Keith, E.C. Northgate S., Ipswich Peice, R.A. High S., Kirkby Stephen Perry, R.C. Wilson Coll., Cazenove Rd., N. Randall, E.S. Sutton Valence S. Stivey, C.M. Froebel H., Devonport Synnons, D. Bible Christian Coll., Shebbear Bottrill, E.H. Farmiter's S., Victoria Park, N.E. Eccles, H.N. Private tuition Forder, W.H. Ruthin Gram. S. Gabe, I.S. Castlebar Court, Ealing Gorely, F. Wright's S., Faversham Gray, W. Wright's S., Faversham Griffith, F.S. Tollington Schools, N. James, H.O. St. George's Coll., Weybridge Kohlhausen, J.H. Tollington Schools, N. Roberts, C.D. 18 Victoria Rd., Up. Norwood Wilkinson, J.H. d. Bethany H., Goudhurst Hyde, A.G. St. Aloysius Coll., N. Jenner, C.W. Thorncombe, Southsea Marsh, A.P. Private tuition Morgan, S. Private tuition Cameron, A.J. St. Joseph's Coll., Dumfries Griffin, A.M. Appuldurcombe S., Bunstead MacLachlan, J.W. St. Joseph's Coll., Dumfries Schofield, R. Liverpool Coll. Middle S., Liverpool Compton, E.A. d. Bethany H., Goudhurst Hall, H.C. d. Congregational S., Caterham Valley Miller, H.C. Hillmartin Coll., Camden Rd., N.W. Morgon, H. Farnham Gram. S. Veil, R.G. Barbourne Coll., Worcester Barnett, E. f. The Douglas S., Cheltenham Marks, F. Oxford H., Sutherland Avenue, W. Beavis, W.J. Taunton Trade S., Southampton Gilbert, N.H. Newton Coll., Newton Abbot Haunppon, F.B. Private tuition Hebblethwaite, B.R. High S., Kirkby Stephen Holborow, T.A. d. Private tuition Wardle, L.C.T. University S., Rochester Evelyn, J. Gram. S., Camelford Heas, W.G. Clyde H., Hereford McGavin, D.G.K. St. Edmund's Coll., Ware Smith, R.N. Private tuition Turpin, F.G. Gram. S., Camelford Boddington, G.H. University S., Southampton Groom, J.E. Eye Gram. S. Lyons, W.P. Barbourne Coll., Worcester Rockett, R.J. Corner H., Godstone Dupre, W.H. J. Up. Hornsey Rise High S. Earnshaw, A.V. University S., Southampton Evans, H. Gram. S., Pencader Chipperfield, H.A. Private tuition Crowley, L.F. St. George's Coll., Weybridge Dorrax, W. Catholic Collegiate Inst., M'chester Faulkner, A.G. Yorkshire Society's S., S.E. King, M.S.P. Barbourne Coll., Worcester Preston, L.B. Barbourne Coll., Worcester Biden, H.A. Private tuition Escoline, J. Gram. S., Blackpool Metson, H.F. Farmiter's S., Victoria Park, N.E. Watson, B.G. Monmouth Gram. S., Monmouth Knight, A.J. d. St. Philip's Gram. S., Edgbaston Linsey, T.T. University S., Rochester Milner, V.C.S. Private tuition Roberts, J. Kent Coll., Canterbury Vincent, R.B. d. Finsbury Park College Aucutt, A.D. St. Dunstan's Coll., Margate Pittaway, L.E. Endcliffe Coll., Ranmoor, Sheffield Whitby, A.S. Kingston S., Yeovil Atkins, F.R.L. Private tuition Benest, S.G. Oxenford H., Jersey Clench, E.G. Private tuition Galliano, A. sp. Line Wall Coll., Gibraltar Lightbown, W.H. North Shields Hr. Grade Private S. Morgan, P.S. Dean Close S., Cheltenham Polkinghorne, W.H. St. John's Coll., Brixton Startin, J. Private tuition Toye, D.B. Blackheath Comm. Coll. Turner, C.R. d. Eye Gram. S. Arnold, F. Montrose Coll., Brixton Hill Austin, W.P. Bible Christian Coll., Shebbear Cocks, E.F.R. Bible Christian Coll., Shebbear Evans, J. d. Tower House, Up. Norwood Hatzfeld, L.E. Bethany H., Goudhurst Kell, J.A. Higher Grade S., Carlisle Perry, T.J. St. Aloysius Coll., N. Ranson, J.C. German & French C., Wandsworth Comm. Whitworth, G.M. Gram. S., Pencader Cade, C.T. Camden Road Coll. S., N. Cumming, E.A. Tollington Schools, N. Drege, W.A. Private tuition Head, A.F. Wright's S., Faversham Overton, A.C. Tollington Schools, N.

BOYS, 2ND CLASS, Pass—Continued.

Roberts, H.G. Clyde H., Hereford Private tuition

Wild, G.K. Private tuition

Dunbar, W.C. Private tuition

Kasner, K.K.P. Castle Hill School, Ealing

Kwane, H.S. St. George's Coll., Weybridge

Noakes, J.L. Rye Gram. S.

Robinson, W.G. Melbourne Coll., Anerley

Strange, C.F. Private tuition

Trapp, W.M. North Devon S., Barnstaple

Allen, W.G. d. Mercers' S., Holborn

Earnshaw, H.M. Hall Gate S., Doncaster

Longford, M. Gram. & High S., Thirsk

Rickard, J.W. Rutland S., Filey

Traslove, H.F. Bible Christian Coll., Shebbear

Wivell, G.D. Hutton Gram. S.

Ashton, F.G. d. St. John's Coll., Southend

Bacon, S.R. 25 Church Isl., Tunbridge Wells

Biggs, G.A. Montrose House, Plymouth

Hobday, N. Southport Comm. Coll.

Barrasford, G.H. St. Joseph's Coll., Dumfries

Donnellan, J.T. St. Philip's Gram. S., Edgbaston

Gripper, C.F. d. Bethany H., Goudhurst

Lungton, C.G. sp. Kensey, Lauceston

Morris, W.I. Horsmonden School

Wright, R.J. d. Higher Grade S., Carlisle

Clark, J.M. St. Bees' Coll., Southsea

Greig, S. Private tuition

Hall, W.G. Friends' S., Suffon Walden

Overell, F.H. Darlington Gram. S.

Snook, A.G. Private tuition

Whitehead, H.J. 12 Garfield Terrace, Stoke, Devonport

Biscaccia, R.M. St. George's Coll., Weybridge

Horne, S. South Norwood College

Hopell, B.F. North Devon S., Barnstaple

Hooper, G.J. Dansey Agricultural S., W. Lavington

Watson, A. Forest Gate High S. & Comm. Coll.

Bowhay, A.B. Dunheved Coll., Lameston

Carter, H.G. Tollington Schools, N.

Greene, A.C. Springfield Coll., Acton Hill

Medhurst, S. Horsmonden School

Rice, J.E. Modern S., East Grims. ead

Whelan, H.O. Houslow Comm. Coll.

Barker, M. Private tuition

Lowrance, H.F. Epsom College

Miller, F.G. St. Aloysius Coll., N.

Miller, H.G. Private tuition

Morris, G. Higher Grade S., Carlisle

Muraille, F. St. Joseph's Coll., Denmark Hill

Wheeler, B. Derwent H., Bamford

Knowles, J. Private tuition

Sahler, H.G. Private tuition

Thomas, H.C. Private tuition

Vickers, N. Sandbach S., Cheshire

Davies, A.T. Gram. S., Pender

Fenton, W. Gram. S., Blackpool

Matthews, R.C. d. Private tuition

Monks, A.W. Gram. S., Eccles

Bush, A. Catholic Coll. S., Lytham

Melkoff, G.A. German & French C., Wandsworth Comm.

Seller, W.H. Private tuition

Taylor, J.P.L. Catholic Collegiate Inst., M'chester

Thomson, B. The Model S. Training Coll., York

Waites, F. Private tuition

Willing, A.G. Gram. S., Blackpool

Cranfield, H. Southport Modern S.

Johnson, H. St. Dunstan's Coll., Margate

Morris, T. Argyle H., Sunderland

Phillips, W.J. Ruthin Gram. S.

Woodcock, N.A. Fartown Gram. S., Huddersfield

Hayes, P.J. Tollington Schools, N.

Le Sneur, W.G. Oxenford H., Jersey

Carlton, T.H. Gram. S., East Finchley

Pool, G.W. High S., Sutton, Surrey

Shepherd, C.W. Boys' High S., Iron Bridge

Buckmaster, F.L. Anglesea H., St. Mary Cray

Bushell, J.H. Oswestry School

Madlocks, T.E. Gram. S., Pender

Pengelly, H.J. 12 Garfield Terrace, Stoke, Devonport

Rowlands, G.B. Oswestry School

Scott, H.F. Lancaster Coll., W. Norwood

Hawkins, C.N. Private tuition

Tall, F.S. Private tuition

Peaty, A.E.F. Cardiff Inter. S.

Pullan, C. Ellesmere S., Harrogate

Smith, J.G. Weston S., Bath

Wright, J. Private tuition

Cabot, D.A. f. High S. for Boys, Jersey

Cheesman, A.P. Lancaster Coll., W. Norwood

Chippindale, C. Ellesmere S., Harrogate

Colenso, T.W. Penwerris Gram. S., Falmouth

Elphick, F.W. Private tuition

Humphreys, E.G. Lewisham Park S.

Jones, J.L. Gram. S., Pender

Laurence, H.C. Mercers' S., Holborn

Pargeter, C. Mercers' S., Holborn Private tuition

Williams, J. Private tuition

Holman, H.A. Tavistock Gram. S.

Hutchinson, T.H. Rusholme High S., M'chester

Kinnell, M. Seaford College

Oswald, W.J. Old Elvet S., Durham

Perry, W.J. The Douglas S., Cheltenham

Shaw, O. Brewood Gram. S.

Dardart, L. Weston S., Bath

James, P.T. North Devon S., Barnstaple

Kareem, Ahmed St. John's Coll., Brixton

Locke, G. Private tuition

Pentecost, G.T. Forest Gate High S. & Comm. Coll.

Wallis, S.L. Private tuition

Bartlett, C.P.O. Market Bosworth Gram. S.

Cusack, E. St. Joseph's Coll., Dumfries

Dyke, B.F. The Gram. S., Margate

Hewetson, J.D. High S., Kirkby Stephen

Gribbon, G.W. St. Joseph's Coll., Dumfries

Mayo, J. Oxenford H., Jersey

Trimmer, G. Salway Coll., Leytonstone

**THIRD CLASS.**  
**Honours Division.**

Rippingillie, E.V.A. h.a.o.f.d. Tollington Schools, N.

Mee, W. g.o.a.u.e.f. People's Coll., Nottingham

Powell, A.D. g.o.a.u.e.d. People's Coll., Nottingham

Abell, W.T. e.g.o.e.n.f.d. Wirksworth Gram. S.

Smith, A.E. e.g.a.e.u.d. Tollington Schools, N.

Iredale, H.C. ge. The Coll., Rock Ferry

Richards, D.T. e.a.o.l.e.u. Tollington Schools, N.

Coles, L.A. a.b.k. Tollington Schools, N.

Showell, A.H. g.u.d. People's Coll., Nottingham

Worster, F.C. e.a.u.d.e.f. Polytechnic Secondary Day S., W.

Palmer, L.C. e.g.a.u.e. Tollington Schools, N.

Walton, T.K. e.a.d. Wirksworth Gram. S.

Allen, J.E. g.a.o.d.f. Wirksworth Gram. S.

Shaw, J.C. d. Wirksworth Gram. S.

Maynard, F.H. f. Northgate S., Ipswich

Gregory, J.H. e.a.d. Wirksworth Gram. S.

Penney, J.E. g.u.e. People's Coll., Nottingham

Tunaley, H.V. g.o.l.e.u. People's Coll., Nottingham

Birkinshaw, F. a.u.l.e.n.d. People's Coll., Nottingham

Howie, F. a. Tollington Schools, N.

Rapoport, J.S. c.h.a.f. Stauwell H., W. Hampstead

Barnes, H. e.a.o.l.e.u. Argyle H., Sunderland

Beck, J.P. a.o.l.e.u. Higher Grades, Carlisle

Mercer, W.B. e.g.a. Brewood Gram. S.

Walker, G. e.a.d. Market Harborough Gram. S.

Ward, R. Hutton Gram. S.

Haines, W.H. ch. People's Coll., Nottingham

Sneed, E. Snettisham School

Drummond, C.H. e.d. Taunton Trade S., Southampton

Williams, J.B. bk. Osborne High S., W. Hartlepool

Rolfe, F.L. e.g.a.l. People's Coll., Nottingham

Mills, A.W. a.u.d. Eye Gram. S.

Deuch, W.G. a.u.n.d. Taunton Trade S., Southampton

Wilmshurst, C.A. c.f. Uckfield Gram. S.

Finn, J. High Pavement S., Nottingham

Pike, H.H. g.d. People's Coll., Nottingham

Roberts, G.H. a.d. Gram. & Coll. S., Carnarvon

Axton, F.J. e.d. Taunton Trade S., Southampton

Harwood, C.R. a. People's Coll., Nottingham

Muckleston, B.B. g.o.a.d. Tollington Schools, N.

Neep, H.W. a. Market Bosworth Gram. S.

Plenderleith, E.J. a.f. Tollington Schools, N.

Radcliffe, F.V. a. Wylie's, Cuckfield

Wilson, A. d. Borden Gram. S.

Brown, C.B. e.g.a. Bible Christian Coll., Shebbear

Clark, T. o. Brewood Gram. S.

Dainton, H.W. e.f. Littlestone Coll., Littlestone-on-Sea

Roux, S.E. C. a.f. Godwin Coll., Margate

Russo, A. c. Line Wall Coll., Gibraltar

Carlisle, R.W. a. Higher Grade S., Carlisle

Molvill, D. e. Tollington Schools, N.

Organ, W.E. eu. Birkbeck S., Kingsland

Atkins, H. Wordsworth Rd. S., Stoke Newington

Barrow, G.E. a.d. Higher Grades, Carlisle

Burgess, S.H. d. Osborne High S., W. Hartlepool

Creighton, W.C. e.g.a. Bible Christian Coll., Shebbear

Fleury, L. sp. St. Aloysius Coll., N.

French, C.N. a.d. Higher Grades, Carlisle

Saint, T.W. e.a. Tollington Schools, N.

Turner, H.E. e.l. Kelly Coll., Tavistock

Capewell, C.S. a. Brewood Gram. S.

Etchells, G.H. s.a.o.d. Higher Grade S., Carlisle

Forbes, V.W. j. a. Borden Gram. S.

Rugeroni, J.A. e. Line Wall Coll., Gibraltar

Shaw, B. Hutton Gram. S.

Steel, S.J. Tollington Schools, N.

Datson, A. e.o. Bible Christian Coll., Shebbear

Golding, J.W. a. Tollington Schools, N.

Harris, H.E. e.l. Tollington Schools, N.

Belton, J.D. a.d. Private tuition

Copas, E.A. C. a. Kent House Coll., Anerley

Corvesor, J.W. Ludlow Comm. S.

Fritchley, A. g.f. Wirksworth Gram. S.

Hallwell, A.J. g.a.e.u. University S., Southport

Milson, H.P. a.f. Gram. S., Chorlton-cum-Hardy

Swallow, J.L. South Norwood Coll.

Beer, S. a.f. Froebel H., Devonport

Caughan, G.g.e.u. Higher Grade S., Carlisle

Dicks, A.S. a.d. Kent House Coll., Anerley

Doucet, G.D. Grove H., Highgate

Lacey, J. Le G. d. Eastward Ho! Coll., Felixstowe

Larkworthy, N.J. h.a. Bible Christian Coll., Shebbear

Perrier, S. o. Kent House Coll., Anerley

Hull, C.W. G. e. Bible Christian Coll., Shebbear

Johnston, N. g.a. Higher Grade S., Carlisle

Kennis, C. d. Kent House Coll., Anerley

Larkworthy, R. g.o.d. Bible Christian Coll., Shebbear

Newbery, C.J. a.o.d. Tudor Hall, Hawkhurst

Slayden, W. e.g.o. Benham Gram. S., Yorks.

Smith, S. d. People's Coll., Nottingham

Ward, F.V. Tollington Schools, N.

Dutton, C. Hutton Gram. S.

Gilchrist, P.C. e.g.a. Tollington Schools, N.

Hancock, F. a. High Pavement S., Nottingham

Hay, E. i.d. a.d. St. Aloysius Coll., N.

Johnson, E.T. a.d. Market Harborough Gram. S.

Keshan, J.N. c.a. St. George's Coll., Weybridge

Meynell, R.H. D. a. Gram. S., Eccles

Pek, F.J. g.a. Eye Gram. S.

Price, K.E. g.a.d. High S., Kirkby Stephen

Stapleford, J. De W. e.a.e.u. Silesia Coll., High Barnet

Townson, H.J. e.a. Higher Grade S., Carlisle

Williams, P.G. g.a.l. Froebel H., Devonport

Bennison, L. f.a.e. Château de la Croisiere, Ghistelles

Broughton, R.E. e.o. Tudor Hall, Hawkhurst

Bunting, H.L. e.d. Market Bosworth Gram. S.

Coll, H. e.a. Line Wall Coll., Gibraltar

Lees, A.E. g.a.d. People's Coll., Nottingham

Leaves, G. g. York Manor S., York

Parker, A. C. Tollington Schools, N.

Savy, F. c.f. St. Joseph's Coll., Dumfries

Smith, D.W. a. Tollington Schools, N.

Thomas, D.L. e.a. Emlyn Gram. S., Newcastle Emlyn

Wakefield, A. Higher Grade S., Carlisle

Williams, J.I. Ruthin Gram. S.

Baird, R.G. People's Coll., Nottingham

Franklin, S. e.u.f. St. John's Coll., Brixton

Hastie, J.P. a.d. Higher Grades, Carlisle

Keeble, A.R. g.a. Bible Christian Coll., Shebbear

Little, J.A. eu. The Model S. Training Coll., York

Longley, C.H. a.d. Wraight's S., Faversham

Galloway, B.I. Tollington Schools, N.

Hudson, F.A. Roland-seck S., Ealing

Renouf, P.H. Oxenford H., Jersey

Adney, T.H. L. e. Ludlow Comm. S.

Broadly, H. Osborne High S., W. Hartlepool

Line, V.J. a. Taunton Trade S., Southampton

Olivero, N. e. Line Wall Coll., Gibraltar

Barnes, J.E. e.a. Catholic Collegiate Inst., M'chester

Cole, C.T. Hillmartin Coll., Camden Rd., N.W.

Mace, E.R. h.a. Hythe S., Kent

Richardson, C.A. University S., Rochester

Thomlinson, R.A. a.o.l. Gram. S., Eccles

**THIRD CLASS.**  
**Pass Division.**

Prevel, J.M. St. Aloysius Coll., N.

Miller, W.N. Bible Christian Coll., Shebbear

Renshaw, R.W.N. f.d. Snettisham School

Channings, W.N. a.d. Dauntsey Agricultural S., W. Lavington

Tuteleers, J. f. St. Joseph's Coll., Denmark Hill

Hart, E.G. f.d. Bethany H., Goudhurst

Wallington, Q.W. phys. St. Joseph's Coll., Dumfries

Harwood, R.H. d. Parmiter's S., Victoria Park, N.E.

Muirhead, D. Ruthin Gram. S.

Wright, E.H. ch. Technical Day S., Walsall

Hoare, A.P. Bible Christian Coll., Shebbear

Jacobson, G. Catholic Collegiate Inst., M'chester

Hood, E.A. phys. Parmiter's S., Victoria Park, N.E.

Underwood, W.J. d. Ripley Comm. S., Woking

Howes, H. E. Tollington Schools, N.

Johnson, J. ch. d. Douglas Hr. Grade S., I.M.

Finch, O. d. Bible Christian Coll., Shebbear

Carroll, F. St. Joseph's Coll., Dumfries

Cartor, H. G. Tombridge School

Bottling, M.V. Ripley Comm. S., Woking

Burnford, E.J. ch. Albert Terrace S., Wolstanton

Johnson, F.L. Private tuition

Williams, R.G. ch. Ruthin Gram. S.

Regua, H.J. sp. St. Aloysius Coll., N.

Blaws, A.F. Higher Grade S., Carlisle

Mehrer, L.J. phys. Parmiter's S., Victoria Park, N.E.

Besant, C.T.V. d. Taunton Trade S., Southampton

Clarke, C. 18 Victoria Rd., Up. Norwood

Redston, A.C. Dauntsey Agricultural S., W. Lavington

Taylor, R.G. ch. d. Taunton Trade S., Southampton

Gibborn, A.S. Private tuition

Rist, S.W. d. Parmiter's S., Victoria Park, N.E.

Eastham, A.W. Tollington Schools, N.

Murray, J.F. St. Joseph's Coll., Dumfries

Hayne, L.R. Gram. S., Canelford

Mills, A.R. E. Fartown Gram. S., Huddersfield

Palmer, T.T. Snettisham School

Green, H.J. phys. St. Joseph's Coll., Dumfries

Hamilton, V. Hutton Gram. S.

Hammond, P.W. Lewisham H., Weston-a-Mare

Hawkins, L. ch. d. Marylebone Central Hr. Grade S., W.

Underwood, G.F. The Model S. Training Coll., York

Diesch, R.A. St. Aloysius Coll., N.

Wood, B.F. Epsom College

Goodwell, C.N. The Model S. Training Coll., York

Morgan, C.H. Stafford Coll., Forest Hill

Davies, A.W. Private tuition

Lee, W.F. Bible Christian Coll., Shebbear

Oswin, T.R. Marylebone Central Hr. Grade S., W.

Crouch, G.E. ch. Taunton Trade S., Southampton

Dodgson, F. Hutton Gram. S.

Northwood, W. Benham Gram. S., Yorks

Palmer, J.K. Douglas Hr. Grade S., I. M.

Barrett, D.J. Grammar S., Pender

Hodson, L.S. Tollington Schools, N.

Lake, W.J.L. Eagle H., St. Leonards-on-Sea

Wood, W.H. Lynton Gram. S.

Bays, W.H. ch. Swindon Tech. S.

Cutts, E.G.F. ch. Taunton Trade S., Southampton

Furber, H.A. de F. Private tuition

Maybury, W.F. St. Joseph's Coll., Dumfries

Rant, F.W. d. Culham Coll. Practising S.

Emmison, H.R. Hall Gate S., Doncaster

St. Aubyn, F.J. St. George's Coll., Weybridge

Tanner, W.S. bk. St. Aloysius Coll., N.

Salmon, A.L. Allhallows S., Honiton

Stephenson, G. Higher Grade S., Carlisle

Strutt, D.H. Borden Gram. S.

Webster, T.W. Paston Gram. S., N. Walsham

Wells, W.G.B. d. Snettisham School

Lillywhite, R. Ripley Comm. S., Woking

Pearce, F.G. Tavistock Gram. S.

Pinnock, L.J. Borden Gram. S.

Quiggin, E.W. ch. Douglas Hr. Grade S., I.M.

Todd, A. Forest Gate High S. & Comm. Coll.

Bryant, G.H. ch. Borden Gram. S.

Stedford, E.A. Stafford Coll., Forest Hill

White, E.J. d. Private tuition

Langford, R.J. Snettisham School

Watts, J.C. Tollington Schools, N.

Wheaton, P.P. Borden Gram. S.

Edgington, W.J. Taunton Trade S., Southampton

BOYS, 3RD CLASS, PASS—Continued.
Hall, H. T. Plymouth Public S
Haudford, E. J. Bible Christian Coll., Shebbear
Ling, H. E. King's Coll., Wimbledon
Pearce, F. Gram. S., Camelford
Simpson, A. G. Forest Gate High S. & Comm. Coll.
Craddock, W. M. Grove H., Highgate
Phillips, E. O. Appuldurcombe S., Banstead
Shaw, J. A. University S., Southport
Campbell, L. E. Montrose Coll., Brixton Hill
Dennis, H. W. Kent House Coll., Anerley
Evans, D. O. Grammar S., Pencader
Westcott, J. Dunn's End S., Crediton
Conway, R. J. St. Joseph's Coll., Dumfries
Wilson, D. Newcastle Modern S.
Buckley, C. Catholic Collegiate Inst., M'chester
Donbley, F. N. Manor H., Clapham
Turner, R. D. Oswestry School
George, R. W. d. Wright's S., Faversham
Dabbay, H. J. Salway Coll., Leytonstone
Smith, L. J. d. Catholic Collegiate Inst., M'chester
Marylebone Central Hr. Grade S., W.
Armitage, R. S. Fartown Gram. S., Huddersfield
Neale, W. E. Private tuition
Smith, S. R. Lynn Gram. S.
Gelli, M. A. St. Aloysius Coll., N.
Holland, W. H. Witton Gram. S., Northwich
Sowerby, R. R. High S., Kirkby Stephen
Arnold, G. H. Market Bosworth Gram. S.
Beynon, O. M. Wm. Ellis S., Gospel Oak
Carson, N. A. St. Aloysius Coll., N.
Dabbs, E. R. Private tuition
Gibbs, L. G. Salway Coll., Leytonstone
Goss, J. S. Epsom College
Hanson, F. J. C. Horsmonden School
Pugh, H. S. Brighton Gram. S.
Atkins, A. T. Snettisham School
Hobden, A. T. Wright's S., Faversham
Nolan, H. J. St. Aloysius Coll., N.
Stepple, E. C. Montrose Coll., Brixton Hill
Truck Brown, M. J. d. Wright's S., Faversham
Compton, L. North Devon S., Barnstaple
Donnison, T. Ripley Comm. S., Woking
Hillis, A. V. Bethany H., Goudhurst
Willis, C. d. Borden Gram. S.
Benjamin, M. H. Burlington Coll., Spring Grove
Dee, W. E. Gram. S., Friern Barnet
King, E. H. Tollington Schools, N.
Spurgeon, S. E. Forest Gate High S. and Comm. Coll.
Thompson, C. E. The Model S. Training Coll., York
White, H. E. G. Grove H., Highgate
Pwyell, E. A. Private tuition
Seddon, F. A. University S., Southport
Wade, R. A. Montrose Coll., Brixton Hill
Adamson, S. Line Wall Coll., Gibraltar
Brewitt, R. P. St. George's Coll., Weybridge
Bull, B. A. The Portlands S., Huddersfield
Clarke, W. E. Bible Christian Coll., Shebbear
Hadfield, R. H. King's Coll., Wimbledon
Innes, W. S. St. John's Coll., Brixton
Jenkin, H. a. Froebel H., Devonport
Johnson, F. R. M. Alton H., Blackheath
Lamerton, H. a. Bible Christian Coll., Shebbear
Larkworthy, T. Bible Christian Coll., Shebbear
Litchfield, E. C. Brighton Gram. S.
Rivers, G. e. Tollington Schools, N.
Turnbull, C. H. d. Higher Grade S., Carlisle
Turner, W. Hutton Gram. S.
Von Braun, C. R. B. Private tuition
Webb, G. H. High S., Clough St., Bury
Wilkinson, W. D. a. d. Witton Gram. S., Northwich
Wood, P. J. Belvedere, Hayward's Heath
Bryant, D. H. Borden Gram. S.
Collins, R. Tavistock Gram. S.
Byton-Jones, J. B. a. Market Harborough Gram. S.
Garwood, V. W. Taunton Trade S., Southampton
Giffillan, H. L. a. Tollington Schools, N.
Grizelle, H. F. Westminster Abbey Choir S.
Gunstone, A. C. Forest Gate High S. & Comm. Coll.
Herford, H. A. St. Aloysius Coll., N.
Hley, E. N. Darlington Gram. S.
McDonald, R. F. d. Taunton Trade S., Southampton
Mitchell, W. g. Argyle H., Sunderland
Pepper, E. People's Coll., Nottingham
Power, W. G. Uckfield Gram. S.
Robin, A. C. Oxenford H., Jersey
Shaw, W. B. L. Wicksworth Gram. S.
Tempest, R. M. North Devon S., Barnstaple
Wilkins, R. C. a. Tollington Schools, N.

Bertuchi, A. J. e. Line Wall Coll., Gibraltar
Chalker, F. a. Bible Christian Coll., Shebbear
Cobon, H. F. Rye Gram. S.
Grier, R. A. St. John's Coll., Brixton
Hobblay, E. S. Aberdeen H., Ramsgate
Jennings, J. Belvedere, Hayward's Heath
Kelsall, V. D. Gram. S., Eccles
Kerfoot, W. A. Hutton Gram. S.
Miles, H. Higher Grade S., Carlisle
O'Keefe, J. St. Joseph's Coll., Dumfries
Roberts, S. H. Seaford College
Savage, J. G. Seaford College
Sirey, W. a. Higher Grade S., Carlisle
Stevens, C. S. G. Seaford College
Winsor, G. a. St. Aloysius Coll., N.
With, P. A. Private tuition
Austin, H. e. Wright's S., Faversham
Buhl, C. H. Private tuition
Eades, W. R. o. Market Harborough Gram. S.
Emdon, R. H. Froebel H., Devonport
Hammond, H. W. Ruthin Gram. S.
Harrison, F. W. Tollington Schools, N.
Herford, J. H. St. Aloysius Coll., N.
Tong, F. Ellesmere S., Harrogate
Watts, L. C. e. Elton High S., Bristol
Weston, C. W. Salway Coll., Leytonstone
Yoxall, A. J. St. Philip's Gram. S., Edgbaston
Barke, W. a. Argyle H., Sunderland
Bergiu, M. C. St. Philip's Gram. S., Edgbaston
Cain, G. T. Parmiter's S., Victoria Park, N. E.
Cue, A. B. a. d. Taunton Trade S., Southampton
Deane, A. B. Market Bosworth Gram. S.
Earnshaw, E. H. University S., Southport
Graham, T. W. Higher Grade S., Carlisle
Green, A. P. Charleote, Worthing
Kelman, G. A. E. a. Polytechnic Secondary Day S., W.
King, H. Higher Grade S., Carlisle
Morris, E. g. Elton High S., Bristol
Pointh, V. Salway Coll., Leytonstone
Robinson, G. D. Gram. S., Eccles
Seaman, J. E. g. Northgate S., Ipswich
Shaw, H. E. People's Coll., Nottingham
Smart, C. a. South Norwood Coll.
Taylor, S. Ripley Comm. S., Woking
Vigars, F. H. a. Oswestry School
Waterhouse, E. St. Augustine's S., Dewsbury
Wilson, J. H. Montrose Coll., Brixton Hill
Wright, W. R. H. a. University S., Southport
Anderson, G. L. King's Coll., Wimbledon
Ash, J. L. a. Tollington Schools, N.
Baker, C. J. e. Uckfield Gram. S.
Blane, S. Hutton Gram. S.
Blyth, J. B. Wright's S., Faversham
Brookes, C. H. e. g. a. Talbot St. S., Southport
Cleare, H. T. Vermont Coll., Clapton
Cox, P. J. e. St. George's Coll., Weybridge
Farr, J. P. Uckfield Gram. S.
Gadsdon, H. A. d. Seaford College
Gibbons, S. A. Northgate S., Ipswich
Harrington, G. H. e. a. Taunton Trade S., Southampton
Hotchkiss, H. e. Ludlow Comm. S.
Moss, L. J. a. Salway Coll., Leytonstone
Robertson, A. P. Snettisham School
Stacy, S. Gram. S., Camelford
Underwood, W. E. Market Harborough Gram. S.
Weller, E. S. St. John's Coll., Brixton
Abraham, R. B. Dean Close S., Cheltenham
Beard, R. D. Northgate S., Ipswich
Bingley, C. H. Grove H., Highgate
Blood, F. J. e. Wright's S., Faversham
Boughton, A. f. Finsbury Park Coll.
Davis, C. J. a. Barbourne Coll., Worcester
Fawcett, H. E. g. Belmore H., Cheltenham
Flisher, G. E. Rye Gram. S.
Fyson, J. S. Private tuition
Hewlett, A. West Cliff S., Ramsgate
Koekkoek, P. R. Seaford College
Mills, S. W. d. Wright's S., Faversham
Moore, P. E. Gram. S., Blackpool
Pearce, R. F. North Devon S., Barnstaple
Pearson, C. St. Philip's Gram. S., Edgbaston
Phillips, J. St. Joseph's Coll., Denmark Hill
Rees, B. S. Wadhams S., Liskeard
Renatean, L. Borden Gram. S.
Vigars, J. W. a. Oswestry School
Watson, T. F. Belper Gram. S.
Bourn, J. Hutton Gram. S.
Bray, J. a. Tudor Hall, Hawkhurst
Bryer, A. Taunton Trade S., Southampton
Butcher, S. H. g. a. Eye Gram. S.
Cherry, F. E. St. John's Coll., Brixton
Conrad, D. I. Salway Coll., Leytonstone
Dalziel, J. Osborne High S., W. Hartlepool
Ellis, D. a. South Norwood Coll.
Gould, E. F. Epsom College
Guercot, P. L. f. Ripley Comm. S., Woking
Healey, R. J. Market Harborough Gram. S.
Hooson, H. B. Bourne Coll., Quinton, B'ham
Hurst, E. C. Market Bosworth Gram. S.
Macdonald, J. D. St. Joseph's Coll., Dumfries

Sewell, C. A. Lancaster Coll., W. Norwood
Smith, A. W. St. John's Coll., Brixton
Taylor, C. B. Hutton Gram. S.
Wagstaff, L. G. Forest Gate High S. and Comm. Coll.
Warwick, N. R. C. g. Private tuition
Wheeler, B. St. John's Coll., Brixton
Wright, R. University S., Rochester
Beesley, A. C. Wicksworth Gram. S.
Chalmers, W. F. a. People's Coll., Nottingham
Clough, S. a. The Model S. Training Coll., York
Doyle, H. Catholic Collegiate Inst., M'chester
Ford, A. C. Forest Gate High S. & Comm. Coll.
Francis, A. T. f. d. Hythe S., Kent
Green, P. E. Ludlow Comm. S.
Grose, G. Gram. S., Camelford
Gunn, D. R. 64 Mornington Rd., Leytonstone
Holmes, E. J. Montrose Coll., Brixton Hill
Homewood, E. J. d. Kent House Coll., Anerley
Hope, J. St. Joseph's Coll., Denmark Hill
James, J. P. High S., Penzance
Margots, D. a. Snettisham School
Masteron, T. a. Catholic Collegiate Inst., Manchester
Mortimer, O. Northgate S., Ipswich
Payne, G. a. f. St. Joseph's Coll., Dumfries
Rash, R. H. a. g. a. Eye Gram. S.
Sturges, W. H. f. Belvedere, Hayward's Heath
Thompson, S. J. Tollington Schools, N.
Walls, A. e. Tavistock Gram. S.
Yates, J. A. Higher Grade S., Carlisle
Barton, H. D. Gram. S., Eccles
Benson, C. g. Chateau de la Croisiere, Ghistelles
Berg, F. L. Tollington Schools, N.
Blake, G. C. Hythe S., Kent
Garbarino, J. A. Line Wall Coll., Gibraltar
Hagens, G. f. St. Joseph's Coll., Denmark Hill
Hastings, J. T. Snettisham School
Hignbotham, H. a. d. Birkdale Gram. S.
Kendall, S. V. Seaford College
Lee, H. Newcastle Modern S.
Leivers, G. S. North London High S., Eton Rd., N. W.
L'Hollier, H. L. St. Philip's Gram. S., Edgbaston
Mann, T. H. Eastward Ho' Coll., Felixstowe
Maplesden, E. University S., Rochester
Milner, T. The Model S. Training Coll., York
Parker, J. L. a. Oswestry School
Quart, P. F. d. Eastward Ho' Coll., Felixstowe
Roberts, J. A. Ruthin Gram. S.
Roe, S. Brewood Gram. S.
Sleeman, A. J. a. Tavistock Gram. S.
Thompson, A. P. Stafford Coll., Forest Hill
Thompson, C. e. Arnold Coll., Bournemouth
Tretthewey, W. R. e. a. Tavistock Gram. S.
Turner, J. Taunton Trade S., Southampton
Wiggins, H. F. Kent House Coll., Anerley
Wiles, B. D. Monk Bridge S., York
Addison, C. R. Horsmonden School
Ayle, J. F. Gram. S., Eccles
Brown, H. High Pavement S., Nottingham
Cooke, O. F. Catholic Coll. S., Lytham
Dunsday, C. R. Borden Gram. S.
Earley, F. Catholic Collegiate Inst., M'chester
Fish, G. Tollington Schools, N.
Fouacre, F. W. Tollington Schools, N.
Gale, H. Kent House Coll., Anerley
Gardner, H. J. a. Marylebone Central Hr. Grade S., W.
Goater, E. G. d. Taunton Trade S., Southampton
Hayden, L. J. Porthallow Board S., St. Keverne
Hayes, L. P. a. Market Bosworth Gram. S.
Lambeth, A. Salway Coll., Leytonstone
Marsh, J. e. St. Aloysius Coll., N.
Robinson, A. Private tuition
Taylor, A. T. The Douglas S., Cheltenham
Thomson, D. Bethany H., Goudhurst
Turner, T. a. Taunton Trade S., Southampton
Williams, R. E. e. Porthallow Board S., St. Keverne
Willis, Z. F. Northgate S., Ipswich
Balsille, M. Holloway College, N.
Bond, M. Taunton Trade S., Southampton
Broadhurst, C. A. Salcombe H., Heme Hill
Broadhead, D. A. St. Aloysius Coll., N.
Casey, J. M. e. St. George's Coll., Weybridge
Clark, E. W. a. Taunton Trade S., Southampton
Coyle, F. St. Joseph's Coll., Denmark Hill
Crawford, G. Newcastle Modern S.
Fenn, F. St. Joseph's Coll., Denmark Hill
Graves, H. D. a. Barbourne Coll., Worcester
Hawke, J. St. Aloysius Coll., N.
Hermann, E. R. Borden Gram. S.
Hughes, A. R. Ruthin Gram. S.
Lee, G. W. a. The Model S. Training Coll., York

Le Breton, T. High S. for Boys, Jersey
Massie, W. E. St. Dunstan's Coll., Margate
Murray, C. W. Private tuition
Pudney, L. S. a. Wright's S., Faversham
Rampal, M. P. f. St. George's Coll., Weybridge
Swann, H. J. Stanwell H., W. Hampstead
Tattersall, F. University S., Southport
Vought, J. H. a. Higher Grade S., Carlisle
Whitehouse, C. E. L. e. Ruthin Gram. S.
Woolfe, S. B. e. g. Tudor Hall, Hawkhurst
Yuill, J. L. d. Stafford Coll., Forest Hill
Young, V. A. Argyle H., Sunderland
Addisott, V. Hr. Grade S., Regent St., Plymouth
Butler, R. Gram. S., Eccles
Carnan, E. L. St. John's Coll., Brixton
Chalk, G. Taunton Trade S., Southampton
Crisford, A. W. e. Rye Gram. S.
de Patron, B. a. South Norwood Coll.
Genders, H. V. e. Line Wall Coll., Gibraltar
Gerry, H. C. a. St. Joseph's Coll., Dumfries
Harrington, B. L. The Douglas S., Cheltenham
Hodson, G. H. g. a. Rye Gram. S.
Hunter, J. W. Salway Coll., Leytonstone
Jones, B. A. Holmwood H., Hampstead
Langlois, H. High S. for Boys, Jersey
Maccormac, M. e. Emlyn Gram. S., Newcastle Emlyn
Pierce, E. Belvedere, Hayward's Heath
Smith, R. W. Newcastle Modern S.
Sutton, A. W. Higher Grade S., Carlisle
Thomas, J. Emlyn Gram. S., Newcastle Emlyn
Williams, H. S. South Shields High S.
Winstanley, H. J. J. St. Mary's Lodge, St. Leonards-on-Sea
Wright, R. A. d. Kent House Coll., Anerley
Bagshaw, W. B. Brewood Gram. S.
Bernasconi, P. d. St. Joseph's Coll., Dumfries
Chafen, A. J. Taunton Trade S., Southampton
Crandall, A. H. g. Tudor Hall, Hawkhurst
Dodge, G. T. E. Collett H., Bournemouth
Duffy, T. St. Joseph's Coll., Dumfries
Evans, G. L. B. Oswestry School
Grantham, R. The Model S. Training Coll., York
Hardman, W. F. e. High S., Clough St., Bury
Humbert, V. J. a. d. Chateau de la Croisiere, Ghistelles
Humphrey, E. R. St. Martin's S., York
Jarratt, R. C. e. Ripley Comm. S., Woking
Mather, J. A. Private tuition
Mauger, A. f. St. Mary's Coll. S., Jersey
Mills, S. W. Forest Gate High S. & Comm. Coll.
Peck, A. B. Mintholme S., Southport
Prevel, F. d. St. Aloysius Coll., N.
Taylor, H. The Gables, Sarisbury
Turnbull, A. A. Argyle H., Sunderland
Woolen, S. V. R. Tollington Schools, N.
Wilecock, R. Bentham Gram. S., Yorks.
Williner, H. Weston S., Bath
Young, R. St. Joseph's Acad., Kennington
Bastable, A. L. a. Mintholme S., Southport
Behrman, A. Townley Castle S., Ramsgate
Brenhorn, J. L. Fartown Gram. S., Huddersfield
Boyd, D. S. Osborne High S., W. Hartlepool
Brazil, A. Catford Coll. S., Lewisham
Bridal, G. Kent House Coll., Anerley
Clarkson, E. A. Hutton Gram. S.
Cooke, A. S. f. Rostellau, Brighton
Edward, W. W. University S., Rochester
Fowler, F. A. Warwick H., Southsea
Hallum, W. B. Taunton Trade S., Southampton
Joyce, E. St. Philip's Gram. S., Edgbaston,
Kellett, J. H. d. Old Gram. S., Alvechurch
Lewis, R. M. Wadhams S., Liskeard
Locke, R. G. Temple Square S., Aylesbury
Marshall, A. W. Holloway College, N.
Roberts, H. V. Ludlow Comm. S.
Shaw, E. d. Fartown Gram. S., Huddersfield
Spillane, H. W. St. George's Coll., Weybridge
Squires, J. W. L. University S., Rochester
Taylor, J. W. Borden Gram. S.
Tupman, R. E. Mount Radford S., Exeter
Baker, B. W. St. Aloysius Coll., N.
Baukwill, E. C. M. Bible Christian Coll., Shebbear
Blunt, C. G. Horsmonden School
Carpenter, F. Belmore H., Cheltenham
Cooke, O. V. a. Barnstaple Gram. S.
Dawes, R. C. I. Oswestry School
Edwards, S. A. e. Seaford College
Graves, N. C. F. Barbourne Coll., Worcester
Hancock, F. S. Private tuition
Hillige, A. E. Brewood Gram. S.
Inman, H. J. University S., Rochester
Lister, T. A. e. Arnold Coll., Bournemouth
Lloyd, C. E. Montrose Coll., Brixton Hill
Mirams, H. F. e. Uckfield Gram. S.

**BOYS, 3RD CLASS, PASS—Continued.**  
 Miskin, G.S. Borden Gram. S.  
 O'Keefe, D. St. Joseph's Coll., Dumfries  
 Pickard, G.M. Tollington Schools, N.  
 Pillar, C.H. Tavistock Gram. S.  
 Ransford, C.N. Watford H., Folkestone  
 Sawyer, G.F. Taunton H., Brighton  
 Taber, G.A. Private tuition  
 Watts, A.E. d. Taunton Trade S., Southampton

Allberry, C.C. Stafford Coll., Forest Hill  
 Bradbury, T. R. Witton Gram. S., Northwich  
 Cartridge, H. a. Barbourne Coll., Worcester  
 Dacombe, H. V. e. a. d. Taunton Trade S., Southampton  
 Farrell, J. St. Joseph's Coll., Dumfries  
 Flaherty, T. Catholic Collegiate Inst., Manchester

Furney, J. J. Barbourne Coll., Worcester  
 Grant, G. University S., Rochester  
 Griffin, O. S. St. Philip's Gram. S., Edgbaston  
 Haynes, W. E. Paddington High S., for Boys  
 Jackson, A. E. North Devon S., Barnstaple  
 Jones, L. Russholme High S., Manchester  
 Latham, D. E. St. Philip's Gram. S., Edgbaston

Marmont, F. Hillmartin Coll., Camden Rd., N. W.  
 Morgan, E. L. a. Catford Coll. S., Lewisham  
 Noirit, V. St. Philip's Gram. S., Edgbaston  
 Parker, A. E. 12 Garfield Terrace, Stoke, Devonport  
 Pearce, C. South Norwood College  
 Rundle, R. H. Bible Christian Coll., Shebbear  
 Smith, T. J. T. Private tuition  
 Stephenson, R. Osborne High S., W. Hartlepool

Taylor, L. A. St. Philip's Gram. S., Edgbaston  
 Taylor, T. B. Bentham Gram. S., Yorks  
 Turtle, S. W. Private tuition  
 Twose, W. S. Bible Christian Coll., Shebbear

Waddy, R. Private tuition  
 West, J. F. Market Harborough Gram. S.  
 Wright, F. a. Ripley Comm. S., Woking  
 Wright, J. P. Tudor Hall, Hawkhurst  
 Armstrong, F. S. Gram. S., Camelford  
 Blake, E. J. N. St. Joseph's Coll., Dumfries  
 Cox, T. a. Russholme High S., Manchester  
 Coyle, J. M. St. Joseph's Coll., Dumfries  
 Elliott, E. W. Cumberland H., Milton, Gravesend  
 Ellis, E. B. g. Beverley S., Barnes  
 Foley, A. V. e. c. Polytechnic Secondary Day S., W.

Furman, C. B. Froebel H., Devonport  
 Ghinn, T. St. John's Coll., Brixton  
 James, J. O. Grammar S., Pencader  
 Maher, V. Catholic Collegiate Inst., Manchester  
 Moxon, H. A. Brighton Gram. S.  
 Osman, C. E. Taunton Trade S., Southampton  
 Owen, J. H. Epsom College  
 Thomson, H. J. Horsmonden School  
 Walford, J. D. Oswestry School  
 White, G. A. e. Wright's S., Faversham

Barlow, J. R. St. Philip's Gram. S., Edgbaston  
 Bell, A. g. Gram. & High S., Thirsk  
 Bell, A. C. Taunton Trade S., Southampton  
 Bennett, H. B. Bible Christian Coll., Shebbear  
 Carcaud, W. G. f. St. John's Coll. S., Jersey  
 Creal, H. W. N. St. Bees Coll., S. Sea  
 Croft, H. W. St. John's Choir S., Up. St. Leonards  
 Dee, R. Gram. S., Friern Barnet  
 Dudney, E. A. Taunton H., Brighton  
 Dynes, P. T. Forest Gate High S. & Comm. Coll.

Hanbridge, C. M. Taunton H., Brighton  
 Howarth, H. Hutton Gram. S.  
 Green, P. H. Bethany H., Goudhurst  
 Jeffries, E. P. St. Philip's Gram. S., Edgbaston  
 Jones, J. F. Seaford College  
 Keane, G. P. St. George's Coll., Weybridge  
 Masfen, L. C. Private tuition  
 Mash, O. N. Northgate S., Ipswich  
 McNamara, D. Catholic Collegiate Inst., Manchester  
 Morgan, R. L. Seaford College  
 Potts, A. J. B. High S., Kirby Stephen  
 Thomas, A. Tudor Hall, Hawkhurst  
 Thomas, J. R. Emlyn Gram. S., Newcastle Emlyn  
 Wade, A. C. d. Montrose H., Plymouth  
 White, C. e. g. St. Joseph's Acad., Kennington

Barlow, N. Gram. S., Eccles  
 Bevington, G. Tollington Schools, N.  
 Bidgood, J. Gram. S., Friern Barnet  
 Chaplin, T. G. Barbourne Coll., Worcester  
 Coade, C. J. Borden Gram. S.  
 Colebrooke, W. H. K. Rye Gram. S.  
 Connetson, A. St. Joseph's Coll., Dumfries  
 Cornery, A. W. F. Fulwood Gram. S., Preston  
 Dowell, G. Ruthin Gram. S.

Egan, A. P. Catholic Collegiate Inst., Manchester  
 Foster, H. e. Ludlow Comm. S.  
 Greenhalgh, H. Ruthin Gram. S.  
 Kilkenny, C. a. St. Aloysius Coll., N.  
 Leader, S. Brent Hill S., Hanwell  
 Matthews, L. T. B. Private tuition  
 Minter, W. M. e. Wright's S., Faversham  
 O'Donnell, B. L. e. St. George's Coll., Weybridge

Oldridge, W. H. Dunn's End S., Crediton  
 Peters, B. South Norwood Coll.  
 Piercy, L. H. St. Philip's Gram. S., Edgbaston  
 Reid, F. South Norwood Coll.  
 Simpson, N. M. h. Ruthin Gram. S.  
 Taylor, S. A. Ripley Comm. S., Woking  
 Walker, F. J. Gram. S., Eccles.  
 Wright, M. B. D. Private tuition

Avison, J. T. Polytechnic Secondary Day S., W.  
 Ballandas, H. V. Marylebone Central Hr. Grade S., W.  
 Blanks, G. Bethany H., Goudhurst  
 Christmas, D. H. Stafford Coll., Forest Hill  
 Claff, A. Townley Castle S., Ramsgate  
 Clitheroe, J. N. Gram. S., Blackpool  
 Cory, J. S. St. Boniface's Coll., Plymouth  
 Farquharson, J. R. St. Catharine's S., Broxbourne  
 Gobbitt, R. H. S. Eastward Ho! Coll., Felixstowe

Gutierrez, Q. sp. Catholic Coll. S., Lytham  
 Hall, K. C. Private tuition  
 Hes, E. D. Weston S., Bath  
 King, H. E. University S., Southport  
 Le Quesne, A. Oxenford H., Jersey  
 Roeluck, V. J. Froebel H., Devonport  
 Rogers, T. T. Emlyn Gram. S., Newcastle Emlyn  
 Rundle, S. P. Bible Christian Coll., Shebbear

Stanton, A. W. St. Philip's Gram. S., Edgbaston  
 Symes, W. V. a. Taunton Trade S., Southampton  
 Tardif, E. de P. A. Montrose Coll., Brixton Hill  
 Tyrrell, W. H. Lancaster Coll., W. Norwood  
 Wace, C. L. g. Eye Gram. S.

Barratt, H. J. Hythe S., Kent  
 Bell, O. Montrose Coll., Brixton Hill  
 Betteridge, T. d. Taunton Trade S., Southampton  
 Bradridge, W. S. Bradley High S., Newton Abbot  
 Byrne, P. St. Joseph's Acad., Kennington  
 Caswell, H. J. L. Ashmount S., Sheff. old  
 Cole, F. H. R. Belmore H., Cheltenham  
 Davis, W. H. T. Taplow Gram. S.

Edwards, G. H. Wright's S., Faversham  
 Evans, J. e. g. Gram. & Coll. S., Carnarvon  
 Gabb, G. R. Barbourne Coll., Worcester  
 Hankins, R. F. Littlestone Coll., Littlestone-on-Sea  
 Hewitt, C. H. 10 Houndsfield Rd., Sheffield  
 Hodgkinson, E. H. Gram. S., Eccles  
 Howes, R. M. Bethany H., Goudhurst  
 Iddon, H. Hutton Gram. S.  
 Keyse, W. G. Bradley High S., Newton Abbot

Laferme, M. L. Borden Gram. S.  
 Lindley, J. C. Elm Bank S., Nottingham  
 Lundie, A. A. Holme Wood Coll., Up. Tulse Hill  
 Mence, A. C. Private tuition  
 Palmer, H. E. Beresford H., Gloucester  
 Petley, C. E. Borden Gram. S.  
 Poole, C. K. h. Stanwell H., W. Hampstead  
 Randall, A. Salway Coll., Leytonstone  
 Swan, R. J. d. Fulham Gram. S.  
 Unthoff, E. J. Arnold Coll., Bournemouth

Baker, E. H. Private tuition  
 Bazett, C. R. Y. s. Ruthin Gram. S.  
 Bell, M. W. Gram. & High S., Thirsk  
 Bisson, C. J. Oxenford H., Jersey  
 Bulley, F. J. d. Taunton Trade S., Southampton  
 Cunliffe, E. L. St. Philip's Gram. S., Edgbaston  
 Evans, J. C. St. John's Coll., Brixton  
 Evans, L. J. Gram. S., Pencader  
 Fleet, B. F. St. Dunstan's Coll., Margate  
 Francis, W. L. Uckfield Gram. S.  
 Hodgkiss, R. Hutton Gram. S.  
 Hopkins, R. C. The High S., Melksham  
 Limb, A. Elm Bank S., Nottingham  
 Maynard, G. H. Northgate S., Ipswich  
 McInnes, A. C. Glasgow Deaf & Dumb Inst.  
 Mitton, E. G. Froebel H., Devonport  
 Palmer, A. W. County S., Tenby  
 Penhale, E. D. North Devon S., Barnstaple  
 Quinn, A. Stonyhurst Coll., Blackburn  
 Roberts, C. L. Oswestry School  
 Seaman, T. H. St. John's Coll., Brixton

Bottomore, T. J. East Bridgford College  
 Carnson, R. M. High S., Erdington, B'ham  
 Dalby, W. Gram. S., Eccles  
 Ellis, T. Bethany H., Goudhurst  
 Foot, P. J. Taunton Trade S., Southampton

Gloster, P. R. a. Ripley Comm. S., Woking  
 Hunt, C. P. g. Eye Gram. S.  
 Laban, W. H. A. Gram. S., Eccles  
 Maple, J. F. Bethany H., Goudhurst  
 Mason, J. V. Tavistock Gram. S.  
 Masters, W. J. Gram. S., Camelford  
 McPherson, D. A. York Manor S., York  
 Oliver, C. a. St. Aloysius Coll., N.  
 Page, J. S. Glasgow Deaf & Dumb Inst.  
 Pritchard, E. D. Taplow Gram. S.  
 Scarborough, A. J. St. Philip's Gram. S., Edgbaston

Shrubsole, F. Wright's S., Faversham  
 Smith, H. T. Private tuition  
 Webb, F. R. Salway Coll., Leytonstone  
 Wernig, F. E. Lawn H., Clapham Rd.  
 Williams, H. Boys' High S., Warcham  
 Williams, H. J. E. Ruthin Gram. S.

Amy, P. M. St. James' Coll. S., Jersey  
 ap-Elis, A. Market Bosworth Gram. S.  
 Barr, C. C. Forest Gate High S. and Comm. Coll.  
 Bird, W. Oxenford H., Jersey  
 Chelwell, E. R. Brewood Gram. S.  
 Griffith, R. J. Gram. and Coll. S., Carnarvon  
 Herbert, S. Montrose Coll., Brixton Hill  
 Hobson, F. H. a. Witton Gram. S., Northwich

Manton, W. B. Taplow Gram. S.  
 McFarlane, F. Private tuition  
 Mountjoy, S. H. Gram. S., Camelford  
 Oakley, C. Horsmonden School  
 Organ, S. G. Froebel H., Devonport  
 Richards, W. H. St. Philip's Gram. S., Edgbaston  
 Steel, H. Private tuition  
 Walker, A. g. Modern S., Walthamstow  
 Westhofen, P. H. St. George's Coll., Weybridge

Young, J. a. Sir A. Judd's Comm. S., Tonbridge  
 Biro, F. J. g. St. Joseph's Coll., Dumfries  
 Brown, T. H. Tudor Hall, Hawkhurst  
 Carpenter, W. R. Forest Gate High S. & Comm. Coll.  
 Davies, W. Miller Arcade, Preston  
 Fielding, H. S. Stanwell H., W. Hampstead  
 Graham, W. Inter. S., Antrint  
 Hauser, J. W. T. Wright's S., Faversham  
 Hyde, A. a. h. North London High S., Eton Rd., N. W.

Illing, R. W. Paddington High S. for Boys  
 Joyner, H. Barbourne Coll., Worcester  
 Long, J. g. Eye Gram. S.  
 McKee, D. H. Harlesden College  
 Millard, K. Littlestone Coll., Littlestone-on-Sea  
 Paul, S. Boys' High S., Wareham  
 Phillips, J. Gram. S., Pencader  
 Rivers, A. G. Lancaster Coll., W. Norwood  
 Robinson, H. L. Eastward Ho! Coll., Felixstowe  
 Russell, J. e. j. Oxford H., Brighton  
 Snee, R. J. Barnstaple Gram. S.  
 Turner, A. W. University S., Southport  
 Washam, H. W. Taplow Gram. S.  
 Whivell, A. Hutton Gram. S.

Beard, W. A. Cumberland H., Milton, Gravesend  
 Bellis, H. W. Oxenford H., Jersey  
 Biennan, F. Catholic Collegiate Inst., Manchester  
 Brewer, A. V. Bradley High S., Newton Abbot  
 Bryan, C. H. Borden Gram. S.  
 Bull, C. H. Manor H., Havant  
 Chilton, E. A. Uckfield Gram. S.  
 Clive, S. H. C. Taunton Trade S., Southampton  
 Cooke, L. Taplow Gram. S.  
 Creation, A. W. a. d. Marylebone Central Hr. Grade S., W.

Dew, M. T. St. Catharine's S., Broxbourne  
 Dixon, A. The Models Training Coll., York  
 Elhott, T. H. Kent House Coll., Anerley  
 Hayes, F. T. St. Boniface's Coll., Plymouth  
 Kestle, W. H. M. Bible Christian Coll., Shebbear  
 Leonard, A. St. Joseph's Coll., Denmark Hill  
 Lockington, A. Harlesden College  
 Oliver, C. H. Gram. S., Streatham  
 Rundle, W. C. Taunton Trade S., Southampton

Sharrook, F. St. Joseph's Coll., Dumfries  
 Sopwith, R. J. d. Newcastle Modern S.  
 Stevens, L. D. Horsmonden School  
 Wainstey, B. N. Cambridge H., Bath  
 Weston, R. Kent House Coll., Anerley  
 Whitehead, W. J. University S., Rochester  
 Whyntie, F. W. Sir A. Judd's Comm. S., Tonbridge  
 Wilton, H. C. d. Private tuition  
 Ashleigh, C. I. Townley Castle S., Ramsgate  
 Barlow, J. E. Belmore H., Cheltenham  
 Bourne, H. G. Lancaster Coll., W. Norwood  
 Bull, W. The Portland S., Huddersfield  
 Carter, W. Argyle H., Sunderland  
 Clayton, H. M. H. Weston S., Bath  
 Dyer, G. C. Rolandseck S., Ealing  
 Eaton, H. F. g. Richmond H., Handsworth  
 Farrell, L. St. Philip's Gram. S., Edgbaston  
 Grant, J. H. Oswestry School

Grover, G. S. Oswestry School  
 Harris, D. W. a. Wright's S., Faversham  
 Haynes, A. St. Aloysius Coll., N.  
 Hazelwood, W. O. R. Langford H., Brighton  
 Hunt, J. M. North Devon S., Barnstaple  
 Kendrick, J. Brewood Gram. S.  
 Larkin, W. H. Bethany H., Goudhurst  
 Maslen, T. A. g. Weston S., Bath  
 Owen, W. H. Wright's S., Faversham  
 Pusey, J. C. St. John's Coll., Brixton  
 Reeves, J. K. The Vale Coll., Ramsgate  
 Ross, E. S. Alton H., Blackheath  
 Scrase, F. W. Brighton Gram. S.  
 Sheehan, W. St. Aloysius Coll., N.

Ward, C. V. Eastward Ho! Coll., Felixstowe  
 Chapman, R. Ripley Comm. S., Woking  
 Conway, W. D. A. St. Joseph's Coll., Dumfries  
 Crabbe, W. S. a. Sunny Hill S., Fife  
 Dadd, S. W. Staffold Coll., Forest Hill  
 Dodd, J. W. Private tuition  
 Douglas, H. G. St. John's Coll., Brixton  
 England, H. S. Wilson Coll., Cazenove Rd., N.

Ezard, H. H. Linden H., St. John's, S. E.  
 Gould, K. Arnold Coll., Bournemouth  
 Hill, G. H. Montrose Coll., Brixton Hill  
 Jackson, H. St. Joseph's Coll., Dumfries  
 Kendall, C. J. L. The Model S. Training Coll., York  
 Kent, J. St. Boniface's Coll., Plymouth  
 Mankelew, A. G. Taunton Trade S., Southampton  
 Martin, A. Bethany H., Goudhurst  
 O'Neill, J. St. Aloysius Coll., N.  
 Thompson, A. C. Marylebone Central Hr. Grade S., W.

Trotman, E. H. e. Taunton Trade S., Southampton  
 Tyler, O. W. St. Catharine's S., Broxbourne  
 Turnbull, T. S. Brighton Gram. S.  
 Campbell, W. Gram. & High S., Thirsk  
 Clarke, H. S. Gram. S., Streatham  
 Corner, W. A. Modern S., Eccles  
 Craddock, A. C. Rolandseck S., Ealing  
 Ede, H. Ripley Comm. S., Woking  
 Friend, L. Oxford H., Brighton  
 Green, C. R. Brewood Gram. S.

Lillis, L. St. Philip's Gram. S., Edgbaston  
 Martin, T. F. a. Marylebone Central Hr. Grade S., W.  
 Minchinick, R. F. Tavistock Gram. S.  
 Newman, G. S. Tollington Schools, N.  
 Oldie, J. G. Borden Gram. S.  
 Parsons, R. St. Joseph's Coll., Dumfries  
 Pearce, A. St. Joseph's Acad., Kennington  
 Phillips, G. E. 64 Mornington Rd., Leytonstone  
 Piquet, R. S. High S. for Boys, Jersey  
 Poels, A. J. St. George's Coll., Weybridge  
 Ruck, C. F. L. The Douglas S., Cheltenham  
 Rushton, A. Hutton Gram. S.  
 Short, H. Bethany H., Goudhurst

Smeeth, A. W. e. Bible Christian Coll., Shebbear  
 Smith, H. G. Eastward Ho! Coll., Felixstowe  
 Soutar, J. C. Glasgow Deaf & Dumb Inst.  
 Stedeford, W. A. F. Staffold Coll., Forest Hill  
 Tyrrell, R. Gram. S., Streatham  
 Wood, C. G. Gram. S., Streatham

Bell, N. J. Taunton Trade S., Southampton  
 Dziel, P. Osborne High S., W. Hartlepool  
 Flyter, D. I. D. Borden Gram. S.  
 Harris, F. A. Taplow Gram. S.  
 Hillyer, E. R. V. St. John's Choir S., Up. St. Leonards  
 Jamieson, D. St. Joseph's Coll., Dumfries  
 Parnell, F. R. a. Godwin Coll., Margate  
 Penny, N. M. Barbourne Coll., Worcester  
 Rathbone, C. Stretford Comm. S.  
 Salomon, V. University S., Southport  
 Tatchell, B. E. Boys' High S., Wareham  
 Trappell, B. E. W. Hythe S., Kent  
 Trayer, H. G. Oswestry School  
 Wheatley, J. H. Salway Coll., Leytonstone  
 Williams, G. H. The Douglas S., Cheltenham

Williams, G. L. County S., Tenby  
 Wright, G. Ruthin Gram. S.  
 Brown, W. J. Gram. S., Camelford  
 Carroll, L. St. Aloysius Coll., N.  
 Curtis, W. C. g. Hythe S., Kent  
 Freeman, C. E. Endcliffe Coll., Ranmoor, Sheffield  
 Goodwyn, A. J. St. George's Coll., Weybridge  
 Gosling, C. L. e. St. George's Coll., Weybridge

Hampton-Lewis, T. Oswestry School  
 Hill, W. G. West Cliff S., Ramsgate  
 Ivey, A. W. St. John's Coll., Brixton  
 Lowe, L. High Pavement S., Nottingham  
 Maddison, A. a. Old Elvet S., Durham  
 Morgan, H. Staffold Coll., Forest Hill  
 Newington, R. B. Horsmonden School  
 Prince, P. Taunton Trade S., Southampton  
 Radcliffe, C. Montrose Coll., Brixton Hill  
 Roberts, R. W. s. Ruthin Gram. S.  
 Roberts, S. T. Hillmartin Coll., Camden Rd., N. W.



**BOYS, 3RD CLASS, PASS—Continued.**  
 Sauter, J.W. Tudor Hall, Hawkhurst  
 \*Taylor, C. Brighton H., Oldham  
 Thompson, H. Grammar S., Forest Gate  
 Walmsley, E.A. St. Kilda's Coll., Waterlooville  
 White, G. Gram. S., Blackpool  
 Wild, G. Taunton Trade S., Southampton  
 Allen, A.E. Taunton Trade S., Southampton  
 Baynes, A.J. Forest Gate High S. and Comm. Coll.  
 \*Betney, W.F. Gram. S., Blackpool  
 Brookes, F. Hythe S., Kent  
 Clarke, C.D. Tollington Schools, N.  
 Forrest, P. East Bridgford College  
 Karge, H.F.M. ge. Gram. S., Chorlton-cum-Hardy  
 Kirkness, C. Gram. S., Streatham  
 Lackie, J. St. Aloysius Coll., N.  
 Lewis, C. Tavistock Gram. S.  
 Littlewood, A. Wordsworth Rd. S., Stoke Newington  
 Macmeekin, H. Norman H., W. Didsbury  
 Phillips, H.H. Froebel H., Devonport  
 \*Ray, R. Bethany H., Goudhurst  
 Tompsett, H. Horsmonden School  
 Andrews, H.A. Anglesea H., St. Mary Cray  
 Baldwin, L. St. Aloysius Coll., N.  
 Barker, W. Gram. and High S., Thirsk  
 Barry, P.J. e. Arnold Coll., Bournemouth  
 Collin, R. Oxenford H., Jersey  
 Gilbertson, L.P. Oswestry School  
 Hart, W.N. a. St. John's Coll., Southend  
 Hopwood, J. York Manor S., York  
 Howard, H.V. Salway Coll., Leytonstone  
 Levy, C.M. e. Townley Castle S., Ramsgate  
 \*Marvin, G.E. St. Kilda's Coll., Waterlooville  
 McLaren, G.I.D. Brighton H., Oldham  
 Mealand, H.G. Ripley Comm. S., Woking  
 Parsons, L.P. Tollington Schools, N.  
 Pearson, T.H. Market Bosworth Gram. S.  
 Pritchard, F.W.R. Taplow Gram. S.  
 Rees, C.T. Wadham S., Liskeard  
 Reid, F.D. e. St. George's Coll., Weybridge  
 Riley, A. Gram. S., Eccles  
 Robinson, L.T. Taunton H., Brighton  
 Smith, C.H. Barbourne Coll., Worcester  
 \*Stone, C.H. Culham Coll. Practising S.  
 Bendix, F.E. Forest Gate High S. & Comm. Coll.  
 Berkeley, A. South Norwood Coll.  
 \*Cochrane, L.V. St. John's Coll., Brixton  
 Easton, C. Rye Gram. S.  
 Edwardes-Evans, I.A. Lyynn Gram. S.  
 Gerard, M.H. North London High S., Eton Rd., N.W.  
 Glendinning, A. St. Joseph's Coll., Dumfries  
 \*Haines, F.G. Private tuition  
 Handcock, H.W. Sir A. Judd's Comm. S., Tonbridge  
 \*Haynes, L.E.A. Holborn Estate Gram. S.  
 \*Hipkiss, H.B. St. Philip's Gram. S., Edgbaston  
 Holden W.O. c. Wreight's S., Faversham  
 Hoskin, G. Gram. S., Camelford

Orpin, F. St. Joseph's Coll., Denmark Hill  
 Rumbold, A.E.W. Holme Wood Coll., Up. Tulse Hill  
 Shelton, D.G. Oswestry School  
 \*Simpton, W.S. Private tuition  
 Solley, G. Frankfort, Forest Hill  
 \*Stanley, J. North Devon S., Barnstaple  
 Stockbridge, J.J. St. John's Coll., Brixton  
 Stone, A.E. Seaford College  
 Wing, R.A. Private tuition  
 \*Anderton, R. e. Westcliff Prep. S., South Shore, Blackpool  
 Billett, A.G. Salway Coll., Leytonstone  
 Callwood, H.J. g. Old Gram. S., Alvechurch  
 Dalton, B.N. Oswestry School  
 Foy, S.H. Taunton Trade S., Southampton  
 \*Gawn, F.E. Private tuition  
 Gooch, R.N. g. Hillmartin Coll., Camden Rd., N.W.  
 Harding, J. Gram. S., Streatham  
 Hutt, H.R. St. Catharine's S., Broxbourne  
 Kiff, C.D. Seaford College  
 Madge, F. Stafford Coll., Forest Hill  
 \*Muraille, C. St. Joseph's Coll., Denmark Hill  
 Oliver, A.O. St. John's Coll., Southend  
 Pitt, C. Kent House Coll., Anerley  
 \*Sleep, C.H. Froebel H., Devonport  
 Summersell, J.G. Bethany H., Goudhurst  
 Vey, A.E. Queen's Park Coll., W.  
 Wagenitz, E.F. Leigh Hall Coll., Leigh, Essex  
 Wakeford, W.A. Taunton Trade S., Southampton  
 Bell, H. Old Elvet S., Durham  
 Bradley, W.A. Bethany H., Goudhurst  
 Clark, T.H. Taunton Trades, Southampton  
 Diplock, R.T. Lancaster Coll., W. Norwood  
 Eager, K. Rolandseck S., Ealing  
 Eccles, F. St. Joseph's Coll., Dumfries  
 \*Francis, R.C.H. Private tuition  
 Gadsdon, P.H. Salway Coll., Leytonstone  
 Holgate, B. Salway Coll., Leytonstone  
 Jeyes, H. Barbourne Coll., Worcester  
 Kerr, F.A. g. St. Joseph's Coll., Dumfries  
 Reilly, E. St. Aloysius Coll., N.  
 Ross, D. Argyle H., Sunderland  
 \*Sinclair, J.O. Charlecote, Worthing  
 Smith, J. Gram. S., Eccles  
 Tardrew, W.H. Salway Coll., Leytonstone  
 Waite, R. The Model S. Training Coll., York  
 Ward, W.A. Holme Wood Coll., Up. Tulse Hill  
 Winchester, H. Tudor Hall, Hawkhurst  
 Woudger, R.W. Château de la Croisière, Ghistelles  
 Aylward, L.H. St. Kilda's Coll., Waterlooville  
 Beckley, S.G. Anglesea H., St. Mary Cray  
 Burne, C.G. Hythe S., Kent  
 Coulson, H. Montrose Coll., Brixton Hill  
 Eastick, F.C. Salway Coll., Leytonstone  
 Green, J.S. Lancaster Coll., W. Norwood  
 Job, P.H. Tollington Schools, N.  
 Maguchin, P. St. Joseph's Coll., Dumfries  
 Mason, J.R. Tollington Schools, N.

Penney, W.G. e. Swanwick Coll., Hants  
 Porter, H. Hutton Gram. S.  
 Roche, M. St. Aloysius Coll., N.  
 Anderson, T.S. Weston S., Bath  
 Barrow, V. St. G. Monk Bridge S., York  
 Dadds, G.S. Ruthin Gram. S.  
 Earnshaw, N. University S., Southport  
 Holliday, D.M. Ripley Comm. S., Woking  
 Huntley, G.J. d. Sir A. Judd's Comm. S., Tonbridge  
 Jesty, R.H. Boys' High S., Wareham  
 Jewell, F.E. St. John's Coll., Brixton  
 Mooney, J.P. St. Joseph's Coll., Dumfries  
 Risle, A. St. Aloysius Coll., N.  
 Slight, E.W. Rostellan, Brighton  
 \*Taylor, K.G. Private tuition  
 Taylor, T.R. The Model S. Training Coll., York  
 Tyler, R.C. St. Catharine's S., Broxbourne  
 Catchpole, W.G. Oxenford H., Jersey  
 Clutson, S.V. Taunton H., Brighton  
 Crawford, M. St. Joseph's Coll., Dumfries  
 Dewlish, P.H. Clapham Gram. S.  
 Harris, P.A. Horsmonden School  
 Jolly, A. St. Joseph's Coll., Dumfries  
 Martin, J.T. High S. for Boys, Jersey  
 Moore, C.H. Salway Coll., Leytonstone  
 Rutter, S. St. Joseph's Coll., Denmark Hill  
 Smart, H. Eastward Ho! Coll., Felixstowe  
 Smith, T.F. St. Joseph's Coll., Dumfries  
 Stott, J.H. Gram. S., Eccles  
 Walker, J.L. Glasgow Deaf & Dumb Inst.  
 Bellerby, R. Hutton Gram. S.  
 Bloomfield, H.O. Seaford College  
 \*Carpenter, A.H. Montrose Coll., Brixton Hill  
 Chapman, E.C. Borden Gram. S.  
 Cross, W.V. Taunton Trade S., Southampton  
 \*Eccles, H.B. Miller Arcade, Preston  
 Fox, H.L. St. John's Coll., Brixton  
 Hodge, L.C. Sir A. Judd's Comm. S., Tonbridge  
 Jackson, H.N. Monk Bridge S., York  
 Lightbown, H. Birkdale Gram. S.  
 Noonan, H. St. Philip's Gram. S., Edgbaston  
 Roberts, A.C. s. Ruthin Gram. S.  
 Scott, E.A. Borden Gram. S.  
 \*Simmons, C. St. Joseph's Coll., Denmark Hill  
 Starbuck, H.C. St. John's Coll., Brixton  
 Aggiss, W.C. Eastward Ho! Coll., Felixstowe  
 Argyle, D.P.B. North London High S., Eton Rd., N.W.  
 Batchelor, M.G. Taunton Trade S., Southampton  
 Boxily, O. Gram. S., Forest Gate  
 Gray, P. St. Joseph's Coll., Dumfries  
 Heaton, C.E. Stafford Coll., Forest Hill  
 Hickey, R. Gram. S., Eccles  
 Hoyle, W. Cumberland H., Milton, Gravesend  
 Robinson, W.J. Eastward Ho! Coll., Felixstowe

Konrath, F. St. Joseph's Acad., Kennington  
 Yeoman, N.W. Taunton Trade S., Southampton  
 Bray, A.G. Froebel H., Devonport  
 Coppinger, C.T. Stafford Coll., Forest Hill  
 Davies, C. Witton Gram. S., Northwich  
 Lambkin, F.W. Wreight's S., Faversham  
 Moore, C.G. St. John's Coll., Grimsargh  
 Pollard, E.H. Barbourne Coll., Worcester  
 Soulbey, E. Ruthin Gram. S.  
 Stumpster, J.G. Seaford College  
 Beale, G.S. Stafford Coll., Forest Hill  
 Dennison, S.J. Montrose Coll., Brixton Hill  
 Durant, W.T. Private tuition  
 Goode, C.F. North London High S., Eton Rd., N.W.  
 Mulvey, J.J. St. Joseph's Coll., Dumfries  
 Simpson, A.H. South Norwood Coll.  
 Stephens, W. Hoe Gram. S., Plymouth  
 Thomson, D.G.S. Stafford Coll., Forest Hill  
 Wilkins, J.W. Tudor Hall, Hawkhurst  
 Woodford, A.W. Ruthin Gram. S.  
 Woollard, R.W. Ripley Comm. S., Woking  
 Andrews, L.F. Taunton H., Brighton  
 Arnold, E.F. Horsmonden School  
 \*Baker, G.A. Norfolk Coll., Southsea  
 Kenny, J.A. Conv. S., Banagher  
 MacAdam, J. St. Mary's Hall, Cardiff  
 Marchant, W. Gram. S., Forest Gate  
 Osma, J.D. Borden Gram. S.  
 Sherman, H. Ripley Comm. S., Woking  
 \*Simister, W. Private tuition  
 Susskind, M. ge. Lancaster Coll., W. Norwood  
 \*Thorne, H.A. Private tuition  
 Davis, R.A. Harlesden College  
 Gibb, J. St. Joseph's Coll., Dumfries  
 \*Hunt, H.F. North Devon S., Barnstaple  
 Hunter, T.W. Oxenford H., Jersey  
 \*Smith, A.G. Oswestry School  
 Spragg, N. Gram. S., Camelford  
 Stanesby, R.W.J. Seaford College  
 Magee, D.A.W. Birkdale Gram. S.  
 Merfield, P. St. Aloysius Coll., N.  
 O'Farrell, J. St. Joseph's Coll., Denmark Hill  
 Piercy, F.H. Salway Coll., Leytonstone  
 Robins, S.F. Froebel H., Devonport  
 \*Stretton-Jones, C. Oswestry School  
 Abel, F.C. Tavistock Gram. S.  
 Dyer, E.A. Eastward Ho! Coll., Felixstowe  
 Hytten, A.O. Kent House Coll., Anerley  
 Liddell, R.W. West Cliff S., Ramsgate  
 Morton, F.J.B. Anglesea H., St. Mary Cray  
 Spendif, B.G. Wreight's S., Faversham  
 Turnbull, J. Old Elvet S., Durham  
 Connolly, J. St. Joseph's Coll., Dumfries  
 Munford, D.J. Salway Coll., Leytonstone  
 Rivett, J. Grammar S., Forest Gate  
 \*Buckland, H.R. North Devon S., Barnstaple  
 Ginn, S.P. St. Catharine's S., Broxbourne  
 Kay, C. St. Joseph's Coll., Dumfries  
 Whiting, A. Wreight's S., Faversham  
 Wood, K.C. Cumberland H., Milton, Gravesend

CLASS LIST — GIRLS.

(For list of abbreviations, see page 346.)

**FIRST CLASS [or SENIOR].**  
**Honours Division.**  
 Wall, A. s.e.h.f.b.p. Ladies' Coll., Wellington, Salop  
 Melvin, J.I. e. ge. Wincham Hall Coll., Northwich  
 Meikleham, B.I. f. ge. Private tuition  
 Lenz, J.T.E. f. ge. d. Sherborne S. for Girls, Dorset  
**FIRST CLASS [or SENIOR].**  
**Pass Division.**  
 Beer, E.B. f. ph. Private tuition  
 Kiddell, V.A. d. Holborn Estate Girls' S., W.C.  
 Jeffery, P.W. Private tuition  
 Reader, L.M. Heathleigh, Horsmonden  
 Buggs, C.M. Heathleigh, Horsmonden  
 Dalladay, L.A. h.f. Elson H., Leytonstone  
 Wickham, L.M. f. Elson H., Leytonstone  
 Barry, B. St. Mary's Conv., Bruff, Co. Limerick  
 Wildish, L. University S., Rochester  
 Wilkinson, F. s.e. Magdalen Coll., Wainfleet

Peniston, E.M. School of Science, Plymouth  
 Batty, E.A.S. Private tuition  
 Metcalfe, M. West End High S., Newcastle-o.-T.  
 Puddlepiatt, O.E. s. The Coll., Goudhurst  
 Padfield, E. s. High S., Midsomer Norton  
 O'Connor, F. d. Lynton H., Portsmouth  
 Melliss, D. Old Palace S., Croydon  
 Gardner, D.H. Devonshire Rd. S., Forest Hill  
 Carr, E.M. d. Stoke Newington High S. for Girls  
 Person, Y. f. St. Joseph's Conv., Erith  
 Miller, E. d. Collegiate High S., W. Didsbury  
 Bunce, G.E. Durham H., Crouch Hill, N.  
 Christides, M. f. English S., Pera, Constantinople  
 Parkinson, D. Durham H., Crouch Hill, N.  
 Lucas, F. Magdalen Coll., Wainfleet  
 James, A.G. Harborne Ladies Coll., B'ham  
 Minter, H.M. Up. St. Leonards Ladies Coll.  
 Stewart, H.M. Gortonville Ladies' S., Coleraine  
 Anderson, J.P. Wincham Hall Coll., Northwich  
 Dean, E. Melbourne Coll., Thornton Heath

**SECOND CLASS [or JUNIOR].**  
**Honours Division.**  
 Loseby, D. al. f. Market Bosworth Gram. S.  
 Audreae, B. d. St. Mary's Conv., Bruff, Co. Limerick  
 Waddell, M. s.h.f. Victoria Coll., Belfast  
 Hearn, F.M. f. d. Skinnners' Compy's S., Stamford Hill  
 Van Veen, W.J. s.f. ge. Up. St. Leonards Ladies' Coll.  
 Scholey, M.A. R.S. s.f. d. Harringay Park S., N.  
 Barrington, G.E. s.f. Up. St. Leonards Ladies' Coll.  
 Soldan, L. s.h. ge. Central Found. Girls' S., Spital Sq., E.  
 Heyes, K. A. The Conv., Highgate Rd., N.W.  
 Johnson, E. Central Found. Girls' S., Spital Sq., E.  
 Barry, M. d. St. Mary's Conv., Bruff, Co. Limerick  
 Holden, M.E. Up. St. Leonards Ladies Coll.  
 Cottam, A.M. Skinnners' Compy's S., Stamford Hill  
 Schofield, A.G. Rutherford Coll., Newcastle-o.-T.

Edge, E.A. h.f. Warwick H., Poulton-le-Fylde  
 Linehan, C.M. f. ge. d. Pupil Teachers' Coll., Blackburn  
 Persson, S.M. f. d. Cornwallis High S., Hastings  
 Walker, B. h. Conv. S., Banagher  
 Standing, A.M. s. Central Found. Girls' S., Spital Sq., E.  
 Dickie, L.G. d. Wincham Hall Coll., Northwich  
 Bolderston, M.O. s. d. Girls' High S., Melksham  
 Clements, M.G. h.k. Hyde H., Tollington Pk., N.  
 Cumings, P. h.f. Brent Hill S., Hanwell  
 Stamp, B.C. d. The Coll., Goudhurst  
 Moule, E.R. h. Gainsboro' S., Plymouth  
 Vines, H.M. d. Central Found. Girls' S., Spital Sq., E.  
 Silter, S.M. s.f. ge. Grosvenor Coll., Bath  
 Blauenthal, J. h.e. m. Crofton H., Manchester  
 Bryant, E. Linwood S., Altrincham  
 Schofield, E.O. Rutherford Coll., Newcastle-o.-T.  
 Watts, L.F. Harborne Ladies Coll., B'ham.

**GIRLS, 2ND CLASS, HONS.—Continued.**  
 Wyatt, M. d.  
 Pemberton Coll., Up. Holloway  
 Perman, L.H. d. Beachfield S., Wilmslow  
 Harding, I.R. s.d.  
 Up. St. Leonards Ladies' Coll.  
 Mitchell, D.  
 Skimmers' Comp'y.'s S., Stamford Hill  
 Parkinson, E. The Laurels, Herne Bay  
 Spencer, W.S.  
 The Vicarage S., Lavender Gardens, S.W.  
 Watterson, E.B. phys. ch.  
 Douglas Hr. Grade S., I.M.  
 Beken, G.M. phys.  
 Central Found. Girls' S., Spital Sq., E.  
 Binns, E. f.d.  
 English S., Pera, Constantinople  
 Gell, H.B. d.  
 High S., Pontefract

**SECOND CLASS [or JUNIOR].**  
**Pass Division.**

Sparkman, C.M. ch. d. Private tuition  
 Barch, W. s.h.f. Elson H., Leytonstone  
 Jones, E.A.  
 Chippenham & District County S.  
 Smith, V.O. d.  
 Woolston Ladies' Coll., Southampton  
 Hall, E. F. s.  
 Wincham Hall Coll., Northwich  
 Jewers, H.M. Castlebar High S., Edling  
 Eaton, I.C.D. f. Private tuition  
 Stoney, J. Higher Grade S., Carlisle  
 Graham, F.M.L. f. Private tuition  
 Johnson, N.M.  
 Central Found. Girls' S., Spital Sq., E.  
 Murphy, H.  
 St. Mary's Conv., Bruff, Co. Limerick  
 Steich, I.G. Up. St. Leonards Ladies' Coll.  
 Brisco-Owen, E.G. f. Private tuition  
 Clarke, D.M.  
 Skimmers' Comp'y.'s S., Stamford Hill  
 McCann, E. The Conv., Highgate Rd., N.W.  
 O'Connell, M. s.  
 St. Mary's Conv., Bruff, Co. Limerick  
 Scott, F. D.  
 32 Cromwell Avenue, Highgate  
 Cheney, H.L. d.  
 Skimmers' Comp'y.'s S., Stamford Hill  
 Delves, A.M. Rye Coll. S.  
 Plumley, A.M. d. Elson H., Leytonstone  
 Stileman, A.F.C. Upper Mount, Southsea  
 Valpy, H. D. f. 4 Clarence Terrace, Jersey  
 Day, R.V.G. f. Private tuition  
 Dowling, R.E. Harley H., Hereford  
 Green, G.R. d. Rose Bank S., Brentwood  
 Sherriff, D. d.  
 Skimmers' Comp'y.'s S., Stamford Hill  
 Dixon, G. s.f. Riversdale, Boston Spa  
 Smith, G. Wincham Hall Coll., Northwich  
 Shaw, W.H. The Southend S., Winchester  
 Trye, E.J.M. ef. 10 St. Paul's Rd., Margate  
 Hairs, P.E. High S., Pontefract  
 Carter, B.M.  
 Southwood, Chandlersford, Hants  
 Humfress, B.J.  
 Anglo-French Coll., S. Norwood  
 Penny, D.  
 Wordsworth Coll., Shirland Rd., W.  
 Solfe, M.E. d. Denmark Coll., Wimbledon  
 Wood, D. Linwood, Altrincham  
 Hodge, D.S. 38 Tavistock Place, Plymouth  
 Janvrin, M.M. Private tuition  
 Conway, N.  
 St. Mary's Conv., Bruff, Co. Limerick  
 Johnson, L.  
 Queen's Park Coll., Harrow Rd., W.  
 Menhinick, M.E. The Coll., Goudhurst  
 Simpson, J.W. d.  
 Skimmer's Comp'y.'s S., Stamford Hill  
 Barrington, G.M.  
 Up. St. Leonards Ladies' Coll.  
 Bradley, E. s.  
 Wincham Hall Coll., Northwich  
 Griffin, W.B.H. Avonbank Coll., Bath  
 Hartigan, J. f.  
 St. Mary's Conv., Bruff, Co. Limerick  
 Haslam, M.M. St. Joseph's Conv., Erith  
 Mroy, G. The Conv., Highgate Rd., N.W.  
 O'Reilly, J. The Conv., Highgate Rd., N.W.  
 Philips, E. D.  
 Skimmers' Comp'y.'s S., Stamford Hill  
 Evans, I.G. Harley H., Hereford  
 Ford, M. f.  
 The Modern Coll., Stoke Bishop  
 Smith, E. d.  
 Skimmers' Comp'y.'s S., Stamford Hill  
 De la Hoyde, C. nu.  
 The Conv., Highgate Rd., N.W.  
 Hastings, E.I. Victoria Coll., Belfast  
 Postans, M.H. Private tuition  
 Chenn, G.E. Old Palace S., Croydon  
 Cornwell, K.M. d.  
 Marylebone Central Girls' S.  
 Ford, M. d. Hyde H., Tollington Park, N.  
 MacAuliffe, J. s.  
 St. Mary's Conv., Bruff, Co. Limerick  
 Kirk, W.M. d.  
 Wincham Hall Coll., Northwich  
 Riordan, M.E. Old Palace S., Croydon  
 Fowler, I.S.  
 Skimmers' Comp'y.'s S., Stamford Hill

Morton, E.H.F. Victoria Coll., Belfast  
 Murphy, B.M.  
 Convent S., The Avenue, Southampton  
 Baynes, B.  
 Wincham Hall Coll., Northwich  
 Hamilton, M.E. Elson H., Leytonstone  
 Lewis, C.S. The Coll., Goudhurst  
 Lodge, E. Fartown Gram. S., Huddersfield  
 Foot, B. phys. Marylebone Central Girls' S.  
 Kerr, E.F. Manchester High S. for Girls  
 Stewart, L.C. Victoria Coll., Belfast  
 Coddery, F.W. Rye Coll. S.  
 Carroll, I.V. High S., Bedford  
 Miller, A.S. 21 Derby Rd., Withington  
 Davies, A.M. Private tuition  
 Moir, C.J. Durham H., Crouch Hill, N.  
 O'Shaughnessy, J.  
 St. Mary's Conv., Bruff, Co. Limerick  
 Harper, M.E. f. Victoria Coll., Belfast  
 Isaac, E.B. St. Kilda's Coll. S., Bristol  
 Cowin, C.J. Douglas Hr. Grade S., I.M.  
 O'Connell, H.  
 St. Mary's Conv., Bruff, Co. Limerick  
 Turner, I.H. Beresford Lodge, Tulsa Hill  
 Davies, B.F.  
 The Vicarage S., Lavender Gardens, S.W.  
 Byatt, G.  
 Skimmers' Comp'y.'s S., Stamford Hill  
 Derrick, G.A.  
 Skimmers' Comp'y.'s S., Stamford Hill  
 Colebrooke, A.M. Rye Coll. S.  
 Dixon, W. Riversdale, Boston Spa  
 Nowell, B.M. d.  
 Vallfield Coll., W. Norwood  
 Abbott, V. f.  
 The Modern Coll., Stoke Bishop  
 Bennett, M.L.  
 Central Found. Girls' S., Spital Sq., E.  
 Taylor, D. The High S., Herne Bay  
 Ahern, E.M.U. Private tuition  
 Firth, W. Pupil-Teachers' Coll., Blackburn  
 Heenan, D.A. Private tuition  
 Lloyd, M.C. Plas Madoc, Ruabon  
 Tract, E.B. Trinity Coll., Tulsa Hill  
 Anderson, E.M. Elm H., Ealing  
 Flaunin, C.A. f.  
 Felix High S., Lavender Hill  
 Mills, M.K. Fartown Gram. S., Huddersfield  
 Turley, E.C. d.  
 Ashournham H., Southborough, Tun. Wells  
 Worthington, W.E. d.  
 Portland St. S., Leamington Spa  
 Holdon, I.M. Brook Hall S., Winslow  
 Hume, E.R. d.  
 Skimmers' Comp'y.'s S., Stamford Hill  
 Khorassandji, M. f.  
 English S., Pera, Constantinople  
 Hutt, L.G. Westbourne H., Chiswick  
 Courouvacy, B. f.d.  
 English S., Pera, Constantinople  
 Harrison, N.G. Private tuition  
 Mitchell, A. Ripley Comm. S., Woking  
 Byatt, J.  
 Skimmers' Comp'y.'s S., Stamford Hill  
 Atherton, M. Brookside S., Darlington  
 Lawrence, A.W. Llanreath, Boscombe  
 Lewis, C.J.  
 Central Found. Girls' S., Spital Sq., E.  
 Ablett, B. Private tuition  
 Charles, N.H. Rilston, Oswestry  
 Klaje, A.L.  
 Skimmers' Comp'y.'s S., Stamford Hill  
 Tabors, J.E. Private tuition  
 Hewitt, F.  
 Wordsworth Coll., Shirland Rd., W.  
 Peto, M.S. d. Up. St. Leonards Ladies' Coll.  
 Liberty, I.H. s.  
 Skimmers' Comp'y.'s S., Stamford Hill  
 Moll, W.A. Marylebone Central Girls' S.  
 Peacock, F.T. Private tuition  
 Dennis, E.  
 Skimmers' Comp'y.'s S., Stamford Hill  
 Hanson, E.C. Private tuition  
 Hebditch, L.K. Durham H., Crouch Hill, N.  
 Walsby, E.K.  
 Skimmers' Comp'y.'s S., Stamford Hill  
 Green, M.E. Mayfield, Broxbourne  
 Houston, C.E.M. f.  
 Gordonville Ladies' S., Coleraine  
 Sauvain, R.J.  
 High S., South Shore, Blackpool  
 Grieve, M.E.  
 Skimmers' Comp'y.'s S., Stamford Hill  
 Wilkinson, E.C.A.  
 Durham H., Crouch Hill, N.  
 Brennan, E.  
 Pupil-Teachers' Coll., Blackburn  
 Cowgill, H.  
 Pupil-Teachers' Coll., Blackburn  
 Dickinson, G.  
 Pupil-Teachers' Coll., Blackburn  
 Jones, A. Gram. S., Pencader  
 Holtby, E.G. Kensington H., York  
 Mueller, M.M. Beresford Lodge, Tulsa Hill  
 Tee, A.G. d. Private tuition  
 Wiggins, I.M. School of Science, Plymouth  
 Clare, F.A. Private tuition  
 Idle, E.M. Westbourne House, Chiswick  
 Wolston, K.G. West H., Forest Hill  
 Vanston, E.M. Abercorn Coll., Dublin  
 Haunant, E.  
 Thorntonville, Thornton Heath  
 Reynolds, J.M.  
 Pupil-Teachers' Coll., Blackburn

Elliott, I. Victoria Coll., Belfast  
 Turner, E.E. St. Winifred's, Southampton  
 Reddy, M.B. Conv. S., Banagher  
 Stanfield, M. Ripley Comm. S., Woking  
 Williams, M.K.  
 St. Cuthbert's Coll., Forest Hill  
 Bell, M. f.  
 Conv. of Assumption, Richmond, Yorks  
 Conway, B.  
 St. Mary's Conv., Bruff, Co. Limerick  
 Jefferys, W.B. Girls' Coll. S., Tetbury  
 Giblin, E.M. High S., Walton-on-Thames  
 Sayer, P.E. Durham H., Eastbourne  
 Mansfield, A.K. Harley H., Hereford  
 Wilson, M.G. Private tuition  
 Purcell, K.  
 St. Mary's Conv., Bruff, Co. Limerick  
 Risdon, D.C.  
 Belgrave H., Wandsworth Comm.  
 Waugh, M.  
 Conv. of Assumption, Richmond, Yorks  
 Crilly, A.M.  
 Pupil-Teachers' Coll., Blackburn  
 Livingston, M.E.  
 Cheetham Coll. S., Manchester  
 Macdonald, I.M. Victoria Coll., Belfast  
 Williams, E.W.  
 Wincham Hall Coll., Northwich  
 Townsend, A.  
 Pupil-Teachers' Coll., Blackburn  
 Jones, M.E. d.  
 Advanced Elem. S., Merthyr Tydfil  
 Dolan, A. d.  
 Pupil-Teachers' Coll., Blackburn  
 Tully, E. Conv. S., Banagher

**THIRD CLASS.**  
**Honours Division.**

Loseley, E.M. a. Market Bosworth Gram. S.  
 Heywood, D.M. s.h.o.f.  
 Chamberlain, D. s.g.g.a.d.f.  
 Belmont S., Southampton  
 Gilmore, J. a.o.f.  
 Brynderwyn S., Coleraine  
 Andrea, S. e.a.d.d.  
 St. Mary's Conv., Bruff, Co. Limerick  
 Asbury, E.M. s.e.a.d.  
 Skimmers' Comp'y.'s S., Stamford Hill  
 Garvey, J. e.h.g.a.d.  
 St. Mary's Conv., Bruff, Co. Limerick  
 Knight, R.C. e.a.f. Newcastle H., Lewes  
 van Leunep, L. e.e.f.  
 English S., Pera, Constantinople  
 Bamford, M.S. s.e.a. Victoria Coll., Belfast  
 Horrocks, D. g.f. Highfield Coll., Blackpool  
 Holman, B.A. h.a. Newcastle H., Lewes  
 Sharman, D.G. a.e.u.  
 Higher Grade S., Carlisle  
 Nichols, C. e. Harborne Ladies' Coll., B'ham  
 Schneider, M.A. g.d.  
 Skimmers' Comp'y.'s S., Stamford Hill  
 Tring, H.G. s.e.f.  
 The Vicarage S., Lavender Gardens, S.W.  
 Batters, M.A.M. d. Mayfield, Broxbourne  
 Bloomfield, N.C. s.h.g.f.  
 Woodside, Hastings  
 Williams, N.R. e.d.  
 Skimmers' Comp'y.'s S., Stamford Hill  
 Coote, E.H. d. Mayfield, Broxbourne  
 Haime, M. s.g.a.d. Regent St. S., Plymouth  
 Christides, F. e.u.  
 English S., Pera, Constantinople  
 Hill, M. g.d. Hatfield Coll. S.  
 Morton, D. e.  
 English S., Pera, Constantinople  
 Sharp, N. Higher Grade S., Carlisle  
 Foster, L.E. s.g.a. Regent St. S., Plymouth  
 Green, W. e.g. d. Hatfield Coll. S.  
 Aldred, V.I.J. e.a.d.  
 The Southend S., Winchester  
 Belsham, W.  
 Sussex H., Willesden Lane, N.W.  
 O'Shaughnessy, E. e.g.  
 St. Mary's Conv., Bruff, Co. Limerick  
 Tucker, M.  
 English S., Pera, Constantinople  
 Brown, D.H. s.e. Denmark Coll., Wimbledon  
 Gates, S.B. s.f.  
 The Vicarage S., Lavender Gardens, S.W.  
 Pinchin, E. d. Grosvenor Coll., Bath  
 Richardson, B. a.d.  
 22 Whitehall Parade, Up. Holloway  
 Walton, F.E. g.f. Woodside, Hastings  
 Brooks, K.C. e.u.  
 Skimmers' Comp'y.'s S., Stamford Hill  
 Smith, L.M. s. High S., Walton-on-Thames  
 Beswick, E. nu. Kilnar Coll., Liskeard  
 Debierre, M.M. f.  
 Convent S., The Avenue, Southampton  
 Herbert, K. s.e.a. The Coll., Goudhurst  
 Jarrett, A. Rye Coll. S.  
 Lupton, C.M. g.d.  
 Skimmer's Comp'y.'s S., Stamford Hill  
 Mally, F. g.  
 English S., Pera, Constantinople  
 Morling, E.B. g. Rye Coll. S.  
 Sanderson, G. a. The Coll., Penmaenmawr  
 Hurst, D.C. s.g.g.a.  
 Bevois Town Girls' S., Southampton

Marshall, B.M. a.  
 People's Coll., Nottingham  
 Pujol, V. ef. St. Joseph's Conv., Erith  
 Young, R. a. d. Brynderwyn S., Coleraine  
 Cross, E.M. e. Ashland Coll., Oswestry  
 Simons, G. h.g. Hatfield Coll. S.  
 Taylor, L. The High S., Herne Bay  
 Brockman, F. s.o. Regent St. S., Plymouth  
 Garrett, G. s.  
 London Coll., Holloway Rd., N.  
 Sanderson, M.A. s.  
 People's Coll., Nottingham  
 Watts, E.A. s.e.  
 Wellington Coll., Tottenham  
 White, E.M. a.  
 Temple Square S., Aylesbury  
 Wilson, M.F. e.  
 Breakspear Coll., Brockley  
 Cheesewright, G.E. s. Woodside, Hastings  
 Garrett, H. s.  
 London Coll., Holloway Rd., N.  
 Golland, S.L. e.u.  
 Skimmers' Comp'y.'s S., Stamford Hill  
 North, E.S., ef. Holmwood H., Hampstead  
 Pappi, M. d.  
 English S., Pera, Constantinople  
 Parker, M.J. a. Higher Grade S., Carlisle  
 Smith, E.F. s.e.g. The Coll., Goudhurst  
 Wainwright, J. a. d. High S., Pontefract  
 Edmunds, B. ef. 70 Dyke Road, Brighton  
 Goodall, V.M. s.e.  
 Skimmers' Comp'y.'s S., Stamford Hill  
 Jones, M.G. e. Ludlow Comm. S.  
 Short, D.E. s.e.g. The Coll., Goudhurst  
 West, O.M. Beechfield S., Wilmslow

**THIRD CLASS.**  
**Pass Division.**

Baynes, E. s.  
 Wincham Hall Coll., Northwich  
 Wothers, L. f. nu. Brynderwyn S., Coleraine  
 Bennett, F.A. d.  
 Skimmers' Comp'y.'s S., Stamford Hill  
 Burgoine, N.  
 Harborne Ladies' Coll., B'ham  
 Reeve, K.L. s.  
 Rye Coll. S.  
 Smallwood, E.  
 Skimmers' Comp'y.'s S., Stamford Hill  
 Farogher, F.E. Douglas Hr. Grade S., I.M.  
 Good, I.M.C. d.  
 Durham H., Crouch Hill, N.  
 Scott, A. d. nu.  
 31 Briggstock Rd., Thornton Heath  
 Hulks, N. Hatfield Coll. S.  
 Mangham, R.M. Woodland H., Thirsk  
 Penny, K. d. The Coll., Goudhurst  
 Wicheil, G. A. Grosvenor Coll., Bath  
 Wallis, M. d.  
 Skimmers' Comp'y.'s S., Stamford Hill  
 Beckhuson, M. d. Private tuition  
 Priestley, D. Linwood S., Altrincham  
 Allen, J.A. f. Victoria Coll., Belfast  
 Jeffreys, K.M. The College, Goudhurst  
 Brooks, C.M. Harborne Ladies' Coll., B'ham  
 Leader, F. f. Lansdown Ladies' Coll., Bath  
 Saunders, H.H. d. Aseham H., Clifton  
 Wilson, M.M. d.  
 Central Found. S., Spital Square, E.  
 Schroder, E. ge.  
 Collegiate High S., W. Didsbury  
 Stansfield, E. d. Riversdale, Boston Spa  
 Horsfield, H. f.  
 Broomfield High S., M'chester  
 Kohler, G.M.  
 Convent S., The Avenue, Southampton  
 Williams, E.R.  
 Skimmers' Comp'y.'s S., Stamford Hill  
 Madden, L.E.  
 Wincham Hall Coll., Northwich  
 Tapping, E. Marylebone Central Girls' S.  
 Bennett, N.B.  
 The Vicarage S., Lavender Gardens, S.W.  
 Palmer, L.E. Private tuition  
 Thomas, M.M.  
 Mountside High S., Hastings  
 Hunt, O.V. d. Mayfield, Broxbourne  
 James, O.M. Huntingdon H., Ely  
 Richards, M.C.  
 Central Found. S., Spital Square, E.  
 Beale, E. Plas Madoc, Ruabon  
 Ream, A.R. High S., Pontefract  
 Adams, F.E.  
 Central Found. S., Spital Square, E.  
 Grob, B.C. f.  
 Hazeldene S., Barnt Green, B'ham  
 Hughes, A.  
 Gordonville Ladies' S., Coleraine  
 Armstrong, M. ch.  
 Douglas Hr. Grade S., I.M.  
 Hardy, A. Eldon Coll., Thornton Heath  
 Blanshard, K.M.  
 Up. St. Leonards Ladies' Coll.  
 Tunstall, M.  
 Wincham Hall Coll., Northwich  
 Boote, N. Marylebone Central Girls' S.  
 Brimmell, M.E. St. Cloud, Southsea  
 Lucas, G. Manor H., Havant  
 Fieldsend-Redman, M.J.  
 Norfolk Coll., Southsea  
 Jackson, E. Douglas Hr. Grade S., I.M.  
 Espercy, E.E.M. Lynton H., Portsmouth

**GIRLS, 3RD CLASS, PASS—Continued.**  
 \*Gorkiewicz, L. English S., Pera, Constantinople  
 \*Banks, W.K. d. Central Found. S., Spital Square, E.  
 Clark, L.M. Belgrave H., Wandsworth Comm.  
 \*George, J.F.B. Private tuition  
 \*Goodman, E. Glebe Place S., Clissold Pk., N.  
 \*Noll, F. Girls' Coll. S., Ormeau Rd., Belfast  
 \*Peck, M.G. Huntingdon H., Ely  
 \*Barr, G. d. Skimmers' Compy.'s S., Stamford Hill  
 \*Barry, E. St. Mary's Conv., Bruff, Co. Limerick  
 \*Boutar, H. G. Private tuition  
 \*Tucker, G.G. d. High S., Pontefract  
 \*Beke, E.B. 28 Headland Park, Plymouth  
 \*West, C.V. d. Up. St. Leonards Ladies' Coll.  
 \*Boon, M.A. d. High S., Walton-on-Thames  
 \*Johnson, F.E.A. Lansdown Ladies' Coll., Bath  
 \*Malvan, K.E.C. Convent S., Elen Grove, Holloway  
 \*Carpenter, D.L.L. St. Cloud, Southsea  
 \*MacSwiney, M.C. The Conv., Highgate Rd., N.W.  
 \*Rowan, I. J. Conv. of Assumption, Richmond, Yorks.  
 \*Bazant, I.M. Anglo-French Coll., Bristol  
 \*Bottrill, F. People's Coll., Nottingham  
 \*Broome, M.L. s. Church Home S., Dublin  
 \*Clery, H. e. Clarendon Coll., Tufnell Pk., N.  
 \*Phillips, F.E. Alresford, Chislehurst  
 \*Hobson, M.L. e. Harborne Ladies' Coll., Bham  
 \*Reeves, C. d. 70 Dyke Road, Brighton  
 \*Shreeve, O.E. Huntingdon H., Ely  
 \*Stewart, H.H. Gordonville Ladies' S., Coleraine  
 \*Thomas, E. s.e.d. Hendon College, N.W.  
 \*Dockett, L. e.a. Girls' Gram. S., Settle  
 \*Healy, D.K. Brookhall S., Winslow  
 \*Iman, C.M. Univ. S., Rochester  
 \*Kent, A.M. e. Private tuition  
 \*Langley, C.M. s. Wordsworth Rd. Board S., N.  
 \*Naylor, A. d. Lynton H., Portsmouth  
 \*Snidle, L.M. a.d. Skimmers' Compy.'s S., Stamford Hill  
 \*Somers, E.F. Clifton Lodge, Burnt Ash Hill, S.E.  
 \*Stubbs, L.A. Godwin Ladies' Coll., Margate  
 \*Ash, A. J. The Modern Coll., Stoke Bishop  
 \*Dible, I. Woolston Ladies' Coll., Southampton  
 \*Horse, G.M. St. Kilda's Coll., Bristol  
 \*Snclair, M. Denmark Coll., Wimbledon  
 \*Stacey, B.E.S. Central Found S., Spital Square, E.  
 \*Taylor, E.M. The Rectory, Failssworth  
 \*Young, A. d. Private tuition  
 \*Ashworth, A. e. Wincham Hall Coll., Northwich  
 \*Axtens, G.W. d. Trinity Coll., Tulsa Hill  
 \*Berry, C.O. s.e. Granville Coll., Midhurst  
 \*Binks, H. d. Riversdale, Boston Spa  
 \*Bradford, C.W. Skimmers' Compy.'s S., Stamford Hill  
 \*Curtis, J. The Vicarage S., Lavender Gardens, S.W.  
 \*Evans, K. Senghenydd Home S., Caerphilly  
 \*Fitzsimmons, G.F. Inter S., Knock, Belfast  
 \*Gibson, A.E. s. Riversdale, Boston Spa  
 \*Hancock, D.L. e. Skimmers' Compy.'s S., Stamford Hill  
 \*Hand, N. s. Woolston Ladies' Coll., Southampton  
 \*Macgregor, D. Queen's Park Coll., Harrow Rd., W.  
 \*McNeill, J. F. Victoria Coll., Belfast  
 \*Smyth, I. e.a. Higher Grade S., Carlisle  
 \*Tipton, G. F. a. Skimmers' Compy.'s S., Stamford Hill  
 \*Webb, H.M. The College, Goudhurst  
 \*Allen, W.M. a. Skimmers' Compy.'s S., Stamford Hill  
 \*Baker, G.B. g. The College, Goudhurst  
 \*Bone, I. The High S., Herne Bay  
 \*Campbell, G.H. Victoria College, Belfast  
 \*Howard, B. Sussex H., Willesden Lane, N.W.  
 \*Hulke, O. Abercorn College, Dublin  
 \*Richardson, A. h. 22 Whitehall Parade, Up. Holloway  
 \*Rigg, R. Higher Grade S., Carlisle  
 \*Schwartz, G. g.e.d. The Conv., Highgate Rd., N.W.  
 \*Shilling, M.E. Oakley High S., Southsea  
 \*Wilson, M. e.a.f. Conv. of Assumption, Richmond, Yorks  
 \*Cooke, L. a. Higher Grade S., Carlisle  
 \*Farris, D. Clarence Coll., Brighton  
 \*Hextal, F.M. a. People's Coll., Nottingham  
 \*O'Gorman, M. g. St. Mary's Conv., Bruff, Co. Limerick

\*Pocock, M.A. g. Hughenden, Bexhill-on-Sea  
 \*Shipp, B.M. Glenfern H., Burnham, Som.  
 \*Vokes, L.M. s.a. St. John's Coll., Brixton  
 \*Bauer, F.M. Bourne H., Eastbourne  
 \*Dennis, G.O. The College, Goudhurst  
 \*Elias, E.G. s.g. Holmwood S., Sidcup  
 \*Forrester, A. e. The College, Goudhurst  
 \*Hayworth, F.H. Skimmers' Compy.'s S., Stamford Hill  
 \*Hill, F. a. Skimmers' Compy.'s S., Stamford Hill  
 \*Protheroe, E.L. Thorntonville, Thornton Heath  
 \*Ridgway, L.F. d. Skimmers' Compy.'s S., Stamford Hill  
 \*Stevens, C.M. People's Coll., Nottingham  
 \*Bourri, S.A.H. f. Private tuition  
 \*Buckland, E.M. 5 Clapton Square, N.E.  
 \*Copley, B.L. People's Coll., Nottingham  
 \*Hastings, E. a. Holly Bank S., Chesham Hill, M'chester.  
 \*Hodgkinson, F. a. Stretton H., Fleetwood  
 \*Manwaring, R.V. St. Martin's S., Margate  
 \*Matthew, K.M. North Park Coll., Croydon  
 \*Newmark, M. g. Skimmers' Compy.'s S., Stamford Hill  
 \*Payze, M.A. a. St. Martin's S., Margate  
 \*Preston, M. K. Ladies' Coll. S., Balmoral, Belfast  
 \*Williams, M.L. Spring Grove S., Old Sodbury  
 \*Wooster, H.M. a. Grosvenor Coll., Bath  
 \*Alcock, K. Skimmers' Compy.'s S., Stamford Hill  
 \*Blunsum, D.G. s. Oxford H., Leytonstone  
 \*Denny, D. Denmark Coll., Wimbledon  
 \*Emery, E.M. Glebe Place S., Clissold Pk., N.  
 \*Grainger, D.D. Private tuition  
 \*Lunn, M. The Southend S., Winchester  
 \*Price, A.L. Advanced Elem. S., Merthyr Tydfil  
 \*Talbot, G.E. a.d. Bp. Fox's High S., Taunton  
 \*Walker, H.H. Burnham H., E. Bridgford  
 \*Ward, M.H. a.a. Temple Sq. S., Aylesbury  
 \*Weale, M. English S., Pera, Constantinople  
 \*Carroll, K.M. Church Home S., Dublin  
 \*Corrigan, M. Pupil-Teachers' Coll., Blackburn  
 \*Jackson, E.G. e. Clifton H., Aintree, L'pool  
 \*Jones, G.M. Mountside High S., Hastings  
 \*Kaufman, G. Skimmers' Compy.'s S., Stamford Hill  
 \*Larkin, C.L. g. The Coll., Goudhurst  
 \*Maxwell, N.M. Private tuition  
 \*Richardson, K.J. Oxford H., Gungersbury  
 \*Ross-Johnson, N. f. Rilston, Oswestry  
 \*Watts, W.M. Skimmers' Compy.'s S., Stamford Hill  
 \*Weston, C. Ashburnham H., Southborough, Tun. Wells  
 \*Wigston, M. a. Higher Grade S., Carlisle  
 \*Addington, L.M. d. Trinity Coll., Tulsa Hill  
 \*Brooks, M.E. Prestwich High S.  
 \*Bull, B.J. Rilston, Oswestry  
 \*Cox, R.H. f. Riversdale, Boston Spa  
 \*Donaldson, G.M. Skimmers' Compy.'s S., Stamford Hill  
 \*Frazer, D.M. a. Skimmers' Compy.'s S., Stamford Hill  
 \*Froude, D.L. e. St. Kilda's Coll., Bristol  
 \*Gilby, A. Stamford Hill & Clapton High S.  
 \*Gulliver, E.G. s. Wordsworth Rd. Board S., N.  
 \*Hogg, J.S. Durham H., Crouch Hill, N.  
 \*Jenkins, M. Central Found S., Spital Square, E.  
 \*LeJastrzebska, N. f. South Croydon Coll.  
 \*Macfarlane, P. St. John's Coll., Brixton  
 \*Matheson, C.M. e. Kilmar Coll., Liskard  
 \*Peters, I.E.C. Ashburnham H., Southborough, Tun. Wells  
 \*Peto, F.M. e. Up. St. Leonards Ladies' Coll.  
 \*Phillips, E.A. Ashburnham H., Southborough, Tun. Wells  
 \*Rogers, M. St. Mary's Conv., Bruff, Co. Limerick  
 \*Walker, D.W. Higher Grade S., Carlisle  
 \*Wilson, J. Pupil-Teachers' Coll., Blackburn  
 \*Delves, A.M. Girls' Gram. S., Settle  
 \*Dunstan, K. 12 Glenton Rd., Lec. S.E.  
 \*Gower, D.M. Blackwood Lodge, Tonbridge  
 \*James, E. e. Riversdale, Boston Spa  
 \*Maudling, H.A. Oakley High S., Southsea  
 \*O'Donnell, A. St. Mary's Conv., Bruff, Co. Limerick  
 \*Ongley, F.V. High S., Clark's Coll., Brixton Hill  
 \*Ovenstone, L. Froebel H., Worthing  
 \*Pottie, K.M. Forest Gate High S. & Comm. Coll.  
 \*Reader, E.V. e. Heathleigh, Horsmonden  
 \*Roberts, D. e. Ashland Coll., Oswestry  
 \*Salmon, A. Pupil-Teachers' Coll., Blackburn  
 \*Smythe, J. The College, Goudhurst  
 \*Somers, D.M. Clifton Lodge, Burnt Ash Hill, S.E.

Tchaon, L. f. Scotch S., Hasskeim, Constantinople  
 Tuck, M.E. a. Mausfield H., Clifton Gardens, W.  
 Webb, F.L. Skimmers' Compy.'s S., Stamford Hill  
 Wensley, M.E.A.L. Eastrop H., Chichester  
 Clarke, E.L. The Laurels, Herne Bay  
 \*Davies, R.A. Advanced Elem. S., Merthyr Tydfil  
 Harcourt, F.M. f. Ravenscourt H., Ravenscourt Pk., W.  
 Hartigan, P. St. Mary's Conv., Bruff, Co. Limerick  
 Murnane, M. St. Mary's Conv., Bruff, Co. Limerick  
 \*Parkinson, H.M. Girls' Coll., Manchester Rd., Southport  
 Pinto, I.S. s. Private tuition  
 Powell, E. Heathleigh, Horsmonden  
 Ryde, J. Godwin Ladies' Coll., Margate  
 Toofell, F. People's Coll., Nottingham  
 Ware, C.G. Holmwood S., Sidcup  
 Wilson, G. F. Breakspear Coll., Brockley  
 Cooke, A. Up. St. Leonards Ladies' Coll.  
 Cooper, A.M. Iona High S., Iford  
 Delay, L. Church Home S., Dublin  
 Fitz-Gibbon, G. The Conv., Highgate Rd., N.W.  
 Garlick, L. Queen's Park Coll., Harrow Rd., W.  
 Gozian, A. g.f. Private tuition  
 \*Humby, A. Skimmers' Compy.'s S., Stamford Hill  
 Irwin, B. St. Mary's Conv., Bruff, Co. Limerick  
 Jackson, E.A. a. High Pavement S., Nottingham  
 Jackson, E.E. High Pavement S., Nottingham  
 Kilmner, W.M. Bp. Fox's High S., Taunton  
 Lister, M. Riversdale, Boston Spa  
 Lawton, D.W. a. Skimmers' Compy.'s S., Stamford Hill  
 Mather, A. Riversdale, Boston Spa  
 May, N. a. Ripley Comm. S., Woking  
 Mumford, E.M. G. engall, Romford  
 Thomas, A.C. Ludlow Comm. S.  
 \*Tommy, M.C. Conv. S., Banagher  
 \*Tucker, H.G. Durham H., Crouch Hill, N.  
 Whitehouse, K. D. 40 Haughton Rd., Handsworth  
 Archer, H. g. Saleen H., Sunderland  
 Godwin, J. Queen's Coll., Twickenham  
 Gilbert, G.L. Granville Coll., W. Croydon  
 Grange, G. Higher Grade S., Carlisle  
 Holmes, M.B. Broadgate, Fulwood, Preston  
 Langdon, K.L. s.f. Barnstaple Ladies' S.  
 Miles, W. 99 Cromwell Rd., Bristol  
 Oldridge, M. Beecheroff Coll., Richmond Hill  
 Parker, I. St. Mary's Conv., Bruff, Co. Limerick  
 Pettit, L.E. Rhianna Coll., Hunstanton  
 Plunkett, E. The Conv., Highgate Rd., N.W.  
 Plunkett, I. People's Coll., Nottingham  
 Richards, E.G. Dunmore Girls' S., St. Leonards-on-Sea  
 Trench, L.A. a. The College, Goudhurst  
 Wastell, E.R. e.a. Skimmers' Compy.'s S., Stamford Hill  
 Wootton, E.M. a. The Laurels, Herne Bay  
 Adams, D. Wordsworth Rd. Board S., N.  
 Camp, M.A. The Bryant S., Wainfleet  
 Cotching, H.L. Private tuition  
 Evans, A.E. Woodland H., Thirsk  
 Fairley, M. Park H. Hale, Cheshire  
 \*Hayes, M. St. Mary's Conv., Bruff, Co. Limerick  
 Helby, E.F.M. The Coll., Pennaenawar  
 Kirby, H.M.H. Temple Sq. S., Aylesbury  
 Leathley, M. Wordsworth Rd. Board S., N.  
 LeBlanc, C. Chestnut Farm, St. Mary's, Jersey  
 MacDowall, G.M. Durham H., Crouch Hill, N.  
 Medhurst, E.M. s. The Vicarage S., Lavender Gardens, S.W.  
 Roberts, H.M. a. Advanced Elem. S., Merthyr Tydfil  
 Smith, E.G. d. Oxford H., Leytonstone  
 Smith, F.M. The Southend S., Winchester  
 Watson, C.L. Godwin Ladies' Coll., Margate  
 Anderson, S.A. e.a. Brookvale Coll., Belfast  
 Conlon, E.M. e. The College, Oswestry  
 Fenwick, R. a. Conv. S., Orsett Rd., Grays  
 Francis, P.M. Holmwood S., Sidcup  
 Hinton, F.D. Brook Hall S., Winslow  
 Isherwood, E. Fern Bank, Harpurhey, Manchester  
 Jeffrey, J. a. Higher Grade S., Carlisle  
 Mackintosh, A.M. e. The Coll., Goudhurst  
 Martin, H. Victoria Coll., Belfast  
 Preston, E.M. s. Wincham Hall Coll., Northwich  
 Robinson, E.M. People's Coll., Nottingham  
 Trott, M.K. Beechfield S., Wilmslow  
 Barley, A. f. Mowbray Place S., Thirsk  
 Brand, G. J. The Bonhams, St. Leonards-on-Sea  
 Brrr, E.M. h. The Vicarage S., Lavender Gardens, S.W.

\*Caporn, E.R. The College, Goudhurst  
 Carruthers, M. Higher Grade S., Carlisle  
 Chapman, A.M. North Park Coll., Croydon  
 Doughty, E.G. Girls' S., South Shore, Blackpool  
 \*Ellam, E. Collegiate High S., W. Dulbury  
 Glass, D. 70 Dyke Rd., Brighton  
 Lassau, E.A. Clarence Coll., Brighton  
 Le Boutillier, E.G. f. Chestnut Farm, St. Mary's, Jersey  
 Le Gresley, E. f. Chestnut Farm, St. Mary's, Jersey  
 Pugh, J. Advanced Elem. S., Merthyr Tydfil  
 Rodwell, E.M. Ashburnham H., Southborough, T. Wells  
 Sparrow, F. d. Regent St. S., Plymouth  
 Stewart, J. Higher Grade S., Carlisle  
 Tilley, K. f. Clarence Coll., Brighton  
 Walter, L. Froebel H., Worthing  
 Wilson, N. e. f. Conv. of Assumption, Richmond, Yorks  
 Appleton, B. People's Coll., Nottingham  
 Beucher, D.R. Brondesbury High S. for Girls  
 Bray, D.E. Kilmar Coll., Liskard  
 Compston, J. a. Higher Grade S., Carlisle  
 Dickson, S. MacG. Bp. Fox's High S., Taunton  
 Faireloth, E.M. Heathleigh, Horsmonden  
 Francis, M.A. People's Coll., Nottingham  
 Griffiths, S.J. Advanced Elem. S., Merthyr Tydfil  
 Hackman, M. g. Lynton H., Portsmouth  
 Hammond, M.O. Glengall, Romford  
 Harper, E.G. Claremont H., Catford  
 Manning, M.V. d. The Bank H., Ledbury  
 Roche, G.M.L. Church Home S., Dublin  
 Sewell, D.E. Glengall, Romford  
 Smith, D.Y. People's Coll., Nottingham  
 Standing, N. Girls' Coll., Manchester Rd., Southport  
 Truscott, M. County S., Tenby  
 \*Wall, E.R. High S. for Girls, Halesowen  
 Wattson, F.S. Skimmers' Compy.'s S., Stamford Hill  
 Bates, E.K. f. Torrhill Coll., Hastings  
 \*Boyd, L.F. Conv. S., The Avenue, Southampton  
 Colson, W.M. The Southend S., Southampton  
 Eadie, O. The Conv., Highgate Rd., N.W.  
 Evans, O.M. Snaefell, Upper Tooting  
 Frowne, E.R. Oxford H., Gungersbury  
 Harper, E.R. a. Temple Square S., Aylesbury  
 Jones, L.M. Hurst Leigh, Southampton  
 MacNae, H. Clarence Coll., Brighton  
 \*Nathan, M. McD. Verulam, Potters Bar  
 \*Potter, J. St. Mary's Conv., Bruff, Co. Limerick  
 Preston, E.F. People's Coll., Nottingham  
 Stewart, E. People's Coll., Nottingham  
 Arnold, E.P. Old Gram. S., Stoke Golding  
 Bawdon, B. 3 Kensington, Bath  
 Beales, R. Sussex H., Willesden Lane, N.W.  
 Chandler, C.I. e. Private tuition  
 Costello, W.G. St. James' Coll. S., Jersey  
 \*Foll, K.E. Bedford Coll., Clapham  
 Galloway, M.C. s. Granville Coll., Midhurst  
 Harris, L.A. e.g. Highwood H., Liskard  
 LaRoche, E.O. People's Coll., Nottingham  
 Lamb, K. High S., South Shore, Blackpool  
 MacHardy, H.S. High Pavement S., Nottingham  
 McConn, M.J. Church Home S., Dublin  
 Peacock, L. s. Wincham Hall Coll., Northwich  
 Protheroe, W.Y.L. Thorntonville, Thornton Heath  
 Simmins, J. St. Mary's Conv., Bruff, Co. Limerick  
 Sutton, G. e.a. St. Joseph's Coll., Erith  
 Wattam, E.M. s.e. Oxford H., Leytonstone  
 Walling, M. 70 Dyke Rd., Brighton  
 Wilson, G.M. Crescent Coll., York  
 Woolaway, E.M. Lapford Coll. S., N. Devon  
 \*Atkinson, M. Pupil-Teachers' Coll., Blackburn  
 Beard, R.M. Bedford Hill Coll., Balham  
 Bird, M. Grosvenor Coll., Bath  
 Brooker, D. 22 Whitehall Parade, Up. Holloway  
 Bryant, M. d. 3 Kensington, Bath  
 Clements, M.G. The College, Oswestry  
 Findlay, A.S. e. Holly Rd. S., Fairfield, L'pool  
 Huxtable, R. The High S., Herne Bay  
 Moore, G. Beecheroff Coll., Richmond Hill  
 Newman, E. a. Iona High S., Iford  
 Pinder, M. Ashmount S., Broomhill, Sheffield  
 Powell, M. Dartmouth H., Redland, Bristol  
 Spencer, M. Oxford H., Leytonstone  
 \*Van Hulst, G.L. Private tuition  
 Brew, N. Grosvenor Coll., Bath  
 Clear, R.G. Brook Hall S., Winslow  
 Coln, V. 70 Dyke Rd., Brighton  
 Fife, M. f. Barnstaple Ladies' S.  
 Fisher, E.M. d. Stratford Abbey Coll., Stroud  
 Hill, E.M. The Bank H., Ledbury

**GIRLS, 3RD CLASS, Pass—Continued.**  
 McCormick, K.O. *c.* Inter. S., Knock, Belfast  
 Mutton, M. *s.* Highwood H., Liskeard  
 Nicholls, M.T. Porthallow Board S., St. Keverne  
 \*O'Connor, B.M. Conv. S., Banagher  
 Ridout, G.E. *a.d.* Durham H., Crouch Hill, N.  
 Ryan, N. *d.* London Coll., Holloway Rd., N.  
 \*Walsh, N. St. Mary's Conv., Bruff, Co. Limerick  
 Williams, E. Breakpear Coll., Brockley  
 Cohn, L. 70 Dyke Rd., Brighton  
 Cunningham, J.K.M. Lynton H., Portsmouth  
 Davies, K.A. People's Coll., Nottingham  
 Duncan, E.M. Quainton, Hinde's Rd., Harrow  
 Farbrother, M. Carlton H., Redhill  
 Goodman, M.E. Ripley Comm. S., Woking  
 Jackson, L.A. Fern Bank, Harpurhey, Manchester  
 Laycock, N. *s.* Stratford Abbey Coll., Stroud  
 Notman, R. *e.* The Laurels, Herne Bay  
 Rice-Jones, M. *d.* Grosvenor Coll., Bath  
 Tollhurst, G. Brickwood Lodge, Tonbridge  
 Tow, M.B. Huntingdon H., Ely  
 Webb, O.M. People's Coll., Nottingham  
 Williams, L.A. Advanced Elem. S., Merthyr Tydfil  
 Bridger, M. Ripley Comm. S., Woking  
 Fairbrother, I. The College, Goudhurst  
 Fisher, N.A. St. Kilda's Coll., Bristol  
 Marks, N. Copthorne, The Drive, Hove  
 Moulton, M. *d.* Durham H., Crouch Hill, N.  
 Battle, B. Stratford Abbey Coll., Stroud  
 Chelwell, B. *s.* Kilmar Coll., Liskeard  
 \*Cook, E.K. Convent S., The Avenue, Southampton  
 Evans, S. Advanced Elem. S., Merthyr Tydfil  
 \*Johnstone, D. Collegiate High S., W. Didsbury  
 LeMare, M.S.B. Milton Lodge S., Fleetwood  
 Malone, C.S. Church Home S., Dublin  
 Sapey, C.E. The College, Goudhurst  
 Wadsworth, M. *ev.* Queen's Park Coll., Harrow Rd., W.  
 Wright, E. Higher Grade S., Carlisle  
 Wyatt, M. Houndiscombe High S., Plymouth  
 Bayliss, E.R. Clarendon Coll., Tufnell Pk., N.  
 Belinfante, L. *f.* Scotch S., Hasskein, Constantinople  
 Cooper, J. *e.* Conv. of Assumption, Richmond, Yorks.  
 Doddridge, E. Bank H., Crediton  
 Donaldson, A.L. St. Winifred's Southampton  
 Harvey, B. Linwood S., Altrincham  
 Kinsman, M. *s.* Stratford Abbey Coll., Stroud

Parker, F. Stamford Hill & Clapton High S.  
 Scorlo, E. English S., Pera, Constantinople  
 Veale, E. L. Bevois Town Girls' S., Southampton  
 Abdurahman, H. Private tuition  
 Bailey, D.G.M. *s.* Oxford H., Leytonstone  
 Bartle, E. L. *s.g.* Stratford Abbey Coll., Stroud  
 Boney, A.E. Hyde H., Tollington Pk., N.  
 Clarke, H.B. Salcombe H., Herne Hill  
 Hopkins, W. Girls' High S., Melksham  
 Hunter, E. *s.* Stratford Abbey Coll., Stroud  
 \*Lloyd, H.M. Rilston, Oswestry  
 Plimmer, L.C. Ashland Coll., Oswestry  
 Troughton, N. *e.* Conv. of Assumption, Richmond, Yorks.  
 \*Walker, D.J. Durham H., Crouch Hill, N.  
 Winbush, D.E. Brondesbury High S. for Girls  
 Armour, G. Ripley Comm. S., Woking  
 Craig, M. Brynderwyn S., Coleraine  
 \*Fairclough, E. Girls' Coll., Manchester Rd., Southport  
 Gregson, E.M. 50 Western Hill, Durham  
 Hunter, D.G. Durham H., Crouch Hill, N.  
 Lebon, W.G. Thorntonville, Thornton Heath  
 Morgan, L.M. *a.* Skinners' Compy.'s S., Stamford Hill  
 Scott, F.H. Fitzroy Coll. S., Fitzroy Sq., W.  
 Taylor, M.H. The Bank H., Ledbury  
 Wierck, B.A. *s.* Fitzroy Coll. S., Fitzroy Sq., W.  
 Brew, T. *e.* Grosvenor Coll., Bath  
 Bosworth, L.M. Dunmore Girls' S., St. Leonards-on-Sea  
 Brothers, M.L. Prestwich High S.  
 Dewhurst, M. High S., South Shore, Blackpool  
 Drake, D.M. Bow Modern S., E.  
 Halliwell, K. Prestwich High S.  
 Lyons, B.M. The College, Oswestry  
 Moody, A.M. People's Coll., Nottingham  
 Roper, E.G. Clevedon H., S. Croydon  
 Vines, E. People's Coll., Nottingham  
 Bailey, B. Blagdon, Eastbourne  
 Cardwell, E.M. Girls' S., South Shore, Blackpool  
 \*Cooper, D. The Rectory, Failsworth  
 Gillham, D.A. Portswood High S., Southampton  
 Gregg, G.M. St. John's Coll., Brixton  
 Holby, L.J.H. The Coll., Penmaenmawr  
 Hill, M. Sibson Rd. S., Sale  
 \*Holland, L.E. Denmark Coll., Wimbledon  
 Purtil, J. St. Mary's Conv., Bruff, Co. Limerick  
 Rankin, M.M. Milton Lodge S., Fleetwood  
 Riley, K. Temple Square S., Aylesbury  
 Rudolph, E.S. *a.* Moravian Ladies' S., Fairfield  
 Brooks, K. The Conv., Highgate Rd., N.W.  
 Fladgate, G. Eldon Coll., Thornton Heath  
 Hutchinson, D.G. Private tuition  
 Mitchell, H. *d.* Ripley Comm. S., Woking  
 Morse, D.L.F. Durham H., Crouch Hill, N.

Private tuition  
 Waddy, P. *e.* County S., Tenby  
 \*Williams, A. Quainton, Hinde's Rd., Harrow  
 Baldwin, C.A. Barnes, F.E. St. Winifred's, Southampton  
 Bazzari, G. Anglo-French Coll., Bristol  
 Burns, M. Higher Grade S., Carlisle  
 Curling, H. The Laurels, Herne Bay  
 d'Andria, M. *f.* Private tuition  
 Davy, D.I. Delgany S., Crown Hill, Devon  
 Dent, M.G. Brook Hall S., Winslow  
 Duffy, L. Bank H., Crediton  
 Field, F.L. Huntingdon H., Ely  
 Levi, E. Scotch S., Hasskein, Constantinople  
 Parsons, A. Bp. Fox's High S., Taunton  
 Priestly, L. Ebley H., East Putney  
 Smith, E. *a.* Girls' S., South Shore, Blackpool  
 Spencer, E.M. Glengall, Roundford  
 Webster, W.S. People's Coll., Nottingham  
 Germain, R.F. Deerhaddon Coll., Brixton Hill  
 Shrewsbury, C.H. Aston H., Hammersmith  
 Weaver, S.A. *e.* Oakwood H., Brighton  
 Weller, A. *f.* 6 Leicester Place, Leicester Sq., W.C.  
 Jones, M. Dartmouth H., Redland, Bristol  
 \*M'Govern, A. Pupil-Teachers' Coll., Blackburn  
 Mutton, D.H. *e.* Clarence Coll., Brighton  
 \*Shaw, F.R. Ladies' Coll. S., Balmoral, Belfast  
 Vallon, A. *f.* 6 Leicester Place, Leicester Sq., W.C.  
 Crossley, E.G. Fartown Gram. S., Huddersfield  
 Dawson, E. *g.a.* Private tuition  
 \*Dempsey, M. Conv. S., Banagher  
 Fitz-Henry, D.J. St. John's Coll., Brixton  
 Gray, J. L. Clifton Lodge, Burnt Ash Hill, S.E.  
 Haworth, O.M. 53 Church Street, Egremont  
 Jones, W.F. Iona High S., Ilford  
 Knight, E.A. Granville Coll., Midhurst  
 Marsh, E. Wincham Hall Coll., Northwich  
 Parker, A. St. Mary's Conv., Bruff, Co. Limerick  
 Quinton, L. B.G. Bevois Town Girls' S., Southampton  
 Singleton, M.F. *e.* The Laurels, Herne Bay  
 \*Wickham, E. Dartmouth H., Redland, Bristol  
 Bird, E. Advanced Elem. S., Merthyr Tydfil  
 Davy, E. St. Joseph's Conv., Erith  
 \*Gallant, E. Central Found. S., Spital Square, E.  
 Halstead, A. *g.* Brighton H., Oldham  
 Porter, M. Ladies' Coll. S., Balmoral, Belfast  
 Rapson, E.M. Highwood H., Liskeard  
 Smith, D. Stamford Hill and Clapton High S.  
 Adams, G.M. Eversfield, Acock's Green, B'ham  
 May, G. Stamford Hill & Clapton High S.

McDonald, A.C. Parkfield Ladies' Coll., High Barnet  
 Milne, M.L. Snaefell, Upper Tooting  
 Morris Jones, A. Churton Villa, Rhyl  
 Orrey, K.F.M. Highfield Coll., Blackpool  
 Wallbank, A. Girls' Gram. S., Settle  
 Burrows, C.E. Ashmount S., Broomhill, Sheffield  
 Bush, G. Carlton H., Redhill  
 Carter, F. Queen's Park Coll., Harrow Rd., W.  
 Cash, E.M. The College, Goudhurst  
 Craddock, V. Ripley Comm. S., Woking  
 d'Andria, G. Private tuition  
 Jones, E.M. Convent S., Orsett Rd., Gray's  
 Keene, I.P. Cranley H., Muswell Hill  
 Kempthorne, M. Private tuition  
 Beecheroff Coll., Richmond Hill  
 Taylor, B.C.M. Teddesley H., Walsall  
 \*Wilson, A.R. Victoria Coll., Belfast  
 Woolnough, D.K. Cranley H., Muswell Hill  
 Anderson, G. The Conv., Highgate Rd., N.W.  
 \*Cooper, V. The Rectory, Failsworth  
 Davies, G.E. Portswood High S., Southampton  
 Marsh, E.K. Salem H., Sunderland  
 McSherry, A. St. Joseph's Conv., Erith  
 Gilant, A. *f.* St. James's Coll. S., Jersey  
 More, A.N. Temple Square S., Aylesbury  
 Shanly, M. St. Joseph's Conv. S., Redhill  
 Smith, D. Collegiate High S., W. Didsbury  
 Tippetts, W.I. Woodford S., Southsea  
 Young, D. Private tuition  
 Digby, M.I. Aston H., Hammersmith  
 East, M.E. Burnham H., East Bridgford  
 Masterson, Z.M. Oakwood H., Brighton  
 Mitchell, M. Ripley Comm. S., Woking  
 Pickup, E. Talbot St. S., Southport  
 Potter, J. Brighton H., Oldham  
 Belinfante, E. Scotch S., Hasskein, Constantinople  
 Coleman, E.L. Girls' S., South Shore, Blackpool  
 Evans, A.V. Advanced Elem. S., Merthyr Tydfil  
 Morton, P.F. Duke Street S., Bath  
 Stredder, M.E.F. Leith H., Acton  
 Wilson, H. Frankfort H., Stanstead Rd., S.E.  
 Pettit, L.M. Huntingdon H., Ely  
 Turner, L.C. Elm View S., New Eltham  
 \*Williams, M. Clevedon H., S. Croydon  
 Cassidy, E. St. Mary's Conv., Bruff, Co. Limerick  
 Jowett, M.W. Girls' Coll. S., Morley  
 Smith, A. Oakwood H., Brighton  
 Woodward, D.M. Woodford S., Southsea  
 \*Walker, E.M.T. Clifton Coll., Matlock Bath  
 Miles, M. Ripley Comm. S., Woking  
 South, M. Ivy H., Hanwell

NAMES OF CANDIDATES IN THE ABOVE LISTS WHO HAVE PASSED THE ORAL EXAMINATIONS IN FRENCH AND GERMAN.

*f* = French. *g* = German.

BOYS.

Amorin, F. *f.* St. George's Coll., Weybridge  
 Barguno, J. *f.* St. Joseph's Coll., Denmark Hill  
 Bisiker, F. W. *g.* Tollington Schools, N.  
 Bisson, W. G. *f.* Oxenford H., Jersey  
 Borrow, E. J. *f.* Tollington Schools, N.  
 Brace, C. C. *c.* *f.* Private tuition  
 Chettle, G. H. *f.* Stationers' Compy.'s S., Hornsey  
 Clark, A. *f.* Snettisham School  
 Davies, H. *f.* Tollington Schools, N.  
 Dickinson, R. E. *f.* Grove H., Highgate  
 Fielden, F. H. *w.* *f.* Stationers' Compy.'s S., Hornsey  
 Gray, F. H. *f.* Market Bosworth Gram. S.  
 Hibbert, F. *f.* Gram. S., Eccles  
 Hinkel, L. E. *g.* Private tuition  
 Hodgson, E. W. *f.g.* Tollington Schools, N.  
 Hurst, H. T. *f.* Market Bosworth Gram. S.  
 Iredale, H. C. *f.* The College, Rock Ferry  
 Jones, H. S. *f.* Gram. S., Eccles  
 Jones, W. R. *f.* Gram. S., Eccles  
 Kendall, A. J. *f.* Hutton Gram. S.  
 Langford, R. J. *f.* Snettisham School  
 Le Sueur, W. G. *f.* Oxenford H., Jersey  
 Levy, I. *f.* Private tuition  
 Lodge, A. I. *f.* Lancaster Coll., W. Norwood  
 Marshall, C. E. *f.* Gram. S., Eccles  
 Marshall, J. A. *a.* Gram. S., Eccles  
 May, P. *f.g.* Tollington Schools, N.  
 Melikoff, G. A. *f.* German & French Coll., Wandsworth Comm.  
 Mercer, J. D. *f.* Gram. S., Eccles  
 Meredith, J. C. *f.* Snettisham School  
 Millan, L. *f.* St. Joseph's Coll., Denmark Hill  
 Millan, O. *f.* St. Joseph's Coll., Denmark Hill  
 Morris, A. E. *f.* Grove H., Highgate  
 Patterson, T. *f.* Hutton Gram. S.  
 Plumel, J. M. *f.* St. Aloysius Coll., N.  
 Ranson, J. C. *f.* German & French Coll., Wandsworth Comm.  
 Rawlinson, C. S. *f.* Market Bosworth Gram. S.  
 Renouf, P. H. *f.* Oxenford H., Jersey  
 Renshaw, R. W. N. *f.* Snettisham School  
 Sage, G. W. *f.* Grove H., Highgate  
 Sneed, E. *f.* Snettisham School  
 Storer, F. *f.* Market Bosworth Gram. S.  
 Stowe, A. J. *f.* Brixton Gram. S.  
 Turner, R. S. *f.* Hutton Gram. S.  
 Tutcheers, J. *f.g.* St. Joseph's Coll., Denmark Hill  
 Uttley, W. W. *f.* Hutton Gram. S.  
 Wright, J. *f.* Private tuition

GIRLS.

Boutard, H. *f.* Private tuition  
 Dalladay, L. A. *f.* Elson H., Leytonstone  
 Darch, W. *f.* Elson H., Leytonstone  
 Daye, R. V. G. *f.g.* Private tuition  
 Eaton, I. C. D. *f.* Private tuition  
 Hamilton, M. E. *f.* Elson H., Leytonstone  
 Lenz, J. T. E. *f.g.* Sherborne S. for Girls, Dorset  
 Loseby, D. *f.* Market Bosworth Gram. S.  
 Meiklehan, B. I. *f.g.* Private tuition  
 Miller, E. *f.g.* Collegiate High S., W. Didsbury  
 Person, Y. *f.* St. Joseph's Conv., Erith  
 Plumley, A. M. *f.* Elson H., Leytonstone  
 Sauvain, H. *f.* High S., South Shore, Blackpool  
 Schroeder, E. *g.* Collegiate High S., W. Didsbury  
 Tabor, J. E. *f.* Private tuition  
 Valpy, H. D. *f.* 4 Clarence Terrace, Jersey  
 Wickham, L. M. *f.* Elson H., Leytonstone

LOWER FORMS EXAMINATION.—PASS LIST, MIDSUMMER, 1902.

BOYS.

Adams, A.F.	Bethany H., Goudhurst	Byford, S.	Fulwood Gram. S., Preston	Eastham, W.	Hutton Gram. S.	Hoepstein, L.G.	Lancaster Coll., W. Norwood
Addie, J.P.	Osborne High S., W. Hartlepool	Byrne, C.W.	Oswestry School	Edwards, J.W.	Oswestry School	Hollisworth, C.T.	Stafford Coll., Forest Hill
Ablerson, T.G.	High S., Kirkby Stephen	Carpenter, H.M.	Wright's S., Faversham	Elriot, C.W.	St. John's Coll., Brixton	Holland, R.W.	Swanwick Coll., Hants
Alexander, A.H.P.	St. Philip's Gram. S., Edgbaston	Cawood, H.H.	Ashmunt S., Sheffield	Empson, L.W.	Monk Bridge S., York	Hollis, E.P.	Taplow Gram. S.
Allshorn, F.S.	Grove H., Highgate	Chandler, F.A.	Salway Coll., Leytonstone	Ensor, W.W.	Grove H., Highgate	Holman, O.M.	Tavistock Gram. S.
Anderson, J.H.P.	Oswestry School	Charlesworth, H.B.	Monk Bridge S., York	Estevez, L.	St. Aloysius Coll., N.	Holtz, P.	Townley Castle S., Ramsgate
Anderson, S.	Bethany H., Goudhurst	Chattell, F.H.	St. Aloysius Coll., N.	Estevez, M.	St. Aloysius Coll., N.	Hopwell, A.H.	Leigh Hall Coll., Leigh, Essex
Andrew, R.T.	Bible Christian Coll., Shebbear			Evans, E.R.	Taunton Trade S., Southampton	Horn, E.C.	Margate College
Andrews, C.J.	Taunton H., Brighton			Falconer, R.J.	Taunton Trade S., Southampton	Horne, A.S.	Taunton Trade S., Southampton
Andrews, W.J.	Tavistock Gram. S.	Chivers, W.J.G.	Culham Coll. Practising S.	Farey, C.B.	St. Philip's Gram. S., Edgbaston	Horne, S.H.	Queen's Walk Inter. S., Nottingham
Apps, A.E.P.	Thanet Coll., Margate	Clapp, J.W.F.	Mount Radford S., Exeter	Fennelly, R.	St. Aloysius Coll., N.	Hossbach, F.F.	Wright's S., Faversham
Arckell, A.P.	Margate College	Clark, B.S.	Bethany H., Goudhurst	Ferris, J.	Gram. S., Forest Gate	House, E.H.L.	Taunton Trade School, Southampton
Arthur, R.	Oxenford H., Jersey	Clark, C.G.	Bethany H., Goudhurst	French, Mullen, D.	Conv. S., Pulteney Rd., Bath	Howarth, A.	Hutton Gram. S.
Ashcroft, H.	Hutton Gram. S.	Clark, S.G.	Bethany H., Goudhurst	Finan, J.P.	St. Philip's Gram. S., Edgbaston	Hudson, C.	St. Aloysius Coll., N.
Ashford, D.E.	Ripley Comm. S., Woking	Clayton, J.	St. Catharine's S., Broxbourne	Fisher, W.M.	Weston S., Bath	Hudson, M.	St. Aloysius Coll., N.
Atkins, W.E.	Grove H., Highgate	Clibbery, T.W.	St. Philip's Gram. S., Edgbaston	Flatt, E.W.	Eastward Ho! Coll., Felixstowe	Hughes, R.	Tavistock Gram. S.
Atwood, A.L.	Mount View S., Streatham	Clinch, J.G.	Wright's S., Faversham	Ford, W.E.	St. Philip's Gram. S., Edgbaston	Hughes, R.S.	Gram. & Coll. S., Carnarvon
Aymard, M.F.	Oxford H., Brighton	Cloves, A.F.	Taplow Gram. S.	Fox, R.	Wirksworth Gram. S.	Humphreys, E.	St. John's Coll., Grimsburgh
Ayres, H.E.	Thanet Coll., Margate	Collard, C.O.	County S., Tenby	French, S.J.	Taunton Trade S., Southampton	Hunkin, H.B.	Bible Christian Coll., Shebbear
Baker, H.	The Coll., Goudhurst	Colley, A.	Gram. S., Forest Gate	Friend, A.W.	Taunton Trade S., Southampton	Hunt, C.A.	Bentham Gram. S.
Baldwin, W.E.	Birkdale Gram. S.	Colman, B.	St. Philip's Gram. S., Edgbaston	Fuller, V.	Bethany H., Goudhurst	Hunter, H.	Osborne High S., W. Hartlepool
Balfour, J.	Conv. S., Pulteney Rd., Bath	Colson, H.W.	Taunton Trade S., Southampton	Funnel, E.J.	Uckfield Gram. S.	Hutton, J.M.	Taunton Trade S., Southampton
Ballard, F.	Margate College	Cook, W.H.	Taunton Trade S., Southampton	Gambell, H.C.	Seaford College	Hyne, D.F.	Oxenford H., Jersey
Bamlet, F.R.C.	Margate College	Cooke, E.D.	Rye Gram. S.	Garnett, J.E.	Culham Coll. Practising S.	Incardfield, E.	Margate College
Barclay, E.L.	Salway Coll., Leytonstone	Cooke, W.T.	Rye Gram. S.	Garon, P.G.	St. John's Coll., Southend	Ives, V.	Weston S., Bath
Barnes, C.W.B.	Margate College	Cooper, H.H.	Margate College	Garrett, D.R.	Private tuition	Jacobson, W.G.	Elm Bank S., Nottingham
Barnes, H.S.	Barbourne Coll., Worcester	Corke, R.	Taunton Trade S., Southampton	Goddes, D.R.	Aberdeen H., Ramsgate	James, F.C.	Old Gram. S., Alvechurch
Barratt, A.R.	Beech H., Heaton Chapel	Cornford, H.	Wright's S., Faversham	Gibbon, H.	Lancaster Coll., W. Norwood	Jarrett, H.W.	St. John's Coll., Brixton
Barrett, R.W.	Taplow Gram. S.	Corston, A.E.	Tudor Hall, Hawkhurst	Gibbons, F.L.	Northgate S., Ipswich	Jealous, G.W.	Grove H., Highgate
Bartlett, E.C.T.	Taunton Trade S., Southampton	Cosham, A.	Uckfield Gram. S.	Gibbs, W.K.	Barbourne Coll., Worcester	Jean, F.G.	Oxenford H., Jersey
Bastler, C.	Margate College	Couch, J.T.	Bible Christian Coll., Shebbear	Gilbert, E.W.	St. Kilda's Coll., Waterlooville	Jenner, C.G.	Private tuition
Baylor, A.K.	St. John's Coll., Southend	Cousins, J.H.	Eye Gram. S.	Gill, N.	Wadhams S., Liskeard	Jennings, L.	Newlands S., Hoyleake
Bean, A.L.	Beaconsfield H., Dover	Cox, R.H.	Penwerris Gram. S., Falmouth	Gillbanks, C.C.P.	Lancaster Coll., W. Norwood	Jewell, A.D.	Taplow Gram. S.
Beeroff, A.J.	Margate College	Craltree, J.P.	309 Park Rd., Oldham	Gilligan, H.L.	St. John's Coll., Brixton	Johns, C.H.	Tavistock Gram. S.
Bell, T.H.	Lancaster Coll., W. Norwood	Crockart, J.L.	Taunton Trade S., Southampton	Girling, L.J.	Eastward Ho! Coll., Felixstowe	Johnson, A.C.	Salway Coll., Leytonstone
Beningfield, J.P.	St. Catharine's S., Broxbourne	Cropley, A.N.D.	Ripley Comm. S., Woking	Glass, A.W.	Bible Christian Coll., Shebbear	Johnson, E.E.	Salway Coll., Leytonstone
Bennett, R.	Brent Hill S., Hanwell	Cross, P.A.	Taunton Trade S., Southampton	Goodenough, H.	Culham Coll. Practising S.	Johnson, J.H.	Private tuition
Bensted, R.J.	Wright's S., Faversham	Cruse, J.	Bible Christian Coll., Shebbear	Goodley, A.E.	Culham Coll. Practising S.	Jones, C.B.	St. John's Coll., Southend
Bergholz, D.	Boys' High S., Wareham	Cuff, C.D.	Salway Coll., Leytonstone	Goody, G.A.	St. John's Coll., Southend	Jones, C.H.	Salway Coll., Leytonstone
Bethell, A.	Taplow Gram. S.	Cully, A.C.	Taplow Gram. S.	Goss, F.	Conv. of Mercy, Boston Spa	Jones, J.	Gram. & Coll. S., Carnarvon
Betson, J.	St. Aloysius Coll., N.	Culverwell, B.W.	Taunton Trade S., Southampton	Goult, E.M.	Conv. of Mercy, Boston Spa	Jones, R.W.T.	Lynn Gram. S.
Bickle, L.	Tavistock Gram. S.	Cumberland, R.M.	Bentham Gram. S.	Gowland, F.	Monk Bridge S., York	Jones, W.T.	Gram. & Coll. S., Carnarvon
Bilborough, J.B.	Taplow Gram. S.	Cunning, J.E.	Thanet Coll., Margate	Graham, A.O.	Private tuition	Joseland, F.	Barbourne Coll., Worcester
Bird, L.W.	Brooklyn High S., Leytonstone	Cunningham, L.	Hutton Gram. S.	Graves, T.F.	Barbourne Coll., Worcester	Joseph, M.	Mazenod Coll., Kilburn
Bishop, C.H.	Brent Hill S., Hanwell	Dalton, F.	Thanet Coll., Margate	Graves, W.R.	Bethany H., Goudhurst	Joy, J.	Bethany H., Goudhurst
Bisset-Smith, R.	Private tuition	Damen, O.G.	Taunton Trade S., Southampton	Green, R.	Barbourne Coll., Worcester	Kelsall, J.	Lynn Gram. S.
Black, S.	Osborne High S., W. Hartlepool	Damerel, H.	North Devon S., Barnstaple	Greenstreet, E.C.	St. Catharine's S., Broxbourne	Kendall, L.W.	High S., Camborne
Blackaby, R.H.	University S., Rochester	Dann, E.J.	Wirksworth Gram. S.	Grice, J.D.	17 Grange Rd., Ealing	Kerney, E.C.	Gram. S., Forest Gate
Blackhurst, A.O.	Fulwood Gram. S., Preston	Dann, W.L.	Wirksworth Gram. S.	Griffiths, A.H.	Margate College	Kersley, C.	Barbourne Coll., Worcester
Blackmore, P.J.	Bible Christian Coll., Shebbear	Davies, A.R.	St. Catharine's S., Broxbourne	Griffiths, G.M.	Margate College	King, J.A.	Barbourne Coll., Worcester
Blake, R.H.	Margate College	Davies, T.E.	Margate College	Gubbins, E.H.	Wright's S., Faversham	King, L.G.	Queen's Walk Inter. S., Nottingham
Blanco, A.R.	St. John's Coll., Southend	Davies, T.F.	Gram. S., Forest Gate	Gwynne, H.	Barbourne Coll., Worcester	Kinnell, J.L.	Seaford College
Blane, E.R.	Hutton Gram. S.	Davis, E.	58 Leyland Rd., Lee, S.E.	Haddow, A.W.	Paddington High S. for Boys	Kirby, J.T.H.	Hythe School
Boby, A.M.	Eastward Ho! Coll., Felixstowe	Dawe, R.	Tavistock Gram. S.	Haines, H.W.	Taunton Trade S., Southampton	Kneve, E.S.	Eye Gram. S.
Boyle, E.J.	Tudor Hall, Hawkhurst	Day, J.	Conv. S., Pulteney Rd., Bath	Hairsine, G.W.	Margate College	Knights, E.	Margate College
Boize, M.L.	St. John's Coll., Brixton	Day, W.G.H.	Culham Coll. Practising S.	Hairsine, P.H.	Margate College	Knights, J.	Tavistock Gram. S.
Bond, H.M.	High S., Camborne	de Gruchy, O.W.	Oxenford H., Jersey	Hale, M.R.H.	Margate College	Knights, R.L.	Taunton H., Brighton
Bone, F.G.	Taunton Trade S., Southampton	de Torres, P.A.R.	Margate College	Hall, E.W.G.	Culham Coll. Practising S.	Laing, A.L.	Ripley Comm. S., Woking
Boshell, S.J.	Gram. S., Forest Gate	Dexter, R.F.	Holm Vale S., Nottingham	Hall, G.S.	Wirksworth Gram. S.	Lamacraft, W.	Ripley Comm. S., Woking
Bourne, H.W.	Hatfield Coll. S.	Diaper, G.U.	Taunton Trade S., Southampton	Hamer, O.L.	Oswestry School	Lambert, A.S.	Grove H., Highgate
Bourne, S.G.	Margate Coll.	Dibble, H.R.	Ripley Comm. S., Woking	Hanley, R.T.	High S., Kirkby Stephen	Langley, B.	St. Aloysius Coll., N.
Bowen, C.F.	St. John's Coll., Southend	Diekenon, A.J.S.	High S., Kirkby Stephen	Handley, R.T.	High S., Kirkby Stephen	Langston, A.	Brent Hill S., Hanwell
Bowmer, W.H.	Wirksworth Gram. S.	Dilleilh, L.G.	Hoe Gram. S., Plymouth	Hannan, L.	Conv. S., Pulteney Rd., Bath	Larkworthy, F.A.	Bible Christian Coll., Shebbear
Bradley, A.R.	Culham Coll. Practising S.	Dingley, W.L.	Richmond H., Handsworth	Hardy, F.	Brent Hill S., Hanwell	Latimer, C.B.	Elm Park S., Shotley Bridge
Brady, L.I.	St. Philip's Gram. S., Edgbaston	Donaghy, J.E.	Ulster Provincial S., Lisburn	Hargreaves, T.	Salway Coll., Leytonstone	Lea, F.J.	Market Bosworth Gram. S.
Breen, J.	Gram. S., Forest Gate	Donkin, C.	St. Aloysius Coll., N.	Harris, W.H.	Eye Gram. S.	Lee, G.R.	Ripley Comm. S., Woking
Brewis, E.L.T.	Oxford H., Leytonstone	Donkin, W.	Old Elvet S., Durham	Harrison, B.G.	Market Bosworth Gram. S.	Lee, J.H.	Birkdale Gram. S.
Brewitt, A.C.	St. Catharine's S., Broxbourne	Dorey, M.	Oxenford H., Jersey	Harrison, S.C.	St. John's Coll., Southend	Le Masurier, P.	High S. for Boys, Jersey
Bright, A.	Queen's Park Coll., W.	Dorrell, M.C.	Stafford Coll., Forest Hill	Hart, A.	Stafford Coll., Forest Hill	Leonard, C.	Taplow Gram. S.
Brindle, A.H.	St. John's Coll., Brixton	Doswell, G.A.	Forest Gate High S. & Comm. Coll.	Hartung, F.	St. Aloysius Coll., N.	Lewington, A.G.	Taunton Trade S., Southampton
Broad, E.W.	Langford H., Brighton	Dotto, J.	Line Wall Coll., Gibraltar	Harvey, A.J.	Queen's Walk Inter. S., Nottingham	Lewis, A.S.	Barbourne Coll., Worcester
Broadly, L.	Osborne High S., W. Hartlepool	Douglass, N.	Elm Park S., Shotley Bridge	Harvey, F.J.S.	Bethany H., Goudhurst	Lingard, S.W.	Barbourne Coll., Worcester
Brown, Jack	Hutton Gram. S.	Dowling, R.V.	Ulster Provincial S., Lisburn	Harvey, W.H.S.	Leigh Hall Coll., Leigh, Essex	Lloyd, G.L.	County S., Tenby
Brown, John	Hutton Gram. S.	Driver, J.W.	Eye Gram. S.	Hatton, N.	Barbourne Coll., Worcester	Lloyd, J.H.	Oswestry School
Browning, C.	Hoe Gram. S., Plymouth	Dunbar, J.H.	Oswestry School	Hawkins, C.S.L.	High S., Erdington, B'ham	Loatelli, R.	St. Aloysius Coll., N.
Brah, J.B.	St. John's Coll., Southend	Duncumb, E.E.	Forest Gate High S. & Comm. Coll.	Hayes, A.P.	Taunton Trade S., Southampton	Loakey, J.O.	Elm Park S., Shotley Bridge
Bullock, G.T.F.	Taunton Trade S., Southampton	Dunn, H.O.	Taplow Gram. S.	Haynes, F.S.	Salway Coll., Leytonstone	Long, B.	Richmond Hill S., S.W.
Burden, A.H.	Culham Coll. Practising S.	Dunster, A.F.	Rye Gram. S.	Hedgecock, A.T.	Wright's S., Faversham	Losenogger, J.	St. Aloysius Coll., N.
Burgess, B.J.	The College, Goudhurst	Durell, H.L.	Forest Gate High S. & Comm. Coll.	Higgins, C.T.	St. John's Coll., Brixton	Low, F.H.	Gram. S., Forest Gate
Burlace, L.B.	Willesden Prep. S.	Dury, A.H.	Queen's Walk Inter. S., Nottingham	Higgins, H.S.	St. John's Coll., Brixton	Lundie, A.C.	Tavistock Gram. S.
Burns, A.	Brent Hill S., Hanwell	Eades, P.J.	Salway Coll., Leytonstone	Higman, T.H.	Tavistock Gram. S.	Lyons, L.	St. Aloysius Coll., N.
Burridge, S.W.	Margate College			Hill, C.	Gram. S., Camelford	Macarthy, G.T.	Univ. S., Rochester
Butcher, O.E.	Northgate S., Ipswich			Hill, J.R.	Hillmartin Coll., Camden Rd., N.W.	Macaulay, R.J.	Hillmartin Coll., Camden Rd., N.W.
Butler, P.	St. Aloysius Coll., N.			Hillmartin Coll., Camden Rd., N.W.	Hillmartin Coll., Camden Rd., N.W.	Macluskey, W.	St. Aloysius Coll., N.
Butteriss, J.	Queen's Walk Inter. S., Nottingham						

BOYS, LOWER FORMS—Continued.

Madge, G. E. Bible Christian Coll., Shebbear
Malone, E. Conv. S., Pulteney Rd., Bath
Malpas, D. D. Wicksworth Gram. S.

Peachey, S. Kent House Coll., Anerley
Peak, C. C. Hutton Gram. S.
Peak, C. W. Ripley Comm. S., Woking

Seed, T. J. W. Bentham Gram. S.
Serre, C. M. Salway Coll., Leytonstone
Shadrake, W. J. Forest Gate High S. & Comm. Coll.

Travena, W. N. Penwerris Gram. S., Falmouth
Tritton, G. W. Wreight's S., Faversham
Trotman, O. L. Taunton Trade S., Southampton

Truscott, G. H. C. Margate College
Tucker, C. L. Weston S., Bath
Turner, F. H. C. Stafford Coll., Forest Hill

GIRLS.

Adams, H. K. Glengall, Romford
Allen, C. L. Bevois Town Girls' S., Southampton
Allen, D. A. Westbourne H., Chiswick

Bolton, D. Conv. of the Ladies of Mary, Croydon
Bolus, E. M. Ebley H., East Putney
Borg, G. Ursuline Conv., Crooms Hill, S. E.

Carter, M. Blagdon, Eastbourne
Casling, N. E. L. Berkeley S., Bishopston, Bristol
Chalk, G. Conv. of the Ladies of Mary, Croydon

Couper, C. B. S. South Croydon College
Couper, D. Bevois Town Girls' S., Southampton
Crabtree, E. C. W. High S., South Shore, Blackpool

GIRLS, LOWER FORMS— <i>Continued.</i>			
Elerton, D.T.	Private tuition	Humphreys, I.	Conv. of the Ladies of Mary, Croydon
Elliott, E.J.	Private tuition	Humphreys, E.J.	Fairholme Coll., Streatham Comm.
Elliott, G.E.	Ainsdale Coll., Southampton	Huntley, W.F.	Bevois Town Girls' S., Southampton
Elliott, M.A.	Newnham Coll. S., Bournemouth	Hyman, E.G.	The Laurels High S., Brondesbury Rd., N.W.
Ellis, E.	Holm Vale S., Nottingham	Hyslop, J.M.	Harley H., Hereford
Elston, W.	Bank H., Crediton	Inman, E.M.	Univ. S., Rochester
Evans, J.A.	Bow Modern S., E.	Irwin, L.	St. Mary's Conv., Bruff, Co. Limerick
Fairweather, N.	Crescent Coll., York	Jacob, D.	Dartmouth H., Redland, Bristol
Farnworth, V.	North Park Coll., Croydon	James, E.	St. Martin's, Margate
Fellows, R.	High S. for Girls, Halesowen	Johnson, H.	St. Winifred's, Southampton
Fisher, E.	Beecheroff Coll., Richmond Hill	Johnson, L.M.	Mountside High S., Hastings
FitzHenry, J.E.	Church Home S., Dublin	Jones, A.M.	Lynton H., Portsmouth
Fogarty, A.	St. Mary's Conv., Bruff, Co. Limerick	Jones, J.M.	Mountside High S., Hastings
Fooks, E.M.	Ravenscourt H., Ravenscourt Pk., W.	Kasan, L.	The Laurels High S., Brondesbury Rd., N.W.
Foot, E.K.	St. Winifred's, Southampton	Kelly, M.B.	Ladies' S., Newtownards, Co. Down
Forl, M.	Conv. of the Ladies of Mary, Croydon	Kendon, E.W.	The College, Goudhurst
Forlyce, M.	St. Winifred's, Southampton	Killick, M.E.	Swanwick Coll., Hants
Forster, M.U.	Private tuition	Kinane, M.	St. Mary's Conv., Bruff, Co. Limerick
Fowler, G.N.	Clarendon Coll., L'pool	Kinane, S.	St. Mary's Conv., Bruff, Co. Limerick
Frank, K.	Riversdale, Boston Spa	Kirton, J.	Stratford Abbey Coll., Stroud
Froggatt, G.M.	Girton, London Rd., Croydon	Lamb, C.W.	Ulster Provincial S., Lisburn
Fry, E.	Stratford Abbey Coll., Stroud	Lambeth, G.L.	Oxford H., Leytonstone
Fursdon, E.	Brent Hill S., Hanwell	Lansdell, P.E.	High S., Dukinfield
Gale, A.R.G.	Duke Street S., Bath	Large, G.A.	Elmley H., East Putney
Galvin, H.	St. Mary's Conv., Bruff, Co. Limerick	Lavender, K.M.	Teddesley H., Wallsall
Gascoine, M.E.	Newnham Coll. S., Bournemouth	Laws, I.	Conv. of the Ladies of Mary, Croydon
Gass, E.G.	The Bonhams, St. Leonards-on-Sea	Leaker, I.	Beecheroff Coll., Richmond Hill
Gaulter, H.	Highfield Coll., Blackpool	Lean, E.	Aston H., Hammersmith
Gay, G.F.G.	Oxford H., Leytonstone	Leamouth, J.	Moravian Ladies' S., Fairfield
Gay, L.M.	Oxford H., Leytonstone	Lees, A.	Springfield, Stockport
Gentle, C.	Stretton H., Fleetwood	Leslie, J.	Whoo! H., Forbury, L'pool
Gibbons, V.G.	Oxford H., Leytonstone	Leslie, J.D.	Whoo! H., Forbury, L'pool
Gibbs, B.	Gavine H., Portsmouth	Lindley, C.G.	The College, Penmaenmawr
Gibbs, D.	Gavine H., Portsmouth	Loekyer, R.M.	Ripley Comm. S., Woking
Gibbett, M.	Bp. Fox's High S. for Girls, Taunton	Logsdail, D.E.	Elm View St., New Eltham
Gibson, D.	Girton, London Rd., Croydon	Lunt, D.F.	Plas Madoc, Ruabon
Gilson, L.	Royal Deaf S., Manchester	Lunt, H.	Plas Madoc, Ruabon
Goss, E.M.	Conv. of Mercy, Boston Spa	Macbeth, E.H.	Ladies' S., Newtownards, Co. Down
Gow, J.L.	Private tuition	Maddox, E.	Wincham Hall Coll., Northwich
Graham, M.	County S., Tenby	Maddox, F.	Wincham Hall Coll., Northwich
Graham, K.E.	Private tuition	Mann, M.	Queen's Park Coll., Harrow Rd., W.
Green, E.W.	10 St. Paul's Square, Preston	Margeson, E.	Fairfield Head H., Chesterfield
Gregory, M.L.	St. Helen's S., Streatham Comm.	Martin, M.A.	Woodside, Hastings
Greville, E.	Conv. of the Ladies of Mary, Croydon	Mathews, K.E.	Grosvenor S., Exeter
Gubbins, M.T.	St. Mary's Conv., Bruff, Co. Limerick	Manger, A.E.	Herupe, St. John's, Jersey
Guest, M.	Heathleigh, Horsmonden	Manger, F.C.	Herupe, St. John's, Jersey
Gunnis, A.E.	Redby Girls' S., Monkwearmouth	Mavor, M.E.	Newton H., Tumb. Wells
Halstead, N.	Highfield Coll., Blackpool	McAfee, N.	Private tuition
Hampson, M.H.	Comm. Coll., Southport	McCutcheon, A.	Ladies' S., Newtownards, Co. Down
Harding, M.G.	Up St. Leonards Ladies' Coll.	McDonnell, K.	St. Mary's Conv., Bruff, Co. Limerick
Hare, A.E.	North Kensington Coll. S., W.	McDonough, J.	St. Mary's Conv., Bruff, Co. Limerick
Harrington, M.A.	The Conv., Highgate Rd., N.W.	McManus, G.	St. Vincent's S., Dundalk, Louth
Harrison, M.E.	Clydesdale S., Stockport	McMorris, I.A.	Ladies' High S., Lurgan
Hawker, C.F.E.	Mountside High S., Hastings	Meany, H.	St. Mary's Conv., Bruff, Co. Limerick
Hepworth, M.	Fairfield Head H., Chesterfield	Meldrum, A.	Redby Girls' S., Monkwearmouth
Hewlett, D.A.	St. Winifred's, Southampton	Mercer, V.	Warwick H., Poulton-le-Fylde
Hill, G.	Conv. of Assumption, Richmond, Yorks	Metcalfe, A.	Carlton H., Redhill
Hill, R.R.	Woodside, Hastings	Middleton, M.	Highfield Coll., Blackpool
Hitchman, M.K.	Eastfield S., Walthamstow	Mitler, D.	Elm View St., New Eltham
Holland, E.M.G.	Moravian Ladies' S., Fairfield	Miskin, H.	St. Martin's, Margate
Holland, M.E.	Denmark Coll., Wimbledon	Mitchell, D.	Conv. S., Eden Grove, Holloway
Holmes, M.A.G.	Newnham Coll. S., Bournemouth	Mitchell, R.	Conv. S., Eden Grove, Holloway
Holmes, N.M.	Holm Vale S., Nottingham	Morgan, M.G.	Gelliwastad S., Pontypridd
Holt, H.	Granville H., Southampton	Morris, N.K.	Ripley Comm. S., Woking
Holthausen, D.	Brent Hill S., Hanwell	Morrow, M.E.	Ladies' S., Newtownards, Co. Down
Horler, T.L.	Ridgmont, Knowle, Bristol	Moxon, G.	Moravian Ladies' S., Fairfield
Horley, D.	St. Joseph's Conv., Erith	Mudge, M.L.	Gavine H., Portsmouth
Horsfall, D.	Springfield, Stockport	Munford, R.A.	Haslemere S., Clapham Park
Hoskins, M.S.	Bank H., Crediton	Murphy, M.G.	39 Cranbrook Terrace, Belfast
Howard, M.	St. Mary's Conv., Bruff, Co. Limerick	Nash-Brown, I.	St. Winifred's, Southampton
Howson, E.A.	North Kensington Coll. S., W.	Neighbour, H.E.	Harley H., Hereford
Hubbard, M.H.	The College, Goudhurst	Niblock, M.	Ladies' S., Newtownards, Co. Down
Hudson, E.G.	Ashburnham H., Southborough, Tun. Wells	Noek, L.V.	Bp. Fox's High S. for Girls, Taunton
Humphrey, A.M.	Granville Coll., Midhurst	O'Byrne, M.	Conv. of the Ladies of Mary, Croydon
		O'Dea, A.	St. Mary's Conv., Bruff, Co. Limerick
		O'Keefe, J.	St. Mary's Conv., Bruff, Co. Limerick
		Oldham, E.	Moravian Ladies' S., Fairfield
		Oliver, D.L.	Bourne H., Eastbourne
		O'Neill, E.	St. Mary's Conv., Bruff, Co. Limerick
		O'Neill, I.G.	Church Home S., Dublin
		Orrett, S.	3 Kensington, Bath
		Osman, D.A.	Oxford H., Leytonstone
		Page, M.	Aston H., Hammersmith
		Painter, I.E.F.M.	Westbourne S., Westbourne Pk., W.
		Palmer, C.	County S., Tenby
		Parker, D.M.	Spring Grove S., Old Sodbury
		Parker, Mabel A.	2 Magdalen Terrace, St. Leonards-on-Sea
		Parker, Mildred A.	2 Magdalen Terrace, St. Leonards-on-Sea
		Parker, M.G.	Elgin Coll., Powis Square, W.
		Pattison, M.	Conv. of Assumption, Richmond, Yorks
		Paxton, N.	Conv. of the Ladies of Mary, Croydon
		Pears, V.S.	Woodside, Hastings
		Pearson, F.	Ulster Provincial S., Lisburn
		Penn, P.L.	Evelyn H., Up. Holloway
		Peper, E.	6 Leicester Place, Leicester Square, W.C.
		Pettitt, H.C.	Woodside, Hastings
		Phillips, G.	The Newlands, Bootle
		Pickles, W.M.	10 St. Paul's Square, Preston
		Platt, E.M.	Oxford H., Leytonstone
		Powden, J.C.	Private tuition
		Powher, E.A.	Gelliwastad S., Pontypridd
		Potter, A.A.	Fairfield Head H., Chesterfield
		Powicke, A.C.	Egerton Place S., Marple, Stockport
		Prismall, L.E.	The Conv., Highgate Rd., N.W.
		Radley, L.A.	Grosvenor S., Exeter
		Rainey, M.P.	Forest Gate High S., and Comm. Coll.
		Rattenbury, D.	Prestwich High S.
		Rawsthorpe, L.B.	Harley H., Hereford
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Particulars of the Courses of Scholarships, of the Matriculation Examination, and of the Fees, may be obtained from the Secretary.

Fee for the full three-year Diploma Course, including the Course for graduation (B.Sc.) in the Faculty of Engineering, 115 guineas (£10. 10s. entrance fee, and £36. 15s. per annum).

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Municipal Engineering Osbert CHADWICK, M.I.C.E., C.M.G.

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The Principal and Deans will attend on September 30th and October 1st, from 10 a.m. to 1 p.m. for the admission of Students. The Department of Fine Art (Slade School) will open on Monday, October 6th.

The courses in the Department of Laws will begin on Monday, October 20th.

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The ANNUAL DINNER of the past and present Students and their friends will take place the same evening at the Trocadero, at 7 o'clock, Dr. W. CAYLEY, in the Chair.

HOSPITAL STAFF AND LECTURERS.

- Consulting Physicians—Dr. Cayley, Dr. S. Coupland, Sir R. Douglas Powell, Bart., M.D. Physicians—Dr. J. K. Fowler, Dr. W. Pasteur, Dr. W. E. Wynter. Assistant Physicians—Dr. A. F. Voelcker, Dr. F. J. Wethered, Dr. H. C. Thomson, Dr. R. A. Young. Obstetric Physician—Dr. W. Duncan. Assistant Obstetric Physician—Dr. H. Boxall. Consulting Physician to the Skin Department—Dr. Robert Livens.

The Hospital contains 340 beds. There are Special Departments for Cancer, Syphilis, Diseases of Women and Children, Diseases of the Eye, Skin, Throat, and Ear, and for cases requiring Electrical treatment.

There are eighteen Resident Clinical Appointments open to Students of the Hospital annually.

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Composition Fee 135 guineas, or by three yearly instalments of 60 guineas, 50 guineas, and 35 guineas.

Special terms are made in favour of University and other Students who have already commenced their medical studies, and of University of London Students who have passed the Preliminary Scientific Examination.

The Hospital and Medical School are fully equipped for the theoretical and practical teaching of all the subjects included in the Examinations in Medicine and Surgery in the United Kingdom, and for the Diplomas in Public Health; and ample laboratory and class-room accommodation is provided for the teaching of the various subjects of the Curriculum, and for original research in Medicine, Pathology, or Bacteriology.

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ST. THOMAS'S HOSPITAL MEDICAL SCHOOL.

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The WINTER SESSION of 1902-1903 will OPEN on Wednesday, October 1st.

St. Thomas's Hospital being one of the Medical Schools of the University of London, provision is made for the courses of study prescribed for the Preliminary Scientific, Intermediate, and Final Examinations in Medicine.

Three Entrance Scholarships will be offered for competition in September, viz., one of 150 guineas and one of £60 in Chemistry and Physics, with either Physiology, Botany, or Zoology, for First Year's Students; one of £50 in Anatomy, Physiology, Chemistry (any two), for Third Year's Students from the Universities.

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The School Buildings and the Hospital can be seen on application to the Medical Secretary.

The fees may be paid in one sum or by instalments. Entries may be made separately to Lectures or to Hospital Practice, and special arrangements are made for Students entering from the Universities and for Qualified Practitioners.

A Register of approved lodgings is kept by the Medical Secretary, who also has a list of local Medical Practitioners, Clergymen, and others who receive students into their houses.

For Prospectus and all particulars apply to Mr. G. RENDLE, the Medical Secretary.

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WINTER SESSION, 1902-1903.

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The Degrees in Medicine granted by the University are—Bachelor of Medicine (M.B.), Bachelor of Surgery (Ch.B.), Doctor of Medicine (M.D.), Master of Surgery (Ch.M.). They are conferred only after Examination, and only on Students of the University. A Diploma in Public Health is conferred, after Examination, on Graduates in Medicine of any University in the United Kingdom.

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CONTENTS.

	Page		Page
The Country and the Bill .....	373	Current Events .....	383
Notes .....	374	Fixtures; Endowments; Honours; Scholarships; Vacancies and Appointments; Literary Items; General.	
Official Changes at the Board of Education—The University Ex- tension Summer Meeting at Cambridge—The British Academy for the promotion of Historical, Philosophical, and Philological Studies —Doubtful Estimates of Professional Activity—Nature Study in Victoria (Australia)—Mr. Seddon as representing New Zealand Educational Ideas—Lord Acton's Library—The Universities and Military Education—German Educational Magazines and English Education—British Colleges in Paris.		Modern Languages in the Army: a Contrast. By a War Cor- respondent (Mr. Angus Hamilton) .....	386
Summary of the Month .....	376	Reviews .....	387
The Register of Teachers: Modification of Regulations .....	379	An English Aristophanes—The Fourth of the New Volumes of the "Encyclopædia Britannica"—An American Compendium of Geo- graphy—Experimental Psychology ("Studies in Auditory and Visual Space Perception," and "Analytical Psychology")—A Home Gallery of National Pictures.	
The British Academy .....	379	General Notices .....	389
Correspondence .....	379	First Glances .....	390
The Half-Yearly Meeting—The Teachers' Registration Council: the Registrar's Tenure—"Slipshod English."		Mathematics .....	393

The Educational Times.

*The Country and the Bill.*

THE House of Commons has gone on holiday, but the members have taken their lessons with them. The Education Bill breaks in upon their rest. Last month we pointed to the significance of the election in North Leeds, which was fought in the main upon the Bill. Mr. Balfour, however, persisted in forcing through Committee the amended management provisions of the 7th Clause, refusing any compromise. Now comes the Sevenoaks election, also fought in the main upon the Bill, and upon these very provisions of the Bill, and ending far more disastrously to the Government than even North Leeds. When all just allowances are made for other causes, the educational cause still stands out prominent. Moreover, while Leeds is a great industrial centre, Sevenoaks is a rural constituency, and that too in the midst of strong Conservative influences. We refrain from drawing a sweeping inference, but this much at least is plain enough: that the management clause is sufficiently unpopular, if not to imperil the passing of the Bill, yet to render the smooth working of the Act a somewhat improbable contingency.

If some of the Liberal canvassers asserted at Sevenoaks that the Bill would hand over the education of the country to "the clerical party," that would, of course, as Mr. Balfour has pointed out, be "a perversion of the facts." It would still be a less "crude misrepresentation" than Mr. Chamberlain's ignoble "Little Englander" argument, to say nothing of certain of the methods of electioneering that turned the General Election. But it would be far too wide: it would be wholly wrong in so far as concerns the schools now under the School Board system, and it would require not a little qualification in reference to the voluntary schools. But Mr. Balfour does not meet the real point. He says that "the whole secular education will for the first time pass under the complete control of a popularly elected body, in which 'one-man management' will disappear, and the laity will constitute an immense majority of the local managers." We will not inquire too closely whether "one-man management" will disappear in fact, as it will in form; but we must point out that the "popularly elected body" will not, so far as yet appears, exercise "complete control." If it will,

what is all the worry about? The local committees of management will have the right, for example, to appoint the teachers—a very important exception to the "complete control" of the Local Education Authority. Mr. Balfour seems to be about as inaccurate as the opposition canvassers, and the misfortune is that he fails to meet the essential point of objection.

The difficulty is stated quite clearly and fairly by a Unionist journal in the following terms:—

The objection of the Nonconformists to the Churchman—be he clergyman or layman—as school manager derives its validity from the fact that he is not to be "popularly elected," but nominated by the clerical party, and that he and his brethren are always to be in a majority. Were the elections to be really popular and the managers to be chosen by the free votes of the local electors, and were the Nonconformists to have the right to elect a majority of their own complexion if able to command a sufficiency of votes, all ground of complaint would disappear. The sting of the whole grievance lies in the fact of the "clerical party" being put by the Education Bill into a position of privilege. It is to have the right to appoint a majority of the school managers, while the cost of maintaining the schools is thrown upon the taxes and the local rates.

That is the argument to be faced, and Mr. Balfour does not face it. Whatever one's private leanings may be, there is the open public argument, and it is quite clear that the country is in no mood to be put off with an evasion, however honest; and it ought not to be so put off. The Bill, if it is to go through, ought to rest on a sound and stable basis; if it has "a taint fatal to its efficiency, and to its permanence" (to use Sir H. Campbell-Bannerman's expression), that "taint" had better be recognized at once. It is quite true, and it has been too little recognized, that the voluntary schools will bring a considerable contribution in the shape of buildings and the maintenance of buildings; but, after all, the basis of this serious constitutional objection remains unaffected. There is no possible answer to Mr. Asquith's statement: "to place funds derived from public contributions under the practically uncontrolled management of non-representative and irresponsible bodies is an offence against the fundamental conditions both of educational efficiency and of democratic government"; or to Mr. Bryce's way of putting the point: "it is a measure which violates the first principles of British constitutional Government by throwing the charge for elementary schools upon the rates and giving the ratepayers no effective control." If Mr. Asquith and Mr. Bryce be mistaken in their reading of the Bill, it will be easy for Mr. Balfour to provide language that will place

"the complete control" of the Education Authorities beyond all possible dispute. If they are not mistaken, then Mr. Balfour is mistaken, and a distinct inroad of a very formidable character is made upon a fundamental principle of the Constitution. In any case, it is unwise not to recognize the facts of the situation.

Even if we put aside the threats of influential Nonconformists to refuse payment of rates—threats that are no doubt perfectly honest and grounded on principle—it is no light matter to look forward to the operation of the Act in the midst of bitter discontent and active hostility. We hear a great deal about the pressure of foreign competition, and Mr. Asquith is not alone in declaring that "national education is the greatest and most urgent of our national needs." Is it not possible, then, to unite all parties in this fundamental national cause, without prejudice to the interests of religion? Surely an opportune lesson may be learnt from Canada, Australia, India, Scotland—not to go outside the limits of the Empire. The difficulty, we must say, is largely augmented by the amazing lack of positive suggestion from the front benches of the Opposition. Now, if ever, is a time when party contention might be patriotically subordinated to the larger interest of finding a common basis whereon to establish a solid and enduring structure of national education—solid and enduring because conformable to the thought and feeling of the mass of the people.

### NOTES.

THE Ministerial re-arrangements have touched the Department of Education somewhat surprisingly. The Duke of Devonshire lays down the Presidency of the Committee of Council, much to his own comfort, one would imagine. The deposition of Sir John Gorst from the pilotage of the Education Bill, though explicable on grounds of high policy, is now seen to have foreshadowed his disappearance together with the Vice-Presidency of the Council; and, unfortunately, for all Sir John's early promise and for all his good work, one cannot say that the event has excited any wide or deep regret. Lord Londonderry, the new President of the Board of Education, has had a couple of years' experience of the Chairmanship of the London School Board; and he brings a fair mind and considerable industry to his work, though he has not always been fortunate as an administrator. Sir William Anson, the new Parliamentary Secretary to the Board of Education, is moderate, judicious, and practical; and both his administration of an Oxford college and the qualities of his writings on important special subjects of the higher education give substantial grounds of promise for his official future.

THE University Extension Summer Meeting at Cambridge, ambitious as was its programme, has scored a success proportioned to its ambition. The range of the lectures and demonstrations we have indicated elsewhere, and the quality was generally of the first order. In the History department, indeed, it is necessary to signalize a very remarkable omission, and all the more so because of the elaborate detail of the programme. There is the Near East, and there is the

Far East, "with special reference to Japan," but not a single reference to the British Empire in India, where the greatest and most urgent of all Imperial problems are calling for solution. It is not to be expected that the visitors have received much specific indoctrination, but they must have had their ideas widened and quickened; and there will have been not a little stimulation in the social intercourse of the occasion. We are glad to observe that "the Syndics of the University Press propose to publish in the Michaelmas term a volume containing the full text of all, or nearly all, the lectures dealing with international history." Another volume, we should imagine, might usefully be selected from the lectures in other branches.

A NEW "British Academy for the promotion of Historical, Philosophical, and Philological Studies" has received a Royal Charter of Incorporation (August 8). Let us hope that the forty-nine members will devise and execute projects leading to the intended results. This odd number of gentlemen are nearly all distinguished in their several ways; but there are many other gentlemen equally distinguished, and not a few more distinguished. The number of members, we dare say, will be enlarged at no distant date; otherwise, the institution will have too much of the semblance of a mere clique. Science is supposed to be honoured by the Royal Society, and Art by the Royal Academy. Science and Art, accordingly, are left out. Literature is supposed to have been excluded by the ticklishness of the task of selection and dread of the irritability of the race of literary geniuses; but these may now adventure on an Academy of their own. Then, possibly, the various Academies may be brought into some formal co-ordination, as in the French Institute. The French analogue to this British Academy, by the way, is not L'Académie Française, but L'Académie des Sciences Morales et Politiques and L'Académie des Inscriptions et Belles-lettres together.

WE are all agreed that the promotion of knowledge is one of the main objects to be kept in view by institutions of University rank. But it is necessary to be on guard against estimates that may mislead. Take a recent example: The Principal of London University, in his report (May 14), stated that, in response to his inquiries, "nearly 600 memoirs, papers, and minor communications to scientific and literary journals" had been reported to him by the recognized teachers of the University as "the publications of themselves, their assistants, and students during the past twelve months." The Principal himself commented on these returns with praiseworthy discretion. Still, a word of caution will not be superfluous. Even if such a list were complete, it evidently requires a careful qualitative analysis; and there are external considerations, such as those indicated by the Rev. Dr. Woods and Dr. Hill in their recent report on the University Colleges. Thus:—

We recognize that a summary of each Professor's own work would have greatly increased the value of our report. For several reasons, however, we have not felt ourselves at liberty to attempt this. In the first place, the leisure, and therefore, the opportunities for research, which the professors enjoy, vary immensely. In the majority of cases we should say that the professor's duties are far too arduous and incessant to allow him to do much work of this kind. In the second place, we find that certain professors hold that it is the duty of the head of a depart-



ment to work through his students. To them he conveys his ideas and affords constant assistance in carrying them out. A teacher who adopts this point of view may publish nothing under his own name, although all the work which emanates from his laboratory is really inspired by him. To these points should be added the depressing and hampering lack of endowments. But, in any case, numerical lists of publications may easily lead to very wrong impressions as to the activities of individual teachers or departments.

NATURE study has taken hold of the Australians also. At the annual Conference of the Victorian State School Teachers' Union in Melbourne, Mr. Frank Tate, M.A., the Director of Education, explained the new educational and administrative policy of the Minister of Public Instruction in an admirable address, reported in the *Australian Schoolmaster*. He laid emphasis upon what he called "the keynote of the new programme." Thus :

The best syllabus is that which recognizes that the best work can be done in a school when the school interests of the child and his life interests are brought very close together. That does not mean the same kind of syllabus for the boy in Mildura and in Collingwood, for the boy in Croajingolong and in Warrumbool. It means this, that, so far as possible, the subject-matter with which the teacher works shall be taken from the ground on which the child stands. You will find when you see the programme of the first class that, instead of giving a child in the Mallee lessons on glue or rope or candles (they're all very interesting to teachers), the kind of object-lesson work he will do will be the Nature study of the plants and animals that he has been familiar with ever since he picked his first flower as a toddler of two years, and you will be asked to give him eyes and ears so that he can respond to what is about him. You will recognize the pedagogic rule to "take the child from his own ground and lead him out from that," and, instead of having two or three boys under every jacket, you will only have one if you make education a real thing. At present there are two boys under every jacket—the active healthy boy, the tree-climbing boy, who explores nests, and who could be interested so vitally in all Nature craft, but he is generally left outside the school; and inside you have the smug young lesson-learner and examination-passer, who doesn't know anything at all about these things, but who is the joy of his teacher and the best boy in the school. You often find the God-given naturalist of the next twenty or thirty years the phenomenally dull boy of the school. One reason is that he is left outside. The key of the new programme will be found in this, that there may be an attempt to link together, as far as possible, the school interests of the child with his life interests. As Kipling says "Let a fellow sing of the little things he cares about"; and let us bring these into the school. From the one subject, Nature study, I expect to see great consequences. It will be possible to make the work of the first class centre round this subject, and the subject-matter of the reading, writing, composition, and (possibly) poetry and singing, may all be suggested by the observation work done by the eager, interested children.

PROBABLY enough the study will soon go a good way beyond the first class. However, we need not dwell on that point now. "You may ask," Mr. Tate went on, "what is the plan the Department is going to follow in trying to introduce this work?" Well, "before we can have reformation we must have formation."

This is what is proposed. First, there will be a flexible and varied syllabus. I will promise you that the syllabus will not be stereotyped at all. If you prove three years hence that changes in the syllabus are necessary, the changes will come. If a teacher says he is able to teach this or that particular branch of science rather than the one the Department puts forward, let him demonstrate it, and he will have full liberty to teach it. Even in the reading of the first class there is an alternative syllabus. If a teacher feels that he can do certain work in a certain way, and can demonstrate that it is a good way, not only will he be allowed to do it, but we will adopt it also.

As to what is called freedom in teaching, "the best result of teaching consists in bringing a class close to the personality of a fine teacher."

But to justify freedom of teaching there must be a thorough system of training teachers. We have not that at present. We must have these three things: a syllabus that is flexible and contains alternative subjects, freedom to teach, and also some provision whereby young teachers are

taught their business and sent to their work with a light in their eyes and a desire to do their work in a fine way.

Mr. Tate expects much from the Summer School. And what may not be expected from the fine spirit of the Director of Victorian Education?

THE *Labour Leader*, commenting on the recent conferment of the Edinburgh honorary LL.D. upon Mr. Seddon, remarks that "this honour seems to be somewhat misplaced." It recalls the shabby treatment of Prof. W. Steadman Aldis, the Senior Wrangler of 1861, whose salary at University College, Auckland, was suddenly cut down by the authorities—that is to say, by the New Zealand Government—to little more than half the figure that induced him to go out. Mr. Aldis at once resigned and came home. The case evoked bitter indignation here; the Rev. Dr. Abbott, then head of the City of London School, publicly and most properly suggested that no scholar in this country should accept the vacant post. As Mr. Seddon was honoured in a representative capacity, our contemporary's reminder and criticism seem to be neither inopportune nor unreasonable.

A PLEASANT little romance has gathered round the late Lord Acton's library. Like most intellectual men of wide and thorough scholarship, Lord Acton had industriously collected an enormous private library, and, having no time to make money, found difficulty in keeping it going, and at last offered it for sale. Sold it was—to an unknown purchaser, who promptly vested the life use of it in the seller. On Lord Acton's death the owner—who was Mr. Carnegie, of course—passed it on to Mr. John Morley. This double stroke is really a very delicate and handsome manifestation of Mr. Carnegie's genius for donation and for the cultivation of libraries. The quidnuncs are already wondering what Mr. Morley will do with it, and volunteering suggestions that he may distribute portions of it here and there. But this is the officious helpfulness of advisers that do not understand. Mr. Morley, if any man, may be trusted to know very clearly what to do with his own library, and in any case it is his own affair and nobody else's.

LIEUT.-COL. JAMES BAKER, writing to the *Times* (August 19), urges that the Universities should be "utilized as the main channel of entrance to the Army by military candidates." Sandhurst has been shown to be very unsatisfactory: it gives 170 officers to the Army annually at a cost of over £51,000, and now the proposal is to get 240 a year out of it at something like double the public cost. Join Woolwich, at another £100,000 a year, and you get some 450 officers. The rest—about 1,000 are required—are to be looked for at the Militia back door. To Col. Baker, and probably to others, the system appears "ridiculous and comical." He would look to the Universities. The Report of the Committee on Military Education "proves conclusively that officers who have passed their University course are more intelligent than those from Sandhurst and the Militia, and that they are equally amenable to discipline"; and, on the other side, it shows that, "if a certain and sufficient supply of military candidates can be assured, the University will be

prepared to grant a special degree after three years' residence and to fix the curriculum for that degree after intelligent consultation with the Government." The Government's £200,000 a year would provide some 200 open scholarships of £150 a year each—the competition for which, open to the whole Empire, "would give an immense stimulus to military education"—and leave a large sum for application "to technical education at the University and to camp instruction of the military candidates, or to still further increasing the number of military scholarships."

ALL educationists that read German—perhaps we ought to say simply all educationists—should be interested in the "Generalregister zu Heft 1-70" of the "Lehrproben und Lehrgänge aus der Praxis der Gymnasien und Realschulen" (Williams & Norgate, for the Verlag der Buchhandlung des Waisenhauses, Halle a/S.). Here is a quarterly educational magazine ably conducted and written by the most eminent German practical teachers since 1884. Yet, under the head of "Englisch," in this index to the articles of seventeen and a half years, we find only five entries; and among the names of contributors we do not see a single English patronymic. Surely this is not as it should be. The editors expressly invite co-operation from all quarters; and they are open to contributions on all aspects of education—"Principielle Fragen," "Praktische Pädagogik," "Theoretische Pädagogik" (in any subject), and "Verschiedenes." If German writers fail to represent adequately the English movements in education, one may hope that some English writers will patriotically step in and supply the deficiency. And on our side there is much to learn from this able periodical.

It may be of some interest to recall the existence of three old foundations in Paris that long served, as in a restricted sense they continue to serve, the educational interests of certain British subjects in France. They date back at least as far as the Reformation struggles, when the action of pious founders led to the endowment of three separate colleges in Paris to train English, Scotch, and Irish students for the priesthood. The revenues by which the first two were supported have been diverted from the original intention, and now go to enrich the treasuries of some French diocesan seminaries. The Irish still enjoy the benefits of the endowment, and the Collège des Irlandais—situated on the south side of the Seine behind the Panthéon—at the present time educates and maintains some sixty students, most of whom are *boursiers*. In the earlier years of the last decade the numbers reached one hundred. The Superior and the members of the teaching staff are appointed by the Minister of Public Instruction. The Scotch College was also situated on the south side of the Seine, near the Ecole Polytechnique. Associated as it had been from very early days with Scotch Continental learning, it became in the seventeenth and the eighteenth centuries a centre of Jacobite influence; and some curious Stuart memorials are preserved in the chapel. On an outside wall of the building then occupied—now the Institution Chevallier, an *école libre* preparing for the *baccalauréat*—may still be seen a marble tablet bearing the inscription: "Collège des Ecossois."

## SUMMARY OF THE MONTH.

THE agitation against the Education Bill continues with unabated vigour, supported by the notable reduction of the majority at Sevenoaks. We refer to the subject elsewhere.

THE new clause with reference to school managers which Mr. Balfour proposes to add to the Education Bill after Clause 15 runs as follows:—

(1) The trust managers of the school shall be managers appointed under the provisions of the trust deed of the school; but, if it is shown to the satisfaction of the Board of Education that the provisions of the trust deed as to the appointment of managers are in any respect inconsistent with the provisions of this Act, or insufficient or inapplicable for the purpose, or that there is no such trust deed available, the Board of Education shall make an order under this section for the purpose of meeting the case.

(2) Any such order may be made on the application of the existing managers of the school, made within a period of three months after the passing of this Act, and, after that period, on the application of the Local Education Authority or any other person interested in the management of the school, and any such order where it modifies the trust deed shall have effect as part of the trust deed, and where there is no trust deed shall have effect as if it were contained in a trust deed. In making an order under this section with regard to any school, the Board of Education shall have regard to the principles on which the education given in the school has been conducted in the past.

(3) Notwithstanding anything in any trust deed, the body of managers appointed under this Act for a public elementary school not provided by the Local Authority shall be the managers of that school both for the purposes of the Elementary Education Acts, 1870 to 1900, and this Act, and, so far as respects the management of the school as a public elementary school, for the purpose of the trust deed.

MR. BALFOUR, writing (August 18) to Mr. H. W. Forster, the Conservative candidate in the Sevenoaks Division of Kent, as to alleged misrepresentations of the Education Bill, said:

The Education Bill finds a state of things which, so far as voluntary schools are concerned, may, perhaps, be described as one in which, through no fault of theirs, both secular and religious education is largely administered by the clergy. This is the system which exists. This is the system which, if the Bill be defeated, will continue. If, on the other hand, the Bill pass in its present shape, a new system will come into operation under which the whole of secular education will, for the first time, pass under the complete control of a popularly elected body, in which "one-man management" will disappear, and the laity will constitute an immense majority of the local managers.

It is worth while now to recall Archdeacon Pelham's opinion that, if the Education Bill passes in its present form, it will leave behind it a sense of injustice in some quarters, and will not offer a final settlement to the education problem. He considers that the Church of England cannot hope, if the State undertakes the whole cost of maintaining the present voluntary schools, to retain all its old privileges. Personally, he would be content if two points were secured to the present voluntary schools: (1) a guarantee that religious instruction should always be given as a necessary and essential part of the school curriculum; and (2) that a parish clergyman should have a right to enter a parish school and take his share in the religious teaching. The Archdeacon does not wish to close any longer the doors of the present voluntary schools to teachers that are not members of the Church of England. He is prepared to adopt a suggestion of the late Bishop of Durham, that in all schools a simple syllabus of religious teaching should be arranged—a syllabus based on the Holy Scriptures, and embracing the Creed, the Ten Commandments, and the Lord's Prayer.

DURING the month Cambridge has been occupied by an invasion of Extensionist lecturers, students, and sight-seers, including a large contingent of foreigners, especially from North-Western Europe. Among the lecturers have been several men of distinction from the Continent—notably Prof. Vinogradoff, of Moscow; Prof. Erich Marcks, of Heidelberg; and Prof. Paul Mantoux, of Paris. The scope of the work has been tolerably ambitious—nothing less than "Some Aspects of Life and Thought in Europe and America in the Nineteenth Century."

THE inaugural lecture was delivered in the Senate House by Dr. A. W. Ward, the Vice-Chancellor, on August 1. It was

a comprehensive introduction to the History department of the proceedings, and treated of "Some Aims and Aspirations of European Politics in the Nineteenth Century." Prof. Westlake next day took a similarly wide view in his "Introduction to the International History of Europe." Subsequent lecturers dealt with national movements, episodes, and conspicuous statesmen in France, Austria, Germany, Italy, Russia, America, and the East, as well as in England; and sectional meetings discussed points in search of "the solution of the political problems of the present day" at home.

ART, Literature, and Music were joined in a second department; indeed, Dr. Waldstein insisted that the term "Art" includes the other two—which is true in a way, no doubt. Mr. Gilbert, R.A., lectured on "Sculpture; Mr. Jackson, R.A., on "English Architecture of the Past Century"; Mr. East, A.R.A., on "Landscape Painting"; and decoration and furniture were not neglected. Language, poetry, romance, and the drama were illuminated on many sides; and Dr. Sidney Lee again expounded the principles of national biography. Adventurous researchers even essayed to lay bare the mysteries of heraldry and Wagner.

IN spite of Dr. Waldstein's warning against the "current fallacy that the nineteenth century is an age of science," the neighbouring department was devoted to Physical and Natural Science. Prof. Darwin amazed his hearers with glimpses of modern astronomical speculation; Mr. Shaw discoursed on "Meteorology," distinguishing "prognostics" from "forecasts," but failing to control the perversities of the weather; Prof. Sims Woodhead spoke admirably on Pasteur and microbes; and, if the audiences did not learn a vast deal about geology, botany, colour-photography, and electro-chemistry, it was not the fault of the lecturers.

ECONOMICS was to the fore, of course, with a department of its very own. Dr. Bonar reviewed modern socialism and its rivals; Sir M. Grant Duff reminded us of Bagehot, a great force and a very distinctive writer; Prof. Foxwell handled that most interesting article, the British pound sterling; there was an elaborate survey of Ruskin's economic excursions; and so we came down to the housing problem and the facts and the philosophy of poverty in provincial towns.

At last we reach Education, the fifth department of the syllabus. The Dean of Ely placed education in conjunction with poetry, and asked: "What is the use of a poet?" Happily he found an answer, and worked the poet's products into education somehow, occupying himself with ideals, which, if rather difficult to achieve, are good to entertain and aim at. Certain educational reformers were duly honoured—Arnold, Mann, Barnard, Pestalozzi, and Herbart; the "Reform Method" of teaching modern languages had an innings; secondary education in France was exhaustively expounded; and Miss Ravenhill saw to it that there was no neglect of hygiene.

LAST comes Theology. The relegation of the Queen of the Sciences to the last department invites explanation, if not apology. Prof. Barnes discussed the Old Testament in the light of the Higher Criticism, and assessed its "present value" in terms of hope, confidence, and faith. Dr. Bethune-Baker considered the origin of Christian doctrines and their relation to Christian ethics. Dr. Moulton dealt with Bible revision. Dr. Cunningham applied himself, in four practical lectures, to different aspects of "work."

Now, it will be understood that these departments of study were not gone through in succession, but that the subjects were judiciously arranged so as to furnish a pleasing variety for every day. But we have yet to notice the new-comer, "Nature Study," which neither had a department of its own nor was taken in by Education, but was stowed away in an "appendix" to the syllabus. Prof. Geddes gave half a dozen lectures, by way of "introductory course," and conducted some rambles in illustration. Four college dons gave a practical course daily for three weeks in the University laboratories, and one of them put in a comprehensive special lecture on "Geography in its Physical Aspects," while Miss Von Wyss gave three illustrative lessons. So Nature-study, after all, was well cared for.

On the subject of the Colonial Office Education Conference, the following official statement has been issued:—

With reference to certain notices which have appeared in the Press as to the recent educational conference held at the Colonial Office, under the chairmanship of Lord Onslow, it is necessary to state that the meeting was informal, and of a purely tentative character. It was called together at the request of the representatives of the University of Oxford in order that they might inform themselves of the requirements and wishes of the representatives of the Colonies. They showed themselves most willing to meet the views of the Colonial representatives, and they expressly disclaimed any intention of in any way conflicting with the work or the claims of other Universities. It is fully expected that the friendly interchange of views which took place at the conference will lead to satisfactory results.

MR. J. E. KING, High Master of Manchester Grammar School, on the occasion of the annual speech-day, remarked that Latin and Greek had always taken a leading place in the system of instruction of the school, and said that, in a day when many critics seemed impatient of the survival of classical education, it was worth noticing that classics were still the backbone of the chief secondary schools of Germany, and were advancing by leaps and bounds in America's favour. A few years ago they sent more scholars in natural science to the older Universities, but now there were so many valuable scholarships offered by the County Councils that some of the pupils that would formerly have gone to Oxford and Cambridge preferred to go to Owens College. Complaint was often made of the character of the teaching of modern languages in England. One great reason for the want of improvement—at any rate, in Manchester—was the short amount of time many boys spent at the school. In the German *Realschule*, to which the modern side corresponds, a six years' course was gone through, as compared with ours of three years.

PRINCIPAL HOPKINSON, distributing prizes at Macclesfield Grammar School, said he, for one, felt it was impossible to carry on the work in the Universities with anything like success unless they were in very close relationship with secondary schools. They wanted their Universities to be influenced by the experience and knowledge of those who had been directly engaged in secondary education, in training the boys some of whom would pass on to the Universities; and, on the other hand, the Universities would be glad if they could exert an influence on the secondary schools, whose methods had to be tested by the work their students did in the Universities. He thought sometimes the Universities might give valuable hints to the secondary schools on the subject of teaching and preparing for the Universities. He believed there was a serious risk, under pressure from Universities, from parents, from popular speakers, and from writers in newspapers, of attempting in our schools too early specialization. He warned his hearers against this danger, and urged that a man was all the better, whatever his vocation, for having had a good classical training as a foundation. While recognizing the utilitarian side of education, he urged the desirableness of inculcating in the minds of the young students a real love of intellectual pursuits for their own sake.

THE BISHOP OF HEREFORD, speaking at the prize distribution at Hereford High School, and praising the results, pointed out that all the good work he had referred to was done at small cost in the way of salaries to the teachers. He hoped as the school grew more prosperous they might see the salaries to the Head Mistress and other resident teachers grow year by year into a larger item, because they knew when they talked of the success of the school and the good work which was being done they must never forget it was primarily and really due to the Head Mistress and her assistants. Certain gentlemen were privileged to be on the Council of the school, but they did not make it what it was. It was the staff that made it, and they must have the credit for it, and he hoped they might get a larger share of the substantial rewards of it.

It has been resolved to extend the accommodation of Aberdare Hall, Cardiff, at a cost of some £7,000. There are sixty-one students, of whom nineteen are lodged outside. The increase has been steady since the opening of the hostel in 1885, and house after house has had to be added. The Cardiff University College was the first in Wales to open its classes to women on equal terms with men.

THE natural—indeed, inevitable—result of the now final decision that the University College of North Wales shall be permanently located at Bangor has been, says the *Liverpool Mercury*, that

the associated institutions which have, as it were, grown around the national college should themselves have been encouraged to make arrangements, not, as in the past, for the near, but rather for the distant, future. Plans for new buildings, or for structural alterations in existing edifices, which had been pigeon-holed while the great "battle of the sites" was proceeding, have once more seen the daylight. The experience of the past has gone to show that the location of the University College must be an important factor in determining the location of theological institutions. The Baptists were compelled to sell Pontypool in order to enable their students to reside at Cardiff. The Congregationalists surrendered Bodiwan at Bala that their students might go to Bangor. It is an open secret that the Memorial College at Brecon has been, in a sense, a white elephant since the establishment of the national colleges. The existence of permanent buildings at Trevecca and Bala has undoubtedly handicapped the Welsh Calvinistic Methodists in making their arrangements for the training of their ministerial students. It is but natural, therefore, that the new lease of life which has been given to the University College at Bangor should have materially influenced the fortunes of other educational institutions in the town.

THE *Manchester Guardian* (August 18) remarks upon the educational generosity and activity of Welshmen as follows:—

The authorities of the University College of South Wales and Monmouthshire are evidently determined at last to make a supreme effort to carry their great building scheme to a successful issue. It is certainly remarkable that in the great commercial district of which Cardiff is the centre not more than sixty thousand pounds should have been raised or promised since the first appeal for funds was made. But the Council of the college has come to the conclusion that even with sixty thousand pounds it is possible to make a respectable beginning, although quite two hundred thousand pounds will be ultimately required. The acquisition of a free site in the Cathays Park has induced the college authorities to proceed at once to the work of building, and, challenged to high aims by the fine municipal buildings now in course of erection in the Park, they have sought counsel of some of the best architectural talent in the country. The building which it is proposed to put up immediately will only afford partial accommodation for the college, the intention being to transfer the arts departments, the library, and the administrative offices to the new building, while the science departments will have to remain where they are until sufficient money has been raised to complete the entire group of college buildings. The activity of the Cardiff College authorities comes as a reminder, and, in some respects, a reproach, to the Governors of the University College of North Wales. The gift of a free site by the Bangor City Council, coincident as it was with the visit of the Prince of Wales to the college in May, appeared to many to afford an excellent opportunity for making an appeal to the country for contributions towards the new building fund. That opportunity has been lost, but it is to be hoped that, with the commencement of a new session in October, the Bangor College authorities will seriously rouse themselves to a sense of their responsibility in this matter.

THE Carnegie Trust has now intimated to the Universities of Scotland its intentions in regard to the immediate application of its funds other than those devoted to fees. In the meantime the Trustees recognize that the pressing need of the Scottish Universities lies in the direction of new buildings and better equipment and teaching. Under buildings and permanent equipment Glasgow receives £3,000 per annum for the period of five years; Aberdeen (which has recently greatly extended its buildings), £1,000 a year for apparatus; St. Andrews, £3,000 a year; and Edinburgh, £3,000 a year. The grants for teaching, which are partly only for present expenditure, and mainly to establish a fund which at the end of the five years period will constitute the nucleus of a permanent endowment in each case, are as follows:—Glasgow, £2,000 a year; Aberdeen, £7,000 a year; St. Andrews, £4,500 a year; Edinburgh, £2,500 a year. To each of the University libraries an annual sum of £1,000 is given, with the proviso that one-half of it shall be devoted to the purchase of books available for all students. Edinburgh receives £11,500; Glasgow, £11,000; Aberdeen, £9,000; and St. Andrews, £8,500. Collectively, these grants over the five years period amount to a gift to Scottish education of £200,000. And the scheme is so arranged that it is only a beginning of a process of subvention and encouragement that is destined to continue.

IN the July number of the *Record*, Mr. William Hewitt, B.Sc., Director of Technical Instruction, Liverpool, sets out the results of a preliminary inquiry into the provision of secondary education in that city, drawing freely upon the report of the Board

of Education inspection last year. Liverpool is "practically without any educational endowments": buildings, staff, and administration are very inadequate; and, "owing to the great and rapid extension of the city, it is probable that the old schools in the central portions are not conveniently situated for the large masses of population in the more distant parts." "According to English expert opinion," says the Board of Education report, "there ought to be 13,700 children receiving secondary education in Liverpool; according to the statistics of Hamburg there ought to be at least 18,000 to 20,000 children in that position: in fact, there are only 6,550, and, of these, (1) many are receiving education at unrecognized, and possibly unsuitable, schools; (2) others are non-residents; and (3) an unduly small percentage are over twelve years of age."

THE Court of Appeal has dismissed the appeal of the London School Board against the injunction granted by Mr. Justice Farwell restraining them from spending any portion of the rates on the erection of a pupil-teachers' centre in Islington. The expenditure had been disallowed by Mr. Cockerton because (1) the said sum was not paid in respect of the erection of a public elementary school within the meaning of the Elementary Education Acts; (2) School Boards are not legally entitled to erect at the cost of the school fund schools or other buildings for the instruction of pupil-teachers exclusively; (3) the said sum was not expended in the provision of accommodation in public elementary schools for the district of the said School Board within the meaning of Section 5 of the Elementary Education Act, 1870, or any of the Acts amending the same; (4) the said sum was paid in respect of the erection of a building for the provision of education in subjects not allowed, provided for, or recognized by the Education Code; (5) the said sum was paid in reference to the erection of a building for the provision of instruction of teachers, pupil-teachers, or other persons who do not form part of the educational staff of a public elementary school within the meaning of the Elementary Education Acts; (6) the said School Board had not any authority in law to pay the said sum and to charge the same in their accounts as aforesaid. The Board had, however, gone on with the erection of the centre, and Mr. Justice Farwell had granted an injunction on the ground that such expenditure was *ultra vires* until the auditor's decision had been set aside. The Court now dismissed the appeal.

REFERRING to the arguments of Mr. Jenkins, K.C., for the Board, Lord Justice Vaughan Williams said he was not disposed to quarrel with the proposition that in a public elementary school an education might be given to pupil-teachers, under the agreements with them, which could not properly be described itself as being merely elementary, but he saw nothing to lead him to the supposition that that education should not be given in the public elementary school itself. To hold that the School Board had power to establish a separate school for the instruction of pupil-teachers, and to charge the cost of carrying out that separate school and of the necessary building for that school upon the local rates, would be entirely inconsistent with the judgment in the Cockerton case. The force of what he had said was very much increased when one came to consider what was being done at this school. It was a school at which the average age of the scholars ranged from fifteen to twenty-four. It was a school to which scholars might come in from any district, from any part from which they chose to come, for education—higher education, and not elementary. In giving judgment to the same effect, Lord Justice Romer said an argument had been based on the Confirmation Act of 1900, under which the Board had acquired the site, among others; but that Act could not concern itself with a question of the expenditure of the rates upon any valid or invalid purpose at all. Lord Justice Mathew concurred, and the injunction was made perpetual.

THE writer of "The Point of View" in *Scribner* commends Mr. Rhodes's scheme of Oxford scholarships on the especial ground that it tends to "Anglicizing" rather than to "Teutonizing" in education. He says:

In spite of (certain) expert testimonies against Anglicizing in education, it is not donable that scholarship is attainable at Oxford, nor that an Oxford Don is more a man of the world, has much more of the "terity" and rotundity of Mr. Rhodes's intended "all-roundedness" than the corresponding Teutonic functionary. One would go to Oxford with more confidence than to any of the German seats of special knowledge to exemplify the Anglo-Saxon idea of a "scholar and a gentleman." Doubtless proper methods of selection would find a

hundred American youths to whose country the Anglican training would be beneficial. But how tremendous is the responsibility of the selectors!

THE chief recommendations of the Committee on Military Education and Training appointed in April last year, to whose Report we made recent reference, may be briefly summarized as follows:—

(1) That the antecedent education of Army candidates should be of a general nature, that the maximum number of subjects to be taken up should be limited to five (or six in the case of candidates for Woolwich), and that the examination be so framed as to ensure a thorough grounding in the elementary portion of all subjects taken up. (2) That the three examinations for Woolwich, Sandhurst, and for Militia candidates should be amalgamated, and should be competitive for entry to Woolwich and Sandhurst, but qualifying only in the case of Militia candidates. (3) That Yeomanry subalterns should be placed on the same footing as Militia subalterns as regards their eligibility for commissions in the regular Army. (4) That officers of Militia and Yeomanry who have qualified in the entrance examination for Woolwich and Sandhurst should be eligible for the competitive examination in military subjects for commissions in the Army. (5) That the entrance of University candidates into the Army, under revised regulations, should be encouraged. (6) That the number of commissions offered annually to the colonies should be increased. (7) That the existing military colleges at Woolwich and Sandhurst should be maintained, but under revised regulations, and with an amended curriculum. (8) That the course at Sandhurst should be extended to two years. (9) That at both Woolwich and Sandhurst the cadets should go into camp for at least one month every summer. (10) That greater inducements should be offered to attract capable officers to take up instructional work. (11) That the system on which the examinations for promotion are now conducted should be amended with a view to securing more practical tests and greater efficiency. (12) That the regulations under which officers receive rewards for proficiency in certain foreign languages should be amended. (13) That steps should be taken to reduce the expenses of officers in the Cavalry. (14) That the supervision and control of military education throughout the Army should be entrusted to a general officer, with the title of Inspector-General of Military Education, this officer being supplied with an adequate staff and assisted by an Advisory Board. (15) That all promotion should be by selection rather than by seniority.

### THE REGISTER OF TEACHERS.

#### MODIFICATION OF REGULATIONS.

THERE has been published an Order in Council making certain modifications in the regulations for framing the Register of Teachers.

In Sub-section (2) (i) of Regulation 3 (which sets forth the conditions under which persons may be placed on Column B), after the words "for at least one year" there is inserted "or in the case of a student who has taken Honours in a final examination for a degree after spending four academic years at some University in the United Kingdom have undergone a course of training for two terms at least, taken continuously." In Regulation 4 the period of four years from the establishment of the Registration Authority is substituted for three years as the period within which an application to be placed on Column B is to be made thereunder.

In Appendix A the following words are added at the end of the second sentence, in reference to women teachers: "or that under the conditions prescribed by the Delegacy for Local Examinations she has (1) passed the second public examination of the University, or (2) has obtained Honours at the Oxford University Examination for Women in Modern Languages. In Appendix C the Higher Certificate of the National Froebel Union is added to the list of diplomas to be accepted as showing efficiency in teaching.

### THE BRITISH ACADEMY.

LAST January there were published the petition presented to the King for the incorporation of the British Academy for the promotion of Historical, Philosophical, and Philological Studies, and the names of the distinguished signatories, fifty-one in number. These were contained in the *London Gazette* of January 14, and it was announced that the petition had been referred to a Committee of the Privy Council. His Majesty has now been pleased, acting upon the advice of this Committee, to accede to the petition and to grant to the British Academy a Royal Charter. According to this Charter, the Academy aims at the promotion

of the study of moral and political sciences, including history, philosophy, law, politics, and economics, archaeology, and philology. Of the original fifty-one petitioners, who, according to the draft charter, were to be the first Fellows of the Academy and to elect a President and Council from among their own number, three have died—Lord Acton, Mr. S. R. Gardiner, and the Rev. A. B. Davidson. On the other hand, the name of Lord Rosebery has been added to the list. So the following forty-nine gentlemen now become the first Fellows of the British Academy:—

The Earl of Rosebery; Viscount Dillon, President of the Society of Antiquaries; Lord Reay, President of the Royal Asiatic Society; Mr. Arthur Balfour, M.P.; Mr. John Morley, M.P.; Mr. James Bryce, M.P.; Mr. Lecky, M.P.; Sir William Anson, M.P., Warden of All Souls College, Oxford; Sir Frederick Pollock, Corpus Professor of Jurisprudence in the University of Oxford; Sir Edward Maunde Thompson, Director and Principal Librarian, British Museum; Sir Henry Churchill Maxwell-Lyte, Deputy Keeper of the Public Records; Sir Courtenay Ilbert; Sir Richard Jebb, M.P., Regius Professor of Greek in the University of Cambridge; Dr. Monro, Provost of Oriel College and Vice-Chancellor of the University of Oxford; Dr. A. W. Ward, Master of Peterhouse and Vice-Chancellor of the University of Cambridge; Dr. Edward Caird, Master of Balliol College, Oxford; Dr. H. F. Pelham, President of Trinity College and Camden Professor of Ancient History in the University of Oxford; Dr. John Rhys, Principal of Jesus College and Professor of Celtic in the University of Oxford; Rev. George Salmon, D.D., Provost of Trinity College, Dublin; Prof. J. B. Bury, Regius Professor of Greek in the University of Dublin; Prof. S. H. Butcher, Professor of Greek in the University of Edinburgh; Prof. Ingram Bywater, Regius Professor of Greek in the University of Oxford; Prof. E. B. Cowell, Professor of Sanscrit in the University of Cambridge; Rev. William Cunningham, D.D.; Prof. Rhys Davids, Professor of Pali in University College, London; Prof. Albert Dicey, K.C., Vinerian Professor of English Law in the University of Oxford; Rev. Canon S. R. Driver, D.D., Regius Professor of Hebrew in the University of Oxford; Prof. Robinson Ellis, Corpus Professor of Latin in the University of Oxford; Mr. Arthur John Evans, Keeper of the Ashmolean Museum, Oxford; Rev. A. M. Fairbairn, D.D., Principal of Mansfield College, Oxford; Rev. Robert Flint, D.D., Professor of Divinity in the University of Edinburgh; Mr. J. G. Frazer; Mr. Israel Gollancz, University Lecturer in English in the University of Cambridge; Mr. Thomas Hodgkin; Mr. S. H. Hodgson; Prof. T. E. Holland, K.C., Professor of International Law and Diplomacy in the University of Oxford; Prof. F. W. Maitland, Downing Professor of English Law in the University of Cambridge; Prof. Alfred Marshall, Professor of Political Economy in the University of Cambridge; Rev. J. E. B. Mayor, Professor of Latin in the University of Cambridge; Dr. J. A. H. Murray; Prof. W. M. Ramsay, Professor of Humanity in the University of Aberdeen; Rev. Canon William Sanday, D.D., Lady Margaret Professor of Divinity in the University of Oxford; Rev. W. W. Skeat, Elington and Bosworth Professor of Anglo-Saxon in the University of Cambridge; Sir Leslie Stephen; Mr. Whitley Stokes; Rev. H. B. Swete, D.D., Regius Professor of Divinity in the University of Cambridge; Rev. H. F. Tozer; Prof. Robert Yelverton Tyrrell, Professor of Ancient History in the University of Dublin; and Prof. James Ward, Professor of Mental Philosophy in the University of Cambridge.

### CORRESPONDENCE.

[We do not hold ourselves responsible for the opinions expressed by our correspondents.—ED. E.T.]

#### THE HALF-YEARLY MEETING.

To the Editor of the *Educational Times*.

SIR,—In your report of my reply to the various speakers who addressed the meeting on the subject of my resolution, you omit an important word. I said that very much of what had been said was *not* to the point.

It was open to the members to send to the Secretary seven days before the meeting the draft of any amendment or rider. No amendment, however, was then tendered. Yet at the meeting itself much of the discussion had no reference to the principles involved in the resolution, but to certain details or additions which might be considered desirable.

This point I desired to emphasize in the statement I have quoted, while, at the same time, I called the attention of members to the fact that the Council would be in a better position to suggest such emendations if they accepted the main principles set forth in the resolution.

Unfortunately, there were certain influences in operation at the meeting which obscured the result; and I am still of opinion that the majority of members of the College and of the Council are in favour of a settlement of the question on the main lines of the Government measure. Digitized by Google

I regret the course the College is taking. If, owing to insufficient support on the part of educational bodies like our own, the Bill be ultimately withdrawn, a further period of suspense will supervene, to be followed by the introduction of a measure likely to be far less acceptable to private teachers and others than the one now before the House.

It is futile to expect that every possible guarantee can be crowded into an Act of Parliament. These guarantees, in the main, must be earned by the efficiency of our work, that they may be furnished by a discerning and appreciative public.—I am, Sir, &c., J. O. BEVAN.

Chillenden Rectory, Dover, August 21, 1902.

[We regret the accidental omission of "not."—ED., E.T.]

### THE TEACHERS' REGISTRATION COUNCIL.

THE REGISTRAR'S TENURE.

To the Editor of the *Educational Times*.

SIR,—I am extremely obliged to you for publishing my letter of the 13th ult. I am still without an answer to my letter of the 7th of June.

The declaration that I was referring to—and which can be found, as far as my knowledge goes, in all schemes for schools made by the Charity Commissioners—runs as follows:—"I, A. B., declare that I will always, to the best of my ability, discharge the duties of Head Master of \_\_\_\_\_ School during my tenure of the office, and that, if I am removed therefrom, I will thereupon acquiesce in such removal and relinquish all claims to the mastership and its future emoluments, and will deliver up to the Governors, or as they direct, possession of all property of the school then in my possession or occupation."

I am informed by a barrister that to acquiesce in removal renders attempts to get legal redress futile. In what worse position can a head master or the Registrar be than to find that he can be dismissed when he is clearly in the right and his dismissors in the wrong?

And to show that such may be the case with head masters, I would refer you and your readers to two sentences which occur in paragraph 133 of Part III. of the Secondary Education Commission Report:—"One of our witnesses went so far as to urge the maintenance of the present system on the ground that 'a school is a monarchical institution, nor would he give to the head the right of appeal which he refused to the assistant teacher. Admitting that there might have been cases in which the dismissed head master was in the right and the governing body in the wrong, he still maintained that in the long run it was better not to limit the latter's authority, as 'hard cases make bad law.'"

The word "clearly" can be found in the Minutes of Evidence which gave rise to the above passage.—I am, Sir, &c.,

THOMAS ALLEN.

Woodbury, Malvern Link, July 22, 1902.

### "SLIPSHOD ENGLISH."

To the Editor of the *Educational Times*.

SIR,—May I offer a few remarks concerning a passage in your article on "Slipshod English" in the *Educational Times* of June 2? The writer says:

*Embarras de richesses* may be good French, but it is rarely heard on the other side of the Channel. Littré knows it not, and we have searched in vain for an instance in a French author—except that we did light on one in Voltaire.

May I point out (subject to correction) that Voltaire's phrase is "*l'embarras des richesses*," and not "*embarras de richesses*." It occurs in "*Le Droit du Seigneur*," Act II. Sc. vi. (*Le Chevalier*); and this I have verified. The same phrase also forms the title of a comedy by Soulas d'Allainville (published in 1735). If "*embarras de richesses*" is not good French, "*l'embarras des richesses*" is; and at all events it is given as an illustrative sentence in *Bescherelle's* dictionary, latest edition.—I am, Sir, &c., E. LATHAM.

61 Friends Road, E. Croydon, June 21, 1902.

P.S.—There are some interesting remarks about bilingualism in P. G. Hamerton's "French and English."

[No; not "Voltaire's phrase," but "a phrase of Voltaire's." The verification of the use of one expression by Voltaire does not negative our statement that we lighted upon another—which, unfortunately, we cannot put our finger on at the moment.—ED. E.T.]

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### CURRENT EVENTS.

At University College, London, session 1902-3 Fixtures. of the Faculties of Arts and of Science will be opened on Tuesday, September 30; introductory lecture at 3 p.m., by Prof. J. D. Cornack. The session of the Faculty of Medicine will be opened on October 1; introductory lecture at 4 p.m., by Mr. Percy Flemming.

THE Educational Commission to America, under the leadership of Mr. Alfred Mosley, C.M.G., sets out this month. The party will visit New York, Newhaven (Yale), Boston (Harvard), Philadelphia, Baltimore (Johns Hopkins), Washington, Pittsburg, Chicago, Ithaca (Cornell), Syracuse, and Albany, inspecting the most important educational institutions and industrial works.

THE examination for the Brotherton Sanscrit Prize at Cambridge will take place on Saturday, November 29. Candidates must be graduates of Cambridge under the standing of M.A. Apply to Prof. Cowell, 10 Scroope Terrace, Cambridge, on or before November 15.

THE Froebel Society's classes for kindergarten teachers and students will be resumed at St. Martin's Schools, Charing Cross, on September 27.

MR. S. G. SINCLAIR and Mrs. W. P. Sinclair Endowments. have given £1,000 to University College, Liverpool, to establish an entrance scholarship in Arts, as a memorial to the late Mr. W. P. Sinclair, who was one of the founders of University College and for many years an active member of its Court of Governors.

AFTER consultation with Mr. Astor, and in accordance with his wish, the Council of University College, London, has resolved to endow the Chairs of Pure Mathematics and History, and to name them the "Astor Chairs." In consequence of this endowment, the department of History will be reorganized and a Lecturer in Ancient History will be appointed. The Council has also received £1,000 from the Rev. Thompson Yates for the permanent endowment of the department of Economics, and other smaller sums have been received for the same purpose. The department has consequently been reorganized (see "General").

THE REV. HENRY LATHAM, M.A., late Master of Trinity Hall, Cambridge, bequeathed £6,000 to the scholarship fund of the college, and a considerably larger sum to other college purposes.

KING EDWARD'S SCHOOL FOR BOYS, Birmingham, has received £1,000 from two Old Edwardians—Mr. C. and Mr. J. Vernon Pugh—to build a new laboratory.

THE HON. MRS. HARDCASTLE has presented £100 to King Edward's School, Bury St. Edmunds, to found a prize for English Literature in memory of her late husband, a former scholar. For many years Mr. Hardcastle represented Bury in Parliament, and on several occasions gave such a prize to his old school.

THE Imperial University of Tokyo, Japan, has conferred on Dr. Henry Dyer the title of Emeritus Professor, in recognition of his services to science and education in Japan during the time he was Principal and Professor in the Imperial College of Engineering.

THE Royal Commissioners for the Exhibition of 1851 have made a number of appointments to science research scholarships for the year 1902, on the recommendation of the authorities of the several Universities and colleges that sent up the appointees. The scholarships are of the value of £150 a year, and are ordinarily tenable for two years (subject to a satisfactory report at the end of the first year) in any University at home or abroad, or in some other institution approved by the Commissioners. The scholars are to devote themselves exclusively to study and research in some branch of science the extension of which is important to the industries of the country. A limited number of the scholarships are renewed for a third year where it appears that the renewal is likely to result in work of scientific importance.

At Gonville and Caius College, a law and history studentship of the annual value of about £100 a year has been founded upon the benefaction of the late Mr. Frederick Ramadge, M.A., barrister-at-law, formerly Fellow of the college. The studentship is open to all members of the college that have kept not less than nine or more than fifteen terms, and will be tenable for one year. It will be awarded at Midsummer, 1903, and thenceforward in alternate years. Failing candidates whose subject is law or history, it may be awarded in respect of some other branch of literary study. It will not be awarded by the result of a competitive examination.

At the same college the regulations respecting the Frank Smart Fund and the Shuttleworth Fund have been amended. The Frank Smart Studentship of £100, founded in 1887 for the encouragement of botanical research, is open to all members of the college that have kept not less than nine or more than fifteen terms. It is tenable for two years, but may in certain cases be given for one year only, or may in special circumstances be continued for a third year. The governing body of the college may, if no suitable candidate belonging to the college presents himself, offer the studentship *pro hac vice* to other members of the University. The studentship will not be awarded by the result of a competitive examination. From and after Midsummer, 1904, there will be established at this college a Shuttleworth Studentship of the annual value of about £110 for zoology or physiology or (failing candidates in these subjects) some other branch of natural science. The regulations for election and tenure are the same as for the Frank Smart Studentship.

At Trinity Hall the regulations for the Latham Prize have been amended. A prize of £4 will in future be offered in each term open to any member of the college under eleven terms from his matriculation term. No one shall take the prize more than once in three consecutive terms.

THE Technical Education Board of the London County Council will award about 275 Junior County Scholarships (say, 160 to boys and 115 to girls) in December. The examination will be held on Saturdays, October 18 and November 8; or, in case of conscientious objection to Saturday, on Mondays, October 20 and November 10. Apply, by September 20, on form to be obtained at the Board's Offices.

THE Governors of the Parmiter's Foundation School

offer twelve scholarships of the yearly value of £10, open to all boys attending elementary schools in Bethnal Green.

Vacancies and Appointments. PROF. SIR GEORGE GABRIEL STOKES, Bart., F.R.S., President of Pembroke College, Cambridge, has been elected Master of the College in succession to the late Rev. Dr. Searle. Sir George has just entered his eighty-third year. He was Senior Wrangler and First Smith's Prizeman in 1841, and has been Lucasian Professor of Mathematics since 1849. He has had honorary degrees conferred upon him by Oxford, Edinburgh, Dublin, Glasgow, and Aberdeen Universities, as well as by Cambridge. He represented Cambridge University in Parliament from 1887 to 1892. His principal studies and researches have been in physics and mathematics, especially in connexion with light, which was the subject of his Burnett Lectures, published in 1887. He was a member of the first Commission for a Teaching University for London, and he was President of the British Association in 1869, and President of the Royal Society 1885-90. He is enrolled in the Prussian Order *Pour le Mérite*.

At University College, London, Mr. C. P. Sanger, Fellow of Trinity College, Cambridge, has been appointed Lecturer in Public Finance; Mr. G. Udny Yule, Newmarch Lecturer in Statistics; and Mr. A. C. Pigou, Fellow of King's College, Cambridge, Jevons Memorial Lecturer.

Mr. W. G. Hartog has been appointed Assistant to the Professor of French, and thus the advanced work of the department will be considerably extended.

Prof. Brandin has been appointed to hold the Chair of Romance Philology in conjunction with that of French, and Prof. Priebsch (University Professor of German) to hold the Chair of Germanic Philology in conjunction with that of German.

PROF. H. G. ATKINS, M.A., King's College, London, has been appointed (London) University Reader in German.

MR. JAMES BLACK BAILLIE, B.A. Camb., M.A. and D.Phil. Edin., Lecturer on Philosophy at University College, Dundee, has been appointed Professor of Moral Philosophy in the University of Aberdeen, in succession to Prof. Latta. In 1899 he gained the Shaw Fellowship in Philosophy, open to all Scottish graduates of not more than five years' standing. He recently published a work entitled "The Origin and Significance of Hegel's Logic: a general Introduction to Hegel's System."

MR. J. GRAHAM KERR, M.A., of Christ's College, Cambridge, has been appointed Professor of Natural History in the University of Glasgow, in succession to Dr. Young.

DR. BENJAMIN MOORE, Lecturer in Physiology in Charing Cross Medical School, has been elected to the Johnston Chair of Bio-chemistry in University College, Liverpool. Dr. Moore was educated at Queen's College, Belfast, and studied at Leipzig under Ostwald and Ludwig. He was five years on the staff of University College, London, under Prof. Schäfer, and for some time held an appointment in Yale University. He has done much original work.

ON the nomination of the President of the Board of Education, the City and Guilds of London Institute have added the following members to the Examinations Board of the Institute's Department of Technology, as representatives of the Board of Education:—Mr. G. R. Redgrave, Assistant Secretary to the Board of Education; Prof. C. le Neve Foster, F.R.S., Professor of Mining of the Royal College of Science; Mr. J. H. Reynolds, M.Sc., Principal of the Municipal School of Technology, Manchester; Mr. S. H. Wells,

Principal of the Battersea Polytechnic, London; and Sir John Watney, Honorary Secretary.

THE President of the Board of Education has appointed James Walker Hartley, M.A. of Trinity College, Cambridge; Benjamin Beck Skirrow, M.A. of University College, Oxford; and Frederic William Westaway, B.A. of London University, to be Inspectors under the Board of Education.

THE REV. ERNEST NEWSOM, M.A., Vice-Principal of King's College, London, has been elected Reader at the Temple Church.

MR. J. W. CRITCHLEY, M.A., Rector of the High School, Stirling, has been appointed Rector of Dumfries Academy.

MR. GEORGE LOWSON, M.A., F.E.I.S., mathematical master in the High School, Stirling, has been elected Rector, in succession to Mr. Critchley.

Literary Items. "HISTORICAL ESSAYS," by the late Bishop Stubbs, being introductions to certain volumes of the "Rolls Series," have been edited by Mr. Arthur Hassall, M.A., and will presently be published by Messrs. Longmans & Co.

MESSRS. LONGMANS also have in the press a volume by Prof. J. C. Bose, M.A. Cantab., D.Sc. Lond., of the Presidency College, Calcutta, entitled "Response in the Living and Non-Living." The work "describes experimental investigations on animal, vegetable, and inorganic substances regarding their response to stimulus." It is an amplification of papers read before various learned societies in London and Paris.

MESSRS. GEORGE BELL & SONS have in the press two new volumes of the "Cambridge Mathematical Series," which will embody the recommendations of the Committee on the Teaching of Mathematics appointed by the Mathematical Association. The first is a volume of "Examples in Algebra," by Mr. C. O. Tuckey, an assistant master at Charterhouse. The other is an "Elementary Geometry" (comprising the substance of Euclid, Book I., 1-48; Book III., 1-34; and Book IV., 1-5), by Mr. W. M. Baker and Mr. A. A. Bourne, assistant masters at Cheltenham. Both will be ready for use after the summer holidays.

THE REV. U. Z. RULE has prepared "Graduated Lessons on the Old Testament," which will be issued in three small volumes for school use by the Oxford University Press early this month.

MESSRS. A. & C. BLACK will publish immediately "The Book of Jubilees"—the oldest commentary on Genesis and part of Exodus—edited, with introduction and notes, by the Rev. Prof. Charles, Trinity College, Dublin.

MR. ENEAS MACKAY, of Stirling, announces "Bell the Cat; or, Who destroyed the Scottish Abbeys?" by John Jamieson. The polemical title refers to the main purpose of the book—"an effort to controvert the popular belief that the sacred edifices were destroyed by the Reformers." The work will deal with much ecclesiastical and historical matter of wide interest; and it will be illustrated.

THE Teachers' Registration Council make the following announcement:—

All certificated teachers known to the Board of Education to have been employed since January 1, 1901, in elementary schools, training colleges, or pupil-teacher centres, under inspection by

the Board of Education, or in Poor Law schools or certified reformatory or industrial schools, will be placed on Column A of the Register without further application. All other certificated teachers not coming under the above descriptions who wish to be placed on Column A must apply to the Registrar, Teachers' Registration Council, 49 and 50 Parliament Street, London, S.W. No special form will be supplied, but applicants must clearly state full name, address, date of becoming certificated, and name of last public elementary school in which they were employed.

THE Board of Education has issued the Regulations and Syllabus for the King's Scholarship Examination, 1903 (December 15-18).

THE new prospectus of the various faculties and departments of University College, London, containing particulars of the new curricula required by the organization of the internal side of the University of London, is now ready.

IN the reorganized Department of Economics at University College, London, next session, Prof. Foxwell will give a general course of Economics and Economic History. Mr. C. P. Sanger will lecture on Public Finance; Mr. G. Udry Yule on Statistics; Mr. A. C. Pigou, on the Association of Employers and Employed, Arbitration, and Conciliation. Prof. Montague will give a course on the existing British Constitution and its relation to the Constitutions of other Countries. Prof. Macdonell will give a course on International Law; and Prof. Whittaker a course on Industrial and Commercial Law.

KING'S COLLEGE, LONDON, proposes to establish a hostel for students after the model of the Toynbee Hall hostels.

NOTTINGHAM ought to be particularly proud of one sentence in the University Colleges Inspectors' report:—"Though the students of Nottingham University College are drawn from all classes, the opportunities specially afforded to young working men of ability and promise are very considerable, and from this point of view we think that the college exhibits the nearest approach of all the colleges which we visited to a People's University."

PRINCIPAL BEBB wants £20,000 to place Lampeter College on a better footing.

THE number of candidates at the recent Oxford Local Examinations was 11,079, as against 10,337 last year. Of these 7,647 obtained certificates, as against 7,015 in 1901.

THE University of St. Andrews awards 127 L.L.A. diplomas this year. For the May examinations there entered 929 candidates, as against 962 in 1901; 1,424 papers were written, and there were 803 passes and 190 honours.

A "COLLEGIATE DEPARTMENT," providing a three years' course, has been established at Clark University (Worcester, Massachusetts), and will be inaugurated on October 1 under the direction of Mr. Carroll D. Wright, Ph.D., LL.D.

A SPECIAL supplement to the *Schoolmaster* of August 16 consists of a great array of "Facts and Figures for the Education Bill Discussions." While very opportune and useful for the special purpose, it has also a more permanent value for future discussions on the educational system.

THE *Modern Language Quarterly* for July has some very pertinent criticisms of papers set in recent examinations in French and German, and a most useful "list of recent publications" (November 1, 1901, to June 15, 1902).

ST. MARY'S COLLEGE, PADDINGTON, has been recognized by

the Board of Education as a training college for secondary teachers.

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THE Board of Education has just issued three more extremely instructive volumes of "Special Reports on Educational Subjects"—a thin supplement to Vol. VIII., on "Education in the Netherlands" (5d.), and Vols. X. and XI., on "Education in the United States" (2s. 3d. and 2s. 6d.).

### MODERN LANGUAGES IN THE ARMY: A CONTRAST.

By A WAR CORRESPONDENT.

At this moment, when the question of the education of officers has attracted the attention of a Government Commission, the experiences of one who, as a special war correspondent in China, enjoyed peculiar facilities for observing the linguistic attainments of British and foreign officers may not be altogether without interest. There is no doubt that in knowledge of foreign languages the British officers that were in China were singularly deficient, and, in comparison with the officers attached to the German, French, and Italian expeditions, were distinguished by their ignorance of those European tongues that have hitherto been considered essential features in modern education. It was frequently explained to me by our Indian officers that their long residence in India had caused them to forget the European languages they had crammed for the purpose of passing their military examination, while the superficial character of the papers set at these examinations shows that the tests for German and French do not carry the students sufficiently into the heart of the language to enable them to retain any material knowledge of it. In my professional capacity I joined the steamer conveying the German Ambassador from Europe to China, and with him I found a very representative staff of officers whose achievements in the matter of French and English contrasted very favourably with those subsequently revealed by our own men. Moreover, from the beginning such as were ignorant of English spent the voyage in studying books for the purpose of familiarizing themselves with the intricacies of our tongue, while upon their arrival in Tientsin, and when the position of affairs gave them the time at a later date, there were many German and French officers that were at the pains to study English with the assistance of daily tutors from the English settlement in that treaty port. I do not suppose that there is any single case where a British officer endeavoured by any means in his power to brush up his defective knowledge of French or German. In preparation for the language difficulty, however, the officers of the Italian expedition, as well as those of the German expedition, seem to have been supplied with small dictionaries and elementary treatises upon our language. These they carried with them, and, whether they were the result of private purchase or official distribution I do not know, but there is no question of the fact that the volumes were very much in evidence.

The French officers explained their ignorance of English by the remark that everybody spoke French. It was quite true, with the single prominent exception of ourselves, for the British officer was distinguishable by the fact that he was ignorant of French. No special effort had been made by the French, German, or Italian headquarters to secure the services of men especially familiar with the languages spoken by the units of the allied forces. It had been a part of their routine training, and was in no sense extraordinary. In relation to our own men, it would not appear that the advisability of their being familiar with one or other of the half-dozen tongues spoken by the forces of the Allies was taken into account. The military representative of the Government of India attached to the staff of Field Marshal Von Waldersee (who spoke French and English) spoke most lamentable French and German; I understood, however, that his knowledge of Russian was quite useful, at least equalling, if not surpassing, that knowledge of French which was possessed by the lady from India who found herself more easily understood by the French when she spoke in Hindustani. However, with the exception of those officers who were acting as interpreters to the chief and brigade headquarters, this ignorance was not in any way remarkable, as, if the united knowledge of French and German possessed by the staffs of the eight or nine British generals in China had been collected, I do not think it would have enabled any one of them to pass the most elementary paper possible to set in French or German. Upon the other hand, the staff officers attached to the German expedition all spoke at least one language

thoroughly (French), and usually two, the second being English.

Again, it was pointed out to me by no less a person than Admiral Alexieff, the Commander-in-chief of the Russians, upon one occasion when discussing this subject at Port Arthur at the close of the campaign, that the system of military education in Russia and Germany did not emphasize the necessity of acquiring a knowledge of English; it did, however, insist upon a very perfect knowledge of French as an essential qualification of officers in the higher grades of the service. It should be remembered that, even to-day, French is the language of diplomacy and the language of polite society on the Continent. Why the British officer chooses to remain ignorant of even an elementary knowledge of the Gallic tongue when the officers of every military power in Europe make it their medium of mutual understanding it is difficult to conceive.

Excuse may be found for the ignorance of French and German by officers of our Indian Staff Corps, as the hard study which they devote to acquiring their very remarkable knowledge of the languages of India may, perhaps, help them to forget their previous knowledge of French and German; but, in regard to the officers from England detached for special duty and presumably distinguished for some more particular qualification, there should be no occasion, just as there is no excuse, for linguistic ignorance. French was certainly the language whereby communications were exchanged in China, although attached to the various headquarters were officers capable of acting as interpreters. There were one or two connected with British headquarters in Pekin, and others were found seconded for duty with the executive staffs of the different brigades; but, apart from these men, who certainly boasted an easy fluency in French and German, there was a distressing lack of such knowledge among other officers.

It became my good fortune to be associated for some months with an Indian cavalry regiment whose officers were men admirably suited to their work—muscular and courteous sons of Britain, but not distinguished in any remarkable degree for a knowledge of European languages. There were three in this regiment and a few in the other regiments composing the expedition who were able to speak, to read and write, and to translate in French and German; and one soon got to know who they were, their unusual capacity at once throwing them into prominence. I know only one British officer among those in the expedition in Pekin who could speak French, German, Italian, and Russian; he was also very familiar with many of the dialects of India—Captain Holman, D.S.O., Railway Staff Officer in Pekin. A colleague of this officer, Major Griffiths, spoke French and German with admirable precision. Again, there was one other, a subaltern in the same regiment, who spoke fluent French, and was studying Russian. These three men, however, are fixed in my mind by the fact that they spoke foreign languages; the others were only able to converse in their mother tongue and in the tongues of India.

So long as the executive officers are distinguished for their ignorance of the languages of Europe, it is a little unfair to drop too heavily upon officers in the junior branches of the service. Linguistic ignorance is a distinguishing feature of the British officer, and this contempt for foreign languages has, I am sure, played an important part in reducing the mental capacity of the class. It is impossible for any one to assert that the British officer is distinguishable for his brains; the higher in the service he climbs the more stupid does he become; and in China the absolute ignorance of men whose military rank showed that they were possessed of at least fifteen years' service was so appalling that it was impossible to avoid feeling humiliated by the remarkable superiority of the junior officers in the expeditions of the other allies. It was, however, frequently noticed that the Germans did not speak very much English; but then, as I have already mentioned, they did speak French, while our officers did not possess any other medium of conversation than their mother tongue. In regard to the Russian officers, where they were ignorant they were bores pure and simple; but, on the other hand, the educated Russian officer is distinguished for his culture and politeness as much as for his intellectual capacity. There was a Russian staff officer upon the steamer that conveyed the German Ambassador to China who spoke English, French, German, and Italian, who could sing English comic songs by the score, and it was his practice in the evening to entertain his Excellency with recitations from French comedy, while upon very many occasions he would sit down and sing songs in any of four different tongues. He was, indeed, remarkably versatile, and this versatility I found repeated in many of the superior

officers in the Russian service. Admiral Alexieff spoke French, German, and English; Colonel Gromchesky, the Governor General of Mukden, spoke French, German, English, and Chinese; Colonel Pitoff, who held an important administrative command in Manchuria and conducted the expedition down the river to Newchwang, spoke French, German, and English. In short, it was the usual practice of the Russian officers to be able to converse in four European languages, just as many German officers spoke Russian, French, and English or French and English. I am quite certain that there was not one field officer in fifty of the Germans who could not speak perfect French. The Italians all spoke French; very many spoke good English. The French spoke English and German and Latin. Many Russian, German, French, and Italian officers had been to school in England. I made the acquaintance of five Russian officers who had been at Eton.

In effect, the desirability of furnishing the officers of our military and naval services with opportunities for acquiring greater fluency in the French and German tongues as well as technical skill in their profession, aside from the emphatic declaration of the recent Commission, has been made quite clear. But in the light of the scathing report of the Commission, it is to be hoped that the present character of our military examinations will be reformed at once into accord with the requirements of the service. Unfortunately, it is not to be expected that any good will accrue to the nation at large from the many exposures of radical defects in our military system brought about by the war. Lack of education in time past has been a tradition of the English people, and, if there be one thing that will go a longer way than a little British Army, it is our insular contempt of those standards of education which distinguish the training of officers in the armies of other Powers.

It is to be devoutly hoped that immediate reforms may consummate the findings of the recent inquiry, but it must not be supposed by the public that this realization of the rottenness of our military educational system is anything new. It has been apparent long since, while foreign critics have drawn attention to it upon innumerable occasions. Albeit, if in the larger spirit of patriotism that has animated our executive officers the needs of military education have been forgotten, it is at least comforting to know that the pattern of the latest gaiters and the colour of the new putties elicited the warmest commendation in the seats of the mighty. Anxious as the great mass of the nation may be upon the subject of the necessary improvement in the education of our officers, they may confidently accept the assurance that, at least by the conclusion of the next war, the heads of His Majesty's War Office will have received sufficient *data* upon this very interesting subject to enable them to arrive at an encouraging and engaging conclusion as to whether the proposed repairs are worthy of their further consideration. This much most certainly is assured, and for the moment there—and there only—can the question be left.

ANGUS HAMILTON.

## REVIEWS.

### AN ENGLISH ARISTOPHANES.

*The Comedies of Aristophanes*, edited, translated, and explained. By Benjamin Bickley Rogers. In six volumes. Vol. V.: IX. *The Frogs*; X. *The Ecclesiazusæ*. (Sm. 4to, pp. xlvii. + 274, xxxviii. + 238. 15s. Bell.)

The favourable reception of his former editions and translations of single plays has encouraged Mr. Rogers to essay a complete issue of Aristophanes. The present volume, though fifth in order, is the first of the series published; and we have no doubt it will prepare a warm welcome for its successors. The barest justice to Mr. Rogers requires that we should keep in mind the extreme difficulty of the task he has undertaken. The translation involves not merely the representation of the sense of the text, but the reproduction of the metres and the transference of the volatile spirit of a very free, wayward, and intractable original. The rendering of the choruses in any tolerable form of English might well give pause to the most lively confidence; but what can be done with such an example as the penultimate chorus of the "Ecclesiazusæ"? On the whole, we consider that Mr. Rogers has been remarkably successful. Read the English page without regard to the opposite Greek, and you undoubtedly receive an excellent impression of the verve, sparkle, and tone of the original drama. The close adherence to the text—though we are rather inclined to think that Mr. Rogers set out with freer

notions, and afterwards put himself under more stringent rules—inevitably hampers him in comparison with Frere; but, taking together the virtues of accuracy and spirit, and looking at the sustained effort of two whole plays, we cannot hesitate to award Mr. Rogers the first place among translators of Aristophanes. Here and there, indeed, one does not at first sight readily follow the meaning; but such cases are very exceptional, and they are all but unavoidable in a difficult translation. The Greek, however, is at hand to remove the temporary obstruction when it does occur, and in another edition the author may easily clear the way. The introductions deal concisely with the main considerations relative to each play. The introduction to "The Frogs," for example, includes some pointed remarks on the choral metres, and the introduction to the "Ecclesiazusæ" maintains, against Mr. Haigh, that no women were present at the performance of a comedy in the time of Aristophanes. The running commentary under the text is able and luminous and rich in suggestion, while textual criticism is relegated to appendices. Mr. Rogers will probably not be regarded as satisfying the highest scholarship at all points; but his book will be warmly received by all readers that care little for technical minutiae and much for a genial renewal of acquaintance with the substance and manner of the great poet. The work is eminently popular, while the scholarship, if not the highest, is yet high. It forms an excellent introduction to Aristophanes for those that are unable to tackle the original Greek. In view of this great service, one may readily put aside the pedantry of criticism, and heartily welcome the prospect of an English Aristophanes.

### THE "ENCYCLOPÆDIA BRITANNICA."

*The New Volumes of the Encyclopædia Britannica*. Vol. IV. (being Vol. XXVIII. of the complete work). (A. & C. Black and the Times.)

The fourth volume commences with "Electricity" and ends with "Gladstone." The prefatory essay, by Sir Leslie Stephen, surveys "The Growth of Toleration." However one may dissent from the writer at points, one cannot but recognize the clearness and moderation of his exposition of the tendencies observable. He admits that "the existence of any creed or institution is a *prima facie* ground and justification," and that "the longer they have thriven the greater the presumption that they have had some utility." He reviews the obstacles to liberty of conscience, examines the meaning of "authority," and considers the practical applications in religion, education, politics, science, and economics; and he shows how the intellectual horizon has widened, changing the historical and philosophical basis of argument. In religion, "there is," he says, "at least an agreement that a simple creed must be tested upon the widest appreciation of the whole process of intellectual development; that the only authority which can permanently demand assent is the gradual convergence of belief under the freest possible play of thought, and that every honest phase of opinion has a right to a fair hearing, and may be of some use even if only by provoking the exposure of its own fallacy." There are very comprehensive and important articles on England and Wales, Europe, France, and Germany, and less extensive, but full and careful, accounts of such smaller regions as Finland, Florida, and Georgia. England indeed is naturally treated at considerable length under separate heads—Geography, Statistics, History, Church, Bible, Law, Literature. Among men of eminence are Emerson, Fawcett, Fechner, Fitzgerald, Flaubert, Forster, Freeman, Froude, Gambetta, Giers, and Gladstone.

There are many fresh and able articles on great branches of science—Electricity (in various aspects), Embryology, Ethics, Evolution, Fourier's Series, Analytic Functions, Fungi, Gas, Geography, Geology, Geometry. The practical world is represented in Elevators, Embroidery, Engines, Engraving, Finance, Fire and Fire Extinction, Fisheries, Forests and Forestry, Fortification, Friendly Societies, Furniture, &c. There are some notable articles on legal, ecclesiastical, commercial, and social matters. The mass of shorter paragraphs by nameless writers must be commended for intelligent selection and accuracy, as well as the larger expositions by writers of eminence. The high level of excellence is not affected by particular criticisms that may be offered here and there. It is somewhat surprising, for example, that "Sylvester Bonnard" should not be mentioned in connexion with M. Anatole France; that Jordan's "Die Nibelunge" has but "a certain rugged grandeur"; or that Nietzsche should be set on such a high pedestal, and no mention should be made of Dr. Tille's translation of his works. The illustrations (portraits, sketch-maps, plans, &c.) are numerous and good, and the full-page pictures are finely reproduced.

## AN AMERICAN COMPENDIUM OF GEOGRAPHY.

(1) *North America.* (2) *Europe and other Continents.* By R. S. Tarr and F. M. McMurry. (Macmillan.)

These form the second and third parts of a compendium of geography for American schools, the first part being devoted to "Home Geography and the Earth as a Whole." Both books contain introductions on general geography, that in the volume on North America being somewhat more limited in its scope. The explanation of the seasons, always a difficult matter for the teacher, is distinctly good, and illustrated by a number of well-devised pictures. Putting the two together—for they do not both use exactly the same illustrations—no teacher need be at a loss for means to make the problem clear to his pupils. The trade-winds and the anti-trades are not so well explained; the effect of the earth's rotation is only mentioned, not illustrated, as it might be, by the simple experiment of pouring inky water on a revolving globe. The plan of the detailed portion of the work is excellent. Each chapter is preceded by "map questions." For example, apropos of the Southern States, we have, among other questions: (5) Through what States would you pass in going by water from New Orleans to Chattanooga? (6) Find some natural boundaries in this section. (7) Compare the coast with that of New England. Why the difference? (8) Why are there so few lakes? (9) The rivers that rise in Western Texas are often perfectly dry in the western third of their course. Some of these questions can obviously be answered from inspection of the map; others require the pupil to refer to the general chapters at the beginning. Their great merit is that they compel him to think and to work out something for himself before he begins to read. A good deal of the text is taken up with the characteristic industries of different parts of the States, and is plentifully illustrated with pictures. After the text come a number of review questions, and, what is more valuable, some "suggestions," such as: Find blocks of granite and marble in buildings—Find where the canned fruits and vegetables in your neighbouring grocery store come from—Visit a canal and examine a lock—Make a toy canal having a lock in it—About how much sugar does your family use in a year?—See how long a list you can make of articles manufactured partly or wholly out of copper—Give some reasons why Richmond has not become a great city like Philadelphia. So in treating of Europe there are indications of books to be read or talked about, from the "Chanson de Roland" down to "John Halifax, Gentleman," and of persons whose names should be familiar, as Goethe, Bismarck, Wagner. Among the questions we may notice one about the effect of the German military system on emigration; and the suggestion to talk with some Irishman to see how he feels towards England, and why. Altogether the book is calculated to stimulate thought and the acquisition of information about common things. An interesting chapter is added to the volume on "Europe and other Continents," showing historically the distribution over the world of various natural products—coal, iron, rubber, cotton, coffee, and so on; and a comparison of the United States with other countries in respect of wealth, length of railways, and several industries, illustrated by diagrams. In all the most important comparisons, except that of merchant shipping, the United States stands at the head.

## EXPERIMENTAL PSYCHOLOGY.

(1) *Studies in Auditory and Visual Space Perception.* By Arthur Henry Pierce, Ph.D. (Longmans.)

Dr. Pierce is Professor of Psychology in Smith College, and these "Studies" are issued "as the regular publication demanded of the incumbent of the Kellogg University Fellowship of Amherst College at the expiration of his official term." They are contributions to a particular field of experimental psychology. The first, and more continuous, division of the book has for its objects, "first, to make a systematic presentation of all important facts and theories connected with the localization of sound; and, second, to develop a satisfactory theory of the formulation of all facts, old and new, that shall have been brought together." Prof. Pierce traces somewhat briefly, and sometimes with scant ceremony, the development of theory, summarizes the experiments of preceding workers, and then sets out his own experiments. He reaches the conclusion that "the theory of direct perception in accordance with which auditory impressions are themselves endowed with spatial attributes" is the right one; that there exists "an independent auditory space"—an auditory space not indeed of co-ordinate importance and development with either the visual or the tactual space, but yet "independent." For are

not the intracranial localizations of sound independently accomplished?—and "these experiences are as genuinely auditory as any of the extracranial localizations," and they "are in no sense inferences." Assuming, then, "that auditory impressions originally possess positional characteristics, or that they are natively endowed with the attribute of externality," Prof. Pierce proceeds "to show how from a condition of general, indefinite externality sounds come to possess more or less definite and well-ordered localizations in a spatial system." It would be futile to attempt criticism of these positions without experimental verification, which we must leave to the very narrow circle of specialists; although, apart from this, there are considerations that suggest the necessity of a far more elaborate argument than Dr. Pierce seems to bargain for. The visual portion of the book deals with the explanation of a number of optical illusions—among them the illusion of kindergarten patterns. It is well to have such experimental tests applied by investigators untrammelled by hopes or fears as regards existing or future theories. It is no less necessary that other investigators should stringently check the results of their colleagues, and we should be glad to see more activity in experimental psychology in this country.

(2) *Analytical Psychology.* By Lightner Wilmer. 7s. (Ginn.)

In a handy and well printed Manual of 250 pages Prof. Wilmer sets out "a series of experiments that can be performed by untrained students of psychology without supplementary explanation on the part of the teacher, and without costly and complicated apparatus," and that are of immediate "importance as illustrations of the phenomena and processes of mental life." In the arrangement, "where compromise seemed necessary, pedagogical motives have generally outweighed purely scientific considerations."

The scope of the Manual has been purposely restricted to the analysis of the component processes of mental phenomena. The course of the analysis successively presents the essential features of apperception, perception, attention, the range and limits of consciousness, the association of mental contents, and of physiological and physical processes, the relation of mental contents to these processes, and the sensation as the mental element.

The experiments are intended, not primarily to constitute a manual of experimental psychology, but "to illustrate the facts and principles of psychology by leading the student, whether a beginner or an advanced student, to discover for himself the psychological facts upon which are based the principles of the science." Prof. Wilmer very properly insists upon the formation of correct habits of inductive reasoning, and aims at "diverting those who are destined to become teachers from an unwholesome subservience to psychological and pedagogical authorities towards a confident self-dependence upon their own powers of observation and reflection." He has been trained in the best of schools, and he maintains his allegiance to the facts of his science as he apprehends them.

The experiments appear to be judiciously chosen, and the description is uniformly lucid. There can be no two opinions about their value in awakening the student to a vivid realization of the psychological facts, which is an essential step to the due formulation of their bearings. There is no better book to begin the practical study of the subject with. It is unnecessary here to go into details, but we observe one point that may be noted. "Sensations arising from the movements of the body are frequently called muscular sensations, and sometimes a 'muscle-sense' is spoken of. This terminology gives a false emphasis to the physiological contribution of the muscles." The chapters on Association and Perceptions of Space, and on Psycho-physiological and Psycho-physical Analysis, are extremely suggestive by sheer development of the facts through experiment.

## A HOME GALLERY OF NATIONAL PICTURES.

*The Nation's Pictures.* Vol. I. (12s. cloth; 15s. half leather. Cassell.)

Here is the first instalment of what promises to be a very valuable and useful publication, diffusing the influences of art through the land. Popular as are the galleries of pictures that are now open to the public, not only in London, but in all the great cities throughout the country, it is still but a comparatively small fraction of the population that visits them, and a yet smaller that studies them. Messrs. Cassell are to be congratulated on their enterprise in bringing together in a widely accessible form a skilful and varied selection of these pictures reproduced in colour. That is the distinctive feature of the series: the

reproduction of the pictures in colour. There are forty-eight in the present volume, representing the art of forty-two painters; for only six of the artists are drawn upon for two pictures. The variety is thus obviously almost as great as possible within the limits; and each picture is, as nearly as may be, except of course in point of size, a facsimile of the original painting. The student can thus study these pictures with all the advantage of constant access; and every person can make his own picture gallery at a very small cost. We should note that "the experiments in colour have necessarily involved much time, perseverance, and expense"—all which will no doubt be duly rewarded. It is plain from the first volume that "the collection may be taken as thoroughly representative of the best modern art of the country."

## GENERAL NOTICES.

### CLASSICS.

"The University Tutorial Series."—(1) *Cæsar: Civil War, Book I.* Edited by A. H. Allcroft, M.A. (2) *Livy: Book XXI.* Edited by A. H. Allcroft, M.A., and B. J. Hayes, M.A. (Clive.)

(1) The introduction explains clearly the historical position at the opening of the Civil War, gives a concise account of Cæsar and the more important persons that figure in Book I., and outlines the organization of the Roman army at different periods. The notes (45 pages) are pointed, accurate, and appropriate. "H.S." (chapter xxviii. page 84) should have been explained. (2) The introduction (26 pages) deals fully with Carthage, town and people, and with the relations between it and Rome, and explains (with two full-page maps) the route of Hannibal over the Alps, following Mr. Marindin (*Classical Review*, June, 1899). The notes (60 pages) are judicious and thoroughly competent. There is also a very useful index of proper names (14 pages). Both volumes are most creditable additions to a very able and justly popular series.

"Blackie's Illustrated Latin Series."—*Cæsar: The Gallic War, Book VI.* Edited by John Brown, B.A.

"This," we are told, "is a revised, reset, and more fully illustrated edition," the book having been "first published in 1896, and frequently reprinted since." Already, then, it has been stamped with scholastic approval. The introduction (38 pages) contains a life of Cæsar, remarks on the "Commentaries" and on Roman books and book-making, and a very full and instructive account of the Roman army in Cæsar's time. One appendix (14 pages) consists of a careful essay on Druidism; another appendix is devoted to concise hints on Latin-English translation; and there follow 39 exercises well devised for retranslation. All this is very good; only we note the growing tendency to over-elaboration. If the right place for an essay on Druidism be here, then why not a similar essay on the notions of property in Gaul and Germany? No one would gather from Prof. Brown's notes that there is any difficulty on the latter subject. On chapter xxii., he explains that "what Cæsar means is that the land of each tribe was public land, belonging to the tribesmen as a body, not to individuals"—as once in the Scottish Highlands. We think he ought to have shown why he calls it "public" land, why he holds that it "belonged to the tribesmen as a body," and why he says it did not belong "to individuals." Presumably he is aware that on these points he has to reckon with M. Fustel des Coulanges. We miss a necessary note on *pecunia* and *fructus* in chapter xix. "*Sacrificiis student, 'are they keen about sacrifices' (chapter xxi.) is hardly a classical rendering; 'gentibus cognationibusque, 'clans and families' (chapter xxii.) is loose, cognatio being much wider than 'family'; and 'propriam virtutis, 'a proof of valour' (chapter xxiii.) seems weak and perfunctory, propriam being rather 'the hall-mark' than 'a proof.' There are 30 illustrations, mostly good, and a map and a plan. Altogether a very useful edition.*

### MATHEMATICS.

*An Arithmetic for Schools.* By J. P. Kirkman, M.A., and A. E. Field, M.A. 3s. 6d. (Arnold.)

An excellent school arithmetic on a good plan well carried out. The authors, convinced of the necessity of employing the first science studied by children as a means of training them to think for themselves, and to do so in the best way, have made it their aim to show the foundation of every arithmetical process in common sense, and to make it clear to the learner that methods of calculation are not a series of artifices, but the natural means of arriving at desired results. The formal rule, which can be learnt by heart and applied quite mechanically, finds little place in the book. In addition to its value as a text-book, the work is attractive from the quantity of instructive general information it contains. This is so simply and directly given that a student can scarcely fail to be thoroughly interested and vividly impressed. The theory of the elementary rules is exceptionally clear and convincing. The book contains the usual complement of exercises, miscellaneous examples, and selected examination papers.

"Rivingtons' Junior Mathematics."—*Algebra, Part II.* By H. G. Willis, M.A. 1s.; with Answers, 1s. 6d.

As in Part I., there are three groups of graduated exercises, each subdivided into two parallel series. The subdivisions may be used concurrently or in alternate terms, according to the number of weekly lessons given to a class. The work is sufficiently advanced for candidates preparing for examinations of the standard of the obligatory part of the Oxford and Cambridge Senior Locals. The exercises are, as a rule, preceded by oral questions, intended partly as aids to the explanation of principles and partly as a means of training in rapid calculation. The plan of separating the oral questions from the exercises, which are intended for written work, is not a good one, and in many places the vinculum is used where brackets would lend far more clearness. These are minor points, indeed; but they are not without importance.

### MODERN LANGUAGES.

"Heath's Modern Language Series."—*Leberecht Hühnchen* (H. Seidel). By Arnold Werner-Spanhoofd. (Price 1s. 3d.) (2) *Kleider machen Leute* (G. Keller). By M. B. Lambert. (Price 1s. 6d.) (3) *Zriny* (Körner). By Prof. Franklin J. Holzwarth, Ph.D. (Price 1s. 6d.) (4) *Harold* (E. von Wildenbruch). By Charles A. Eggert, Ph.D. (Price 1s. 6d.)

(1) *Leberecht Hühnchen*, "upon whose cradle a kind fairy had laid the best of gifts, the art of being happy," is sure to be a favourite. The story is simple, lively, and humorous. There are useful and sufficient notes, and a vocabulary.

(2) The story, taken from "*Die Leute von Seldwyla*," is of curious interest. The introduction gives a concise account of Keller's career; the notes are pointed and helpful; and the vocabulary is full.

(3) is a tragedy from the Hungarian history of the sixteenth century, with brief biographical introduction and notes.

(4) Ernst von Wildenbruch "shares with Sudermann and Hauptmann the honour of attracting and holding universal attention" in modern Germany. Harold is the King of the English. The introduction gives a sketch of the author and the subject. The notes are very brief, but adequate. All these small volumes are well chosen and excellently got up. Each has a portrait of the author.

### NATURAL SCIENCE.

*An Introduction to the Study of the Comparative Anatomy of Animals.* Vol. II.: *The Coelomate Metazoa.* By Gilbert C. Bourne, M.A., D.Sc., F.L.S. (Bell.)

As in the first volume, Dr. Bourne proceeds on the plan of describing certain types representing *phyla*, his selection being guided by the requirements of the preliminary and intermediate science examinations of the Universities. The examples are ably handled, and the description is strongly supported by a large number of careful diagrams, most of them original. If a pupil fail to follow the simple and clear account of the earthworm, or to take interest in the *Apus canceriformis*, he had better try some other line of study. Dr. Bourne has given considerable space to the leading features of the embryology of the various types, and here he is probably at his best, the exposition being remarkably easy for the student. There is something in his reasons for omitting the embryology of the dogfish, but, for all that, we should have preferred to have it: the pupil could come back to it from the common frog. The wanderings of *Dreissena polymorpha* and *Periplaneta* and the indications of the relations between marine, fresh-water, and terrestrial animals are incidental matters that tend to attract and hold interest. The work is very capably done, and the book is excellently printed and got up.

*A Course in Invertebrate Zoölogy.* By Henry Sherring Pratt, Ph.D. 6s. (Ginn.)

Dr. Pratt is Professor of Biology at Haverford College, and Instructor in Comparative Anatomy at the Marine Biological Laboratory of the Brooklyn Institute of Arts and Sciences at Cold Spring Harbor, L.I. The present volume is intended as "a guide to the dissection and comparative study of invertebrate animals." The plan is "to study each of the larger groups . . . as far as possible, as a whole, instead of detached types of different groups taken more or less at random, as is usually done." . . . "to teach relationships, and to make the study truly comparative." We are by no means satisfied that the results will come up to the expectations of an English examiner. Prof. Pratt, it is true, gives the main points in many types of the larger groups, and then glimpses of comparison of these types; but there is a lack of conciseness and correlation throughout. The interpolation of questions to test the student's train of thought, as well as direction to note this and to do that, is a happy idea; and the exercises are good. It is a useful process to require the student to execute his own drawings from the specimen under study; but it is a weakness to furnish no illustrations to the text. The appendix contains some useful notes on classification. The latest and best of the systems—that of Berthold Hatschek (1888)—is set out in a somewhat modified form. There is also an extensive glossary, as well as an index.

## MISCELLANEOUS.

*Analysis of Commercial Correspondence.* By Dettloff Müller. (Teubner.)

\*Herr Müller is English master at the High School of Commerce in Leipzig. His book contains some excellent features, which should be of service to German, and perhaps also American, students, whilst readers in England would gain from it an insight into American style and vocabulary of correspondence in business. Through the forms of letters supplied there runs a greater continuity than is ordinarily found in similar books; and the explanatory matter prefixed to each section is unusually good. There is also an abstract of the Anglo-American law of sale, wisely based on Benjamin's standard text-book. Some oddities of spelling and phraseology, American and original, need not prove deterrent; but the next edition should clear away such gratuitous drawbacks to a substantially useful volume.

"Sammlung Neuphilologischer Vorträge und Abhandlungen."—(1) *De Hugo à Mistral* (Prof. Michel Jouffret). Mk. 1.80. (2) *On certain Aspects of Recent English Literature* (R. Shindler). Mk. 1.80. (3) *Die Methodik des neusprachlichen Unterrichts* (Prof. W. Vietor). Mk. 1. (Teubner.)

(1) Seven lectures on contemporary French poetry, delivered in the holiday courses at Marburg in 1899 by Prof. Jouffret of the Lycée, Marseilles. The subjects are Victor Hugo and his successors, especially Leconte de Lisle, Sully-Prud'homme, Fr. Coppée, and José Maria de Hérédia; with a final lecture on Provençal poetry, "Frédéric Mistral et les Félibres." The treatment is bright and suggestive.

(2) Six lectures, also delivered at Marburg in the summer of 1899, on Tennyson, Arnold, Clough, Swinburne, Meredith, Thomson (of "The City of Dreadful Night"), Hardy, Browning, and Kipling. Mr. Shindler handles his subjects with discrimination, as well as in popular form.

(3) Four lectures, outlining the history of the methods of language teaching, delivered as Marburg holiday addresses in 1899, 1900, and 1901. In the first two there is much curious matter illustrative of olden ways; the others deal with the modern reform, of which Vietor is "einer der ältesten Verfechter." They are all characterized by verve and glints of humour, as well as by strenuous purpose.

## FIRST GLANCES.

## MATHEMATICS.

Davison, Charles, Sc.D.: *Easy Mathematical Problem Papers.* 2s. 6d. Blackie.

[For pupils under about seventeen. Answers and hints.]

Oliver & Boyd's Educational Series.—The Tweeddale Arithmetics: (1) Book VI., 8d.; (2) Answers to Books I.-V., I.-III., 3d. each; IV.-V., 6d. each.

[In noticing Books I.-V. the other month we said: "The answers to the exercises are not given." Here they are in five nicely got-up books. Book VI. worthily completes an excellent series.]

## SCRIPTURE.

The Century Bible.—(1) Ephesians, Colossians, Philemon, Philippians. Edited by the Rev. G. Currie Martin, M.A., B.D. (2) Revelation. Edited by the Rev. C. Anderson Scott, M.A. Jack.

[Excellent additions to an admirable series.]

Hamer, Rev. C. J.: *The New Testament History for Young Students.* 1s. Allman.

[Simple narrative; lucid; not critical.]

The Semitic Series.—(1) *The Early History of Syria and Palestine.* By Lewis Bayles Paton, Ph.D. (2) *The Theology and Ethics of the Hebrews.* By Archibald Duff, M.A., LL.D., B.D. 5s. net each. Nimmo.

[Able and instructive. Excellent get up.]

Whitham, Rev. A. R., M.A.: *Handbook to the History of the Hebrew Monarchy to the Accession of Solomon.* 2s. 6d. Rivingtons.

[For teachers and students. Sketch map. Text (revised edition), with footnotes; thirty-one schemes of lessons, matter and method in parallel columns; blackboard summaries; strong Church tone.]

## EDUCATION.

American Teachers' Series.—*The Teaching of History and Civics in the Elementary and the Secondary School.* By Prof. Henry E. Bourne, B.A., B.D. 6s. net. Longmans.

[Part I. on "The Study and Teaching of History." Part II.—"The Course of Study"—a review of the general field.]

Benson, A. C.: *The Schoolmaster.* 5s. net. Murray.

[“A Commentary upon the aims and methods of an Assistant Master in a Public School.” Does “not profess to be a scientific educational treatise.”]

Bodkin, Rev. Richard C., C.M.: *How to Reason.* 1s. net. Browne & Nolan (Dublin).

[“The A B C of logic reduced to practice in analyzing essays, speeches, books.” Acute and stimulating.]

De Montmorency, J. E. G., B.A., LL.B.: *State Intervention in English Education.* 5s. net. Cambridge University Press.

[“A short history from the earliest times down to 1833 . . . the first date on which the monies of Parliament were voted for elementary educational purposes in Great Britain.”]

Findlay, J. J., Ph.D.: *Principles of Class Teaching.* 5s. Macmillan.

[“Written with a very practical purpose.” Systematic exposition. Main principles advanced have already “been put to a somewhat severe test” in practice.]

Haldane, R. B., M.P., LL.D., K.C.: *Education and Empire.* 5s. net. Murray.

[“Addresses on certain topics of the day.” “More than ever as science tends increasingly to reduce Nature to subjection, education becomes important.”]

Knox, Right Rev. E. A., D.D., Bishop of Coventry: *Pastors and Teachers.* 5s. net. Longmans.

[Six lectures on “Pastoral Theology.” Introduction by the Bishop of Worcester. “Impossible to divide the education of a child into two water-tight compartments, one labelled religious, and the other secular.”]

Langlois, Ch.-V.: *Questions d'Histoire et d'Enseignement.* 3fr. 50. Hachette.

[Ten articles reprinted from reviews and partly re-written. “L'histoire ancienne du haut enseignement, les récentes réformes dans l'enseignement supérieur, les questions relatives aux sanctions de l'enseignement historique, à la méthode et aux destinées des études historiques et à l'organisation du travail scientifique en général.”]

O'Donnell, F. Hugh, M.A.: *The Ruin of Education in Ireland, and the Irish Fanar.* 5s. net. Nutt.

[“Experiences of Irish education, in the form of an outline of evidence for the University Commission.” Outspoken.]

Report of the United States Commissioner of Education for 1899-1900. Vol. II. Washington: Government Printing Office.

[Most interesting and instructive.]

Rooper, T. G.: *Educational Studies and Addresses.* 2s. 6d. net. Blackie.

[Most of them were read before various branches of the Parents' National Educational Union, and nearly all have appeared in the *Parents' Review*.]

Wright, G. Lionel: *The Vocal System (How Children may Read at the age of six).* 1s. net. Clifton, Bristol: the Author.

[By means of blackboard and *viva voce*.]

## MISCELLANEOUS.

Art-Workers' Quarterly. Vol. I., No. 3, July. 2s. 6d. net. Chapman & Hall.

[With large coloured plate of Hardwicke tapestry and 8 other supplementary plates. Handsome and artistic.]

Board of Education: *Revised Instructions applicable to the Code of 1902.* Eyre & Spottiswoode.

Cassell's Living London. Vol. I. Edited by George R. Sims. 12s. cloth; 16s. half leather.

[Extremely interesting and varied series of articles on “forms and phases of London life, from the highest to the lowest.” Lavishly and effectively illustrated.]

Cricknet Album, *The Golden Penny, 1902.* 2d. 190 Strand.

[“Special articles by an expert, giving the records of the Australians and the story of each first-class county club in England.” Photographic groups and character sketches.]

Cricknet of To-day and Yesterday. Parts IV.-VIII. 7d. net each. Jack.

[Fully maintains its original promise.]

Dawbarn & Ward's Rural Handbooks.—(1) *Outdoor Carpentry.* By S. Walter Newcomb. (2) *Garden and Grounds: how to lay out and arrange.* By T. W. Sanders, F.L.S., F.R.H.S. 6d. net each.

[Practical, sensible, and usefully illustrated.]

Familiar Wild Flowers. Figured and described by F. Edward Hulme, F.L.S., F.S.A. Seventh Series. 3s. 6d. Cassell.

[New volume. Charming and instructive. 40 plates.]

Kerner and Oliver: *Natural History of Plants.* Parts II. and III. 1s. 6d. each. Blackie.

[Scientific, yet popular; excellent illustrations.]

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[“An illustrated patriotic handbook.” Introductory note by Lord Charles Beresford, M.P. Interesting and careful. The author knows that the “Union Jack” is not a Jack.]

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MATHEMATICS.

Geometrical Note.

By R. F. DAVIS, M.A.

EUCLID'S Propositions II. 11 and IV. 10 might very well be dispensed with if the inscription of the regular decagon in a given circle were allowed to precede that of the pentagon.

(i.) Let O be the centre and OA the radius of a given circle. Along the tangent at A take TA = 2OA. Draw TPOQ. Then shall TP be the length of the side of the regular decagon inscribed in the circle whose radius = QP (= 2OA).

For TP.TQ = TA<sup>2</sup> = QP<sup>2</sup>; then compare (ii.).

(ii.) Let PR be the side of a regular decagon inscribed in a circle centre Q. Produce QP to T so that TP = PR, and join TR. Then PQR = 2π/10 = π/5; QPR (= QRP) = 2π/5, since QP = QR; P<sup>2</sup>TR = PRT = π/5, since TP = PR; therefore TR = QR = QP, TR touches the circle about QPR, and TP.TQ = TR<sup>2</sup> = QP<sup>2</sup>.

15088. (Rev. T. WIGGINS, B.A.)—(1) Of numbers between 1 and 20, how many sets of 3, 4, or 5 can be found such that the square of one number in each set equals the sum of the squares of the remaining numbers in the same set? Also, if the numbers from 1 to 100 are taken, how many sets of 3 numbers satisfy the above conditions? No set should be a multiple of any other. (2) Find in two ways a<sub>1</sub>, a<sub>2</sub>, ... a<sub>6</sub>, such that a<sub>1</sub><sup>2</sup> = a<sub>2</sub><sup>2</sup> + a<sub>3</sub><sup>2</sup> = a<sub>4</sub><sup>2</sup> + a<sub>5</sub><sup>2</sup> = a<sub>6</sub><sup>2</sup> + a<sub>7</sub><sup>2</sup> = a<sub>8</sub><sup>2</sup> + a<sub>9</sub><sup>2</sup>, where each of the a's lies between 1 and 100, but the suffixes have no reference to order of magnitude.

Solution by Lt.-Col. ALLAN CUNNINGHAM, R.E.

Assuming that in the solutions of

(i.) e<sup>2</sup> = a<sup>2</sup> + b<sup>2</sup>, (ii.) d<sup>2</sup> = a<sup>2</sup> + b<sup>2</sup> + c<sup>2</sup>, (iii.) e<sup>2</sup> = a<sup>2</sup> + b<sup>2</sup> + c<sup>2</sup> + d<sup>2</sup>,

no two of the numbers are to be alike in any one solution, the solutions with numbers > 20 are as follow:

(i.) 5<sup>2</sup> = 3<sup>2</sup> + 4<sup>2</sup>, 13<sup>2</sup> = 12<sup>2</sup> + 5<sup>2</sup>, 17<sup>2</sup> = 15<sup>2</sup> + 8<sup>2</sup>; total 3.

(ii.) Writing for shortness d(a, b, c) for d<sup>2</sup> = a<sup>2</sup> + b<sup>2</sup> + c<sup>2</sup>, 7(6, 3, 2); 9(8, 4, 1); 11(9, 6, 2); 13(12, 4, 3); 15(14, 5, 2); 15(11, 10, 2); 17(12, 9, 8); 19(18, 6, 1); 19(15, 10, 6); total 9.

(iii.) Writing for shortness e(a, b, c, d) for e<sup>2</sup> = a<sup>2</sup> + b<sup>2</sup> + c<sup>2</sup> + d<sup>2</sup>, 11(10, 4, 2, 1); 13(10, 8, 2, 1); 13(10, 7, 4, 2); 15(14, 4, 3, 2); 15(12, 8, 4, 1); 15(10, 8, 6, 5); 15(11, 8, 6, 2); 15(13, 6, 4, 2); 17(14, 8, 5, 2); 17(12, 10, 6, 3); 17(13, 10, 4, 2); 17(11, 10, 8, 2); 19(16, 8, 5, 4); 19(16, 10, 2, 1); 19(14, 10, 7, 4); 19(14, 10, 8, 1); 19(12, 10, 9, 6); total 17.

Next, with numbers > 100 the solutions of (i.) are (the value of e is given for shortness)

e = 5, 13, 17, 25, 29, 37, 41, 53, 61, 65, 65, 73, 85, 85, 89, 97; total 16; as e may be any prime of form (4w + 1), or any power or product of such primes, the products 65, 85 are counted twice (each giving two solutions).

(2) The only solutions with numbers > 100 are

65<sup>2</sup> = 39<sup>2</sup> + 52<sup>2</sup> = 25<sup>2</sup> + 60<sup>2</sup> = 63<sup>2</sup> + 16<sup>2</sup> = 33<sup>2</sup> + 56<sup>2</sup>;

85<sup>2</sup> = 51<sup>2</sup> + 68<sup>2</sup> = 75<sup>2</sup> + 40<sup>2</sup> = 13<sup>2</sup> + 84<sup>2</sup> = 77<sup>2</sup> + 36<sup>2</sup>;

as 65, 85 are the only numbers (< 100) which contain two unequal prime factors each of the form (4w + 1).

Note to 15088 By the PROPOSER.

In the form e(a, b, c, d) 5 other sets may be found, viz.,

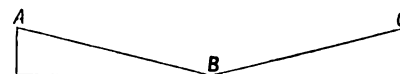
9(2, 4, 5, 6); 14(1, 5, 7, 11); 18(1, 3, 5, 17); 18(3, 5, 11, 13); 18(5, 7, 9, 13).

Also if two of the numbers may be alike in the form d(a, b, c), the total becomes 14; and if two or three of the numbers in the form e(a, b, c, d) are alike, the total is increased to 52.

15107. (I. ARNOLD.)—There are two opposite inclined planes each inclined to the horizon at an angle of 15°, viz., AB and BC; and touching each other at B. The planes are 100 feet long each; and a small perfectly smooth metallic ball rolls down AB and then ascends BC. In what time will the ball come to rest between the two planes?

Solution by M. PERINS.

Let h be the height of either plane. When the ball comes to B it has a



velocity of  $\sqrt{2gh}$  in the direction AB acquired in time  $\sqrt{2gh}/g \sin 15^\circ$ .

The component,  $\sqrt{(2gh) \cos 30^\circ}$ , of this velocity along BC takes the ball up that plane to a height of  $h \cos^2 30^\circ$  feet in time  $[\sqrt{(2gh)/g \sin 15^\circ} \cos 30^\circ]$ , and when the ball comes down the plane CB to B it has a velocity of  $\sqrt{(2gh) \cos 30^\circ}$  in time  $[\sqrt{(2gh)/g \sin 15^\circ} \cos 30^\circ]$ . As before, the component,  $\sqrt{(2gh) \cos^2 30^\circ}$ , of this velocity along AB takes the ball up that plane to a height of  $h \cos^4 30^\circ$  in time  $[\sqrt{(2gh)/g \sin 15^\circ} \cos^2 30^\circ]$ . In coming down AB the ball takes the same time. So the whole time (in seconds) taken before the ball comes to rest is the sum of the infinite series  $\sqrt{(2gh)/g \sin 15^\circ} + 2[\sqrt{(2gh)/g \sin 15^\circ} \cos 30^\circ + 2[\sqrt{(2gh)/g \sin 15^\circ} \cos^2 30^\circ + \dots]$

This is  $= [\sqrt{(2gh)/g \sin 15^\circ} + 2[\sqrt{(2gh)/g \sin 15^\circ} \cos 30^\circ [1 + \cos 30^\circ + \cos^2 30^\circ + \dots]]$   
 $= [\sqrt{(2gh)/g \sin 15^\circ} (1 + 2 \cos 30^\circ) [1/(1 - \cos 30^\circ)]]$   
 $= \sqrt{(200/g \sin 15^\circ)} [2(1 + \sqrt{3})]/(2 - \sqrt{3})$   
 $= 100 \text{ secs. nearly,}$

since  $h = 100 \sin 15^\circ = 5\sqrt{2} (1 + \sqrt{3})^{\frac{1}{2}} (2 + \sqrt{3})$ .

**15054.** (G. F. S. HILLS.)—There are six confocals to  $x^2/a^2 + y^2/b^2 = 1$ , such that quadrilaterals circumscribed to this ellipse are inscribed in the confocal, and the six values of  $\lambda [x^2/(a^2 + \lambda) + y^2/(b^2 + \lambda) = 1]$  are given by  $(\lambda^2 - a^2b^2)(\lambda^2 + 2b^2\lambda + a^2b^2)(\lambda^2 + 2a^2\lambda + a^2b^2) = 0$ .

Solutions (I.) by R. F. WHITEHEAD; (II.) by the PROPOSER.

(I.) If the lines XY, YX', X'Y', Y'X be  $(lx \pm my \pm nz = 0)$  referred to the triangle PQR, any conic touching them is of the form

$$ax^2 + by^2 + cz^2 = 0,$$

where  $l^2/a + m^2/b + n^2/c = 0 \dots (1)$ .

Also any conic through  $XYX'Y'$  will be of the form

$$(lx + my + nz)(lx + my - nz)$$

$$+ \theta (lx - my + nz)(-lx + my + nz) = 0$$

$$\text{or } l^2x^2 + m^2y^2 - n^2z^2 + 2\mu lmx + 2\mu mny = 0$$

$$[\text{where } \mu = (1 + \theta)/(1 - \theta)].$$

Hence  $\Delta = abc$ ,  $\Theta = bc^2 + cam^2 - abn^2 = -2abn^2$  [from (1)],

$$\Theta' = -am^2n^2 - bn^2l^2 + c^2m^2(1 - \mu^2) = abn^2/c + c^2m^2(1 - \mu^2) \text{ [from (1)],}$$

$$\Delta' = -l^2m^2n^2(1 + \mu^2);$$

therefore  $\Theta' = a^2b^2n^4/\Delta - c\Delta'/n^2 = \Theta^2/4\Delta + 2\Delta\Delta'/\Theta$ .

This is the invariant condition that a quadrilateral may be drawn about S and in S'.

If now S be  $bx^2 + ay^2 - ab = 0$ , and S' be a confocal

$$(b + \lambda)x^2 + (a + \lambda)y^2 - (a + \lambda)(b + \lambda) = 0,$$

we have  $\Delta = -a^2b^2$ ,  $\Delta' = -(a + \lambda)^2(b + \lambda)^2$ ,

$$\Theta' = -(a + \lambda)(b + \lambda)[(a + \lambda)\lambda + 3ab], \quad \Theta = -ab[\lambda^2 + 2(a + b)\lambda + 3ab];$$

whence, on reduction, we have

$$\lambda^6 + 2(a + b)\lambda^5 + 5ab\lambda^4 - 5a^2b^2\lambda^2 - 2a^2b^2(a + b)\lambda - a^3b^3 = 0,$$

$$\text{or } (\lambda^2 - ab)(\lambda^2 + 2a\lambda + ab)(\lambda^2 + 2b\lambda + ab) = 0.$$

(II.) Take the conics

$$S \equiv x^2/p^2 + y^2/q^2 = 1, \quad S' = ax^2 + 2bxy + \dots + c = 0.$$

Take points whose eccentric angles are  $\alpha, \beta, \gamma, \delta$  on the first; then the pole of  $\beta\gamma$  for it lies on S' if

$$(ap^2 - bq^2 + c) \cos \beta \cos \gamma + (bq^2 - ap^2 + c) \sin \beta \sin \gamma + ap^2 + bq^2 + c + 2gp(\cos \beta + \cos \gamma) + 2fq(\sin \beta + \sin \gamma) + 2hpq \sin(\beta + \gamma) = 0 \dots (i.),$$

on slight reduction,

Hence, if we draw a quadrilateral circumscribing S, touching at points  $\alpha, \beta, \gamma, \delta$ , the corners all lie on S', if the four equations of type (i.) between  $\alpha\beta, \beta\gamma, \gamma\delta, \delta\alpha$  hold. This is a poristic system, and the condition for its existence is

$$\begin{vmatrix} ap^2 - bq^2 + c & 2hpq & 2gp \\ 2hpq & bq^2 - ap^2 + c & 2fq \\ 2gp & 2fq & ap^2 + bq^2 + c \end{vmatrix} = 0.$$

In the case of confocals

$$f = g = h = 0, \quad c = -1, \quad a = 1/(p^2 + \lambda), \quad b = 1/(q^2 + \lambda);$$

$$\text{hence } [p^2/(p^2 + \lambda) - q^2/(q^2 + \lambda) - 1] [q^2/(q^2 + \lambda) - p^2/(p^2 + \lambda) - 1] \times [p^2/(p^2 + \lambda) + q^2/(q^2 + \lambda) - 1] = 0,$$

$$\text{or } (\lambda - p^2q^2)(\lambda^2 + 2q^2\lambda + p^2q^2)(\lambda^2 + 2p^2\lambda + p^2q^2) = 0.$$

Note the above condition for porism can be obtained thus: Let

$$f(\alpha\beta) = a \cos \alpha \cos \beta + b \sin \alpha \sin \beta + c + h \sin(\alpha + \beta) + g(\cos \alpha + \cos \beta) + f(\sin \alpha + \sin \beta).$$

Then the four equations  $f(\alpha\beta) = 0, f(\beta\gamma) = 0, f(\gamma\delta) = 0, f(\delta\alpha) = 0$  exist only if a certain relation hold.

Now  $f(\beta\theta) = 0, f'(\delta\theta) = 0$  have the same roots for  $\theta$ , viz.  $\theta = \alpha, \theta = \gamma$ ; hence, equating the coefficients of  $\cos \theta, \sin \theta$ , and the constant term,

$$a \cos \beta + h \sin \beta + g = h \cos \beta + b \sin \beta + f = g \cos \beta + f \sin \beta + c = \lambda$$

$$a \cos \delta + h \sin \delta + g = h \cos \delta + b \sin \delta + f = g \cos \delta + f \sin \delta + c = \lambda.$$

Eliminate  $\cos \beta - \lambda \cos \delta, \sin \beta - \lambda \sin \delta, 1 - \lambda$ ; we get

$$\begin{vmatrix} a & h & g \\ h & b & f \\ g & f & c \end{vmatrix} = 0.$$

**14877.** (ROBERT W. D. CHRISTIE.)—Factorize  $3e^4 + \{f(e-f)\}^2$ .

E.g. :  $1483181587 = 24841 \times 59707.$

Solutions (I.) by H. W. CURJEL, M.A., and others; (II.) by Lt.-Col. ALLAN CUNNINGHAM, R.E.; (III.) by the PROPOSER.

(I.)  $3e^4 + \{f(e-f)\}^2 = (3e^2 - 3ef + f^2)(e^2 + ef + f^2)$ ;

and, putting  $e = 149$  and  $f = 16$ , we get

$$1483181587 = 24841 \times 59707.$$

(II.) Let  $N = \{f(e-f)\}^2 + 3e^4 \dots \dots \dots (1)$ .

Here  $N = A^2 + 3B^2 \dots \dots \dots (2)$ .

Hence every factor (F) of N is of same form (2).

Let  $N = F' \cdot F'' = (A' + 3B') \cdot (A'' + 3B'') \dots \dots \dots (3)$ .

Then  $N = (A'A'' \mp 3B'B'')^2 + 3(A'B'' \pm B'A'')^2 \dots \dots \dots (4)$ .

Here three cases arise according as  $e, f$  are odd or even.

Cases (i.), (ii.) ( $e$  odd).—Taking the two upper signs in (4),

$$N = (A'A'' - 3B'B'')^2 + 3(A'B'' + B'A'')^2 = A^2 + 3B^2.$$

Now take  $A' = e + \frac{1}{2}f, B' = \frac{1}{2}f, A'' = \frac{1}{2}f, B'' = e - \frac{1}{2}f$ .

Therefore  $A = (e + \frac{1}{2}f) \frac{1}{2}f - \frac{3}{2}f(e - \frac{1}{2}f) = -f(e - f)$ ;

$$B = (e + \frac{1}{2}f)(e - \frac{1}{2}f) + (\frac{1}{2}f)^2 = e^2.$$

Case (i.) ( $e$  odd,  $f$  even).—Take  $f' = f$ ; then

$$A = -f(e - f), \quad B = e^2.$$

Case (ii.) ( $e$  odd,  $f$  even).—Take  $f' = (e - f)$ ; then

$$A = -(e - f)f, \quad B = e^2.$$

Thus, in both cases, (i.), (ii.), the product (3) reduces to the required form (1).

Case (iii.) ( $e$  even,  $f$  odd).—Taking the two lower signs in (4),

$$N = (A'A'' + 3B'B'')^2 + 3(A'B'' - B'A'')^2 = A^2 + 3B^2.$$

Now take  $A' = f - \frac{3}{2}e, B' = \frac{1}{2}e, A'' = f + \frac{1}{2}e, B'' = \frac{1}{2}e$ .

Therefore  $A = (f - \frac{3}{2}e)(f + \frac{1}{2}e) + 3(\frac{1}{2}e)^2 = f(e - f)$ ;

$$B = (f - \frac{3}{2}e) \frac{1}{2}e - \frac{1}{2}e(f + \frac{1}{2}e) = -e^2;$$

so that here also the product (4) reduces to the required form (1).

Ex. of (i.).— $N = 1483181587 = 2128^2 + 3 \cdot 149^4; e = 149, f(e - f) = 16 \cdot 133$ ; take  $f = 16 = f'$ . Here

$$A' = 157, \quad B' = 8, \quad A'' = 8, \quad B'' = 141;$$

$$F' = 157^2 + 3 \cdot 8^2 = 24841, \quad F'' = 8^2 + 3 \cdot 141^2 = 59707.$$

Ex. of (ii.).—[Same as in (i.)];  $e = 149, f(e - f) = 16 \cdot 133$ ; take  $f = 133, f' = 16$ ; and the rest of the work is as in Case (i.).

Ex. of (iii.).— $N = 44161 = 119^2 + 3 \cdot 10^4; e = 10, f = 23$ . Here

$$A' = 8, \quad B' = 5, \quad A'' = 28, \quad B'' = 5;$$

$$F' = 8^2 + 3 \cdot 5^2 = 139, \quad F'' = 28^2 + 3 \cdot 5^2 = 859.$$

(III.) The given expression  $= \{e^2 + ef + f^2\} \{e^2 + e(e - f) + (e - f)^2\}$ .

If  $e$  be composite, we can eliminate  $f^4$  and obtain

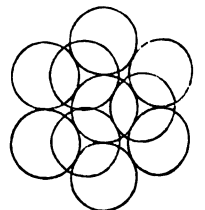
$$3g^4 + (g - 1)^2 = 3(k^2 + 1)^4 + k^4 = \{(k^2 + 1)^2 + (k^2 + 1) + 1\} \{(k^2 + 1)^2 + (k^2 + 1)k^2 + k^4\},$$

an expression which leads to further developments.

**10236.** (ARTEMAS MARTIN, LL.D.)—What is the greatest number of equal spheres, each 1 inch in diameter, that can be packed in a hollow sphere whose internal diameter is 3 inches?

Solution by J. BLAIKIE, M.A.

It seems clear that 13 is the greatest number. Seven equal spheres may be arranged with their centres in one plane through the centre of the hollow sphere, so that the central sphere is touched by the other six. Three spheres may be placed above and three below, and thus the central sphere will be touched by twelve spheres, and each of the enveloping spheres will touch five equal spheres as well as the outer sphere of 3 inches diameter. It would also be possible to arrange the twelve enveloping spheres at the corners of an icosahedron, and in that case each would touch the central



sphere, but the enveloping spheres would not touch each other. For, if O, A, B, C, D, E be six adjacent vertices of an icosahedron of which A, B, C, D, E are in one plane, and if OL be drawn perpendicular to this plane, it is easy to calculate that

$$OL^2 = AB^2(3 + \sqrt{5})/(10 + 4\sqrt{5}),$$

which is greater than  $\frac{1}{2}AB$ , since  $4(3 + \sqrt{5})$  is greater than  $10 + 4\sqrt{5}$ . Thus, if OL be produced its own length to O', an equal sphere whose centre was at O' would not touch the sphere O, and the central sphere touching the twelve spheres whose centres are at the vertices of the icosahedron and whose radii are each equal to half an edge, is less than each of the enveloping spheres. If then an equal sphere be placed at the centre, each of the enveloping spheres will be pushed out radially, and they will cease to touch each other, but the additional space is clearly insufficient to admit a fourteenth sphere.

**14961.** (H. BATEMAN.)—The axis of a parabola circumscribing a triangle is a SIMSON line with respect to the triangle formed by joining the middle points of the sides.

Solutions (I.) by Professor SANJANA, M.A.; (II.) by A. M. NESBITT, M.A., and L. ISSERLIS.

(I.) Let a parabola be circumscribed about the triangle  $abc$ , so that  $qrs$ , the axis, makes an angle  $\theta$  with  $bc$ ; let  $ABC$  be the triangle formed by joining the mid-points of the sides of  $abc$ . Then

$$\angle CQR = \theta, \quad \angle AST = \theta - B, \\ \angle CRT = \theta + C;$$

and it is well known that the distances of B and C from that SIMSON-line of  $ABC$  which makes the angle  $\theta$  with  $BC$  are respectively

$$2R \sin \theta \sin(\theta - B) \cos(\theta + C) \quad \text{and} \quad 2R \sin \theta \sin(\theta + C) \cos(\theta - B),$$

where R is the radius of the circumcircle of  $ABC$ .

If the coordinates of  $a, b, c$  be  $x_1y_1, x_2y_2, x_3y_3$  respectively, we have

$$y_2^2 - y_1^2 = 4a(x_2 - x_1);$$

therefore  $(y_2 + y_1)(y_2 - y_1)(x_2 - x_1) = 4a$ ;

therefore  $2y_c \tan(\theta - B) = 4a$  or  $y_c = 2a \cot(\theta - B)$ ,

$y_c$  being the ordinate of C. Similarly,

$$y_b = 2a \cot(\theta + C), \quad y_a = 2a \cot \theta.$$

But  $y_c - y_a = CA \sin(\theta + C) = 2R \sin B \sin(\theta + C)$ ;

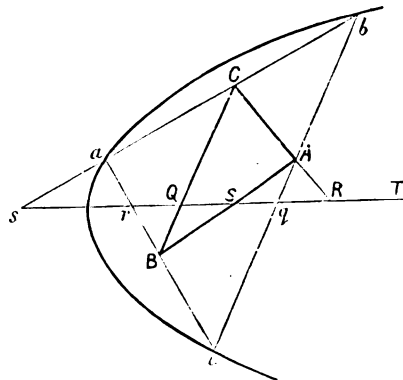
so that  $2a \{\cot(\theta - B) - \cot \theta\} = 2R \sin B \sin(\theta + C)$

and  $a = R \sin \theta \sin(\theta - B) \sin(\theta + C)$ .

Thus  $y_b = 2R \sin \theta \sin(\theta - B) \cos(\theta + C)$

and  $y_c = 2R \sin \theta \sin(\theta + C) \cos(\theta - B)$ .

Hence the axis  $qrs$  is a SIMSON-line of the triangle  $ABC$ .



(II.) Let 123 be the triangle, A, B, C the mid-points of the sides, and let BC meet the axis in L, CA in M, and AB in N. Then, if the coordinates of 1 be  $(am_1^2, 2am_1)$ , &c., the equation to AC (which bisects 23 and is parallel to 13) is

$$\frac{y - a(m_2 + m_3)}{x - \frac{1}{2}a(m_2^2 + m_3^2)} = \frac{2}{m_1 + m_3};$$

therefore the abscissa of M is  $\frac{1}{2}a(m_2^2 - \Sigma)$ , where

$$\Sigma \equiv m_2m_3 + m_3m_1 + m_1m_2,$$

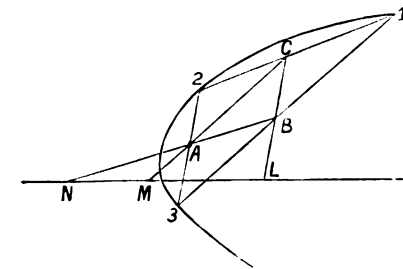
and the equation of a line through M perpendicular to AC is

$$y/[x - \frac{1}{2}a(m_2^2 - \Sigma)] = -\frac{1}{2}(m_1 + m_3).$$

Interchanging  $m_1$  and  $m_2$ , we get the line through L perpendicular to BC, and at once we find that these meet in the point  $(-a\Sigma, \frac{1}{2}a\Pi)$ , where

$$\Pi \equiv (m_2 + m_3)(m_3 + m_1)(m_1 + m_2).$$

Symmetry shows that the line through N perpendicular to AB passes through the same point. It is, moreover, easily seen that this point—call it P—is on the circle through ABC. For the axis (K) and the three sides of the triangle ABC form a system of four lines, and it is known



that in such a system the four circles round the four triangles obtained by suppressing each line in turn have a common point. But the circle AMN circumscribes the triangle formed by omitting BC, the circle BNL that formed by omitting CA, and the circle CLM that formed by omitting AB; and these obviously all pass through P; therefore the circle ABC passes through P. Hence the perpendiculars from P, a point on the circle ABC, to the sides of the triangle ABC, meet those sides in three points L, M, N, which lie on the axis of the parabola.

**15051.** (R. KNOWLES.)—Prove that the sum to  $r$  terms of the series  $1 - 6 + 15 - 28 \dots \pm r(2r-1)$ , when  $r$  is an even number,  $= -\frac{1}{2}r(2r+1)$ , and, when  $r$  is an odd number,  $= \frac{1}{2}(r+1)(2r-1)$ .

Solutions (I.) by Lt.-Col. ALLAN CUNNINGHAM, R.E., and C. A. B. GARRETT; (II.) by H. B. GOODWIN, and J. H. TAYLOR, M.A.; (III.) by T. PEELE, A.I.A.

(I.) Let  $S_r$  = sum of  $r$  terms, and take the terms in pairs. When  $r$  is even,

$$S_r = (1-6) + (15-28) + (45-66) + \&c. \\ = -(5+13+21+\&c. \text{ to } \frac{1}{2}r \text{ terms}) \\ = -\{10 + (\frac{1}{2}r-1)8\} \cdot \frac{1}{2}r = -\frac{1}{2}r(2r+1).$$

When  $r$  is odd,  $S_r = 1 + (-6+15) + (-28+45) + \&c.$   
 $= 1 + 9 + 17 + 25 + \&c. \text{ to } \frac{1}{2}(r+1) \text{ terms}$   
 $= \{2 + \frac{1}{2}(r-1)8\} \cdot \frac{1}{2}(r+1) = \frac{1}{2}(r+1)(2r-1).$

(II.) When the number of terms is even, the series may be written

$$2 - 2 \cdot 2^2 + 2 \cdot 3^2 - 2 \cdot 4^2 \dots \\ -1 + 2 - 3 + 4 \dots \text{ to } r \text{ terms,}$$

or  $2(-3-7-11-15 \dots \text{ to } \frac{1}{2}r \text{ terms}) + \frac{1}{2}r$ ;

where  $S = 2 \cdot \frac{1}{2}r \{-6 + (\frac{1}{2}r-1)(-4)\} + \frac{1}{2}r = -\frac{1}{2}r(2r+2) + \frac{1}{2}r = -\frac{1}{2}r(2r+1)$ .

If the number of terms is odd, and  $= r$ , then  $(r-1)$  is even; consequently, by the formula proved above, the sum of  $(r-1)$  terms is  $-\frac{1}{2}(r-1)(2r-1)$ . Adding the  $r$ -th term, namely,  $r(2r-1)$ , we have for the whole sum

$$-\frac{1}{2}(r-1)(2r-1) + 2r^2 - r \text{ or } \frac{1}{2}(2r^2 + r - 1) = \frac{1}{2}(r+1)(2r-1).$$

(III.) Let  $t_p$  = numerical value of the  $p$ -th term,  $s_p = t_{2p-1} - t_{2p}$ ,

$S_p$  = sum of  $p$  terms of the original series,  $s_p = -(8p-3)$ ;

$$S_{2n} = \sum_{p=1}^{n} s_p = -n(4n+1).$$

Put  $2n = r$ :

$$S_r = -\frac{1}{2}r(2r+1) \quad (r \text{ even}),$$

$$S_{2n-1} = S_{2n} + t_{2n} = -n(4n+1) + 2n(4n-1) = n(4n-3).$$

Put  $2n-1 = r$ :

$$S_r = \frac{1}{2}(r+1)(2r-1) \quad (r \text{ odd}).$$

**15084.** (A. M. NESBITT, M.A.)—If  $u_r$  denote the chance that of  $r$  letters intended for  $r$  different recipients and placed at random into  $r$  envelopes correctly addressed, not one shall reach its proper destination (disregarding errors of delivery, &c.), it is fairly obvious a priori that

$$u_n + u_{n-1} \cdot 1! + u_{n-2} \cdot 2! + \dots + u_0 \cdot n! = 1.$$

Solve this difference equation directly; i.e., prove that  $u_n$  = the first  $n+1$  terms of the expansion of  $e^{-1}$  without reference to the problem from which it originally sprang.

Solution by Professor NANSON.

If  $v_n = n! u_n$  and E is defined by  $E v_n = v_{n+1}$ , the given equation is

$$(E+1)^n v_0 = n!.$$

Hence  $u_n = \frac{1}{n!} E^n v_0 = \sum (-1)^r \frac{1}{r!(n-r)!} (E+1)^r v_0 = \sum (-1)^r \frac{1}{(n-r)!}$ ,

the result required.

QUESTIONS FOR SOLUTION.

**15185.** (Professor S. SIMCOM.)—Show that

$$n^r - \binom{n}{2}(n-2)^r + \binom{n}{4}(n-4)^r - \binom{n}{6}(n-6)^r + \dots \\ = n \Delta^r \cdot 2^{1(n-1)} \cos(n-1) \frac{1}{2} \pi + \binom{n}{2} \Delta^{2r} \cdot 2^{1(n-2)} \cos(n-2) \frac{1}{2} \pi + \dots \\ \dots + \binom{n}{r} \Delta^{2r} \cdot 2^{1(n-r)} \cos(n-r) \frac{1}{2} \pi.$$

**15186.** (G. H. HARDY, B.A.)—Prove that

$$(i.) \int_0^{\pi} \frac{(\log \cos^2 ax)^2}{1+x^2} dx = 2\pi \left[ \left\{ \log \left( \frac{1+e^{-2a}}{2} \right) \right\}^2 + 2 \int_0^a \log(1+e^{-2a}) da \right]. \\ (ii.) \int_0^{\pi} \frac{(\log \sin^2 ax)^2}{1+x^2} dx = 2\pi \left[ \left\{ \log \left( \frac{1-e^{-2a}}{2} \right) \right\}^2 \right. \\ \left. + \frac{1}{2} \pi^2 + 2 \int_0^{\pi} \log(1-e^{-2a}) da \right].$$

(iii.)  $\int_0^x \log \cos^2 ax \log \sin^2 ax \, dx = 2\pi \left[ \log \left( \frac{1+e^{-2a}}{2} \right) \log \left( \frac{1-e^{-2a}}{2} \right) + \int_0^x \log(1-e^{-4a}) \, da \right]$ .

15187. (Professor LANGHORNE ORCHARD, M.A., B.Sc.)—Find the mean of all circles inscribed in a circle of unit radius.

15188. (Lt.-Col. ALLAN CUNNINGHAM, R.E.)—If  $\sum N$  denote the sum of the divisors of a number (including both 1 and  $N$ ), find  $L, M, N$  such that  $\int L = \int M = \int N = \Omega$  (an odd number).

15189. (R. W. D. CHRISTIE.)—If  $\sum N$  (any integer whatever) equal three triangulars, say  $a(2a+1) + (2m+1)(m+1) + (2n+1)(n+1)$ , find  $2N+1$  (any odd number) equal to four integral squares in terms of  $m, a, n$ .

15190. (Professor NANSON.)—If

$$\begin{aligned} A &= bc - f^2, \dots; & F &= gh - af, \dots; \\ A' &= b'c' - f'^2, \dots; & F' &= g'h' - a'f', \dots; \\ A_1 &= bc' + b'c - 2ff', \dots; & F_1 &= gh' + g'h - af' - a'f, \dots; \end{aligned}$$

prove that the equations

$$\begin{vmatrix} A & B & C & F & G & H \\ A' & B' & C' & F' & G' & H' \\ A_1 & B_1 & C_1 & F_1 & G_1 & H_1 \end{vmatrix} = 0$$

are equivalent to two relations; and if, further,

$$A_2 = BC' + B'C - 2FF', \dots; \quad F_2 = GH' + G'H - AF' - A'F, \dots;$$

prove that the equations

$$\begin{vmatrix} a & b & c & f & g & h \\ a' & b' & c' & f' & g' & h' \\ A_2 & B_2 & C_2 & F_2 & G_2 & H_2 \end{vmatrix} = 0$$

are also equivalent to two relations, and determine whether the two sets of relations are equivalent.

15191. (R. W. D. CHRISTIE.)—Factorize

$$AX^n + BX^{n-1} + CX^{n-2} \dots + Z = 0$$

for all values of  $n$ : e.g.,  $n = 3, A = 1, B = 2, C = 3, Z = 4, X = 10k + 1$ ; then the factors are

$$10 \{ 90(30 + 3 + 2) + 3(3 + 4 + 3) + 1 \} = 10 \times 3181.$$

15192. (R. C. ARCHIBALD, M.A., Ph.D.)—Show that the length of the first positive pedal of the cardioid  $r = 2a(1 - \cos \theta)$  with respect to its vertex is  $12a \left( 2 + \frac{1}{\sqrt{3}} \log(2 + \sqrt{3}) \right)$ .

15193. (A. S. TOMBE, B.A.)—A quartic has two cusps and a node; prove that the line joining the two points of inflexion, the line joining the two cusps, and the bitangent all pass through a common point. (Mentioned in SALMON'S *Higher Plane Curves*, p. 258.)

15194. (JAMES BLAIRIE, M.A.)—Obtain by means of a geometrical construction expressions for the diameter of the sphere circumscribing (1) a dodecahedron, (2) an icosahedron, in terms of the length of an edge. Prove from the result or otherwise that in the dodecahedron  $d^4 = 9a^2(a^2 - a^2)$ , and in the icosahedron  $d^4 = 5a^2(a^2 - a^2)$ , where  $a$  is the length of the edge,  $d$  the length of the diameter.

15195. (R. TUCKER, M.A.)—Prove

$$\begin{vmatrix} \cos B \cos C & -p \cos C & p \cos B \\ p' \cos C & \cos C \cos A & -p' \cos A \\ -p'' \cos B & p'' \cos A & \cos A \cos B \end{vmatrix} = \Pi(\cos A) \Pi(\cos B + \cos C - \cos A),$$

where  $p = \cos B - \cos C, p' = \cos C - \cos A, p'' = \cos A - \cos B$ .

15196. (C. E. YOUNGMAN, M.A.)—Three circles, each touching the other two, cut a fourth orthogonally, and touch a fifth; and the five radii are the reciprocals of  $u, v, w, x, y$ . Show that  $y = u + v + w \pm 2x$ , counting  $u$  negative when its circle incloses those of  $v$  and  $w$ .

15197. (Professor NANSON.)—Find the general equation of a conic passing through the intersections of a line  $L$  and a conic  $S$ , and through the intersections of a second line  $L'$  and a second conic  $S'$ .

15198. (Professor SANJANA, M.A.)—ACA', BCB' are two fixed conjugate diameters of a hyperbola, and CP, CD are two conjugate semi-diameters: if AP, BD meet in O, and A'P, B'D in Q, prove that PODQ is a parallelogram, whose diagonal OQ is of fixed length and lies along an asymptote. Find also the maximum area of this parallelogram.

15199. (Professor NEUBERG.)—Trouver le lieu du centre d'une quadrique passant par quatre points fixes et dont les axes sont parallèles à des droites données.

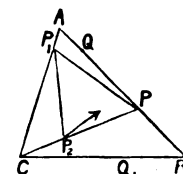
15200. (R. KNOWLES. Extension of Question 9764.)—A third tangent to a conic at a point R meets two tangents TP, TQ in MN; if O be the mid-point of MN, prove that (1) the diameter through O bisects TR; (2) if the polar of O meets PQ in F, FT is parallel to the tangent at R.

15201. (Professor COCHEZ.)—On donne une circonférence  $x^2 + y^2 = R^2$  et une droite  $D, x = a$  et un point  $M(a, \beta)$ . Par M on mène une sécante rencontrant D en A et la circonférence en B et C. Par B et C on mène les tangentes BP, CP et l'on joint PA. (1) Lieu de P; (2) lieu du milieu Q de PA; (3) lieu de M', projection de M sur PA.

15202. (R. CHARTRES.)—If the base of a triangle be the horizontal range of a projectile that passes through both the in-centre and the ortho-centre of the triangle, and if the in-circle passes through the centroid (suggested by Question 12641), find the ratio of the sides, the angle of projection, and the BROCARD angle.

15203. (A. M. NESBITT, M.A.)—A ball of mass A impinges obliquely upon another of mass B, which is in contact with an inelastic vertical wall, A's velocity before impact being perpendicular to the wall, the whole motion taking place upon a smooth horizontal table. If  $a$  be the angle between A's first direction and the line of impact, and  $\theta$  the angle of deviation of A, prove that  $\cot \theta \cot a = 1 + A/B$ .

15204. (V. DANIEL, B.Sc.)—From the greatest angle C of any triangle, a line CPP<sub>1</sub>P<sub>2</sub>... is drawn counterclockwise, so that each of the angles CPA, PP<sub>1</sub>C, ..., P<sub>n</sub>P<sub>n+1</sub>P<sub>n-1}, ... is equal to C. Similarly, CQQ<sub>1</sub>Q<sub>2</sub>... is drawn clockwise. Show that the limiting points thus determined within the triangle are the BROCARD points. [For the case  $C = \frac{1}{2}\pi$ , P and Q coincide; see Question 14189, Vol. LXXII., p. 43.]</sub>



OLD QUESTIONS AS YET UNSOLVED (IN OUR COLUMNS).

8050. (Professor WOLSTENHOLME, M.A., Sc.D.)—The lengths of the edges OA, OB, OC of a tetrahedron OABC are respectively  $x + \cdot 1108, x$ , and  $x - \cdot 1108$ ; those of the respectively opposite edges BC, CA, AB are respectively  $x + 2 \cdot 9695, x + 2 \cdot 8587, x + 2 \cdot 7079$ ; the sum of the plane angles BOC, COA, AOB is  $2S$ , that of the dihedral angles at O is  $2s$ : prove that the minimum value of  $S - s$  is  $-0^\circ 2' 34'' \cdot 9$ , when  $x$  has the value  $6 \cdot 9099$  nearly.

8442. (Professor SARADARANJAN RAY, M.A.)—A number of equal spherical balls rest in contact arranged symmetrically round a centre of force, their centres all lying on a sphere whose centre is the centre of force; if the balls which surround a given ball touch one another in order, prove (1) that the number of balls must be either 4, 6, or 12; and the squares of the radii of each ball and of the sphere passing through the centres are in the ratios of  $\frac{2}{3}, \frac{1}{2}$ , or  $\frac{\sqrt{5}-1}{2\sqrt{5}}$ ; and find (2) what other arrangements would be possible if the balls which surround a given ball do not touch in order.

8839. (D. BIDDLE.)—A small sphere, perfectly elastic, after falling from rest through a distance  $h$ , strikes an inclined plane of indefinite dimensions, and rebounds from it again and again. Find the second and third points of contact, when the plane is inclined to the horizon at an angle (1) of  $45^\circ$ , (2) of  $30^\circ$ .

9076. (Professor NASH, M.A.)—If  $A\omega, B\omega, C\omega, A\omega', B\omega', C\omega'$  meet the circum-circle in X, Y, Z, X', Y', Z', show that (1) the triangles XYZ, X'Y'Z' are similar and equal to ABC, and are TUCKER'S triangles of another triangle A'B'C', similar and similarly situated to ABC, the centre of similitude being the pole of  $\omega\omega'$  with respect to the BROCARD circle; and (2) area A'B'C' : area ABC =  $\sin^2 3\omega : \sin^2 \omega$ .

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9908. (Professor CATALAN.)—Démontrer que

$$1 + \frac{q}{1-q} + \frac{q^2}{(1-q)(1-q^2)} + \frac{q^3}{(1-q)(1-q^2)(1-q^3)} + \dots = 1 + \frac{q}{1-q} + \frac{q^4}{\{(1-q)(1-q^2)\}^2} + \frac{q^9}{\{(1-q)(1-q^2)(1-q^3)\}^3} + \dots$$

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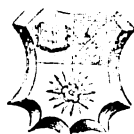
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## CONTENTS.

	Page		Page
To be, or not to be—"Scrapped" ? .....	415	University Life in Germany. By W. B. Wallace, B.A. ....	424
Notes .....	416	College of Preceptors—Meeting of Council .....	425
" This Bishops' Bill " : a Clerical War"—Dr. Clifford's Nine Points		Certificate Examination : Colonial Pass List.....	426
—" Without Mandate or Authority from the Electorate"—Prof. Dewar on British Industry and British Education—Prof. Perry and British Teachers: Dr. Albert Shaw in contrast—Prof. Hartog on the Teaching of English—London School Board Evening Continuation Schools— <i>Indian Education</i> : a new Shilling Monthly—Nature Study & Compulsory Game-playing—" Educationist " or " Educationalist " ?		Professional Preliminary Examination : Pass List ...	426
Summary of the Month .....	418	Reviews .....	426
Correspondence .....	420	What to Teach, and Why (" Principles of Class Teaching ")—The Latest Dictionary of the Bible (" Encyclopædia Biblica ")—The Fifth of the New Volumes of the " Encyclopædia Britannica "—The Barbarian Invasions of Italy—Higher Mathematics for Students of Chemistry and Physics—Illustrations of English Medieval History—Grieb's German-English Dictionary.	
Lantern Slide Lectures for the People.		General Notices .....	429
Current Events .....	423	First Glances .....	431
Fixtures—Endowments—Appointments—Literary Items—General.		Mathematics .....	435

## The Educational Times.

*To be,  
or not to be—  
"Scrapped" ?*

THE British Association, with all its prestige, has not escaped the sharp side of censorious tongues; but last year it went to school—or, rather, it took the school to its bosom—and it has now learned the game of "Pass it on." The activity of youth has displayed itself this year with astonishing vigour in the Section of Educational Science, and we rejoice to witness such indubitable signs of the energy that guarantees future progress. The indagations of youth and of genius are incalculable, and, therefore, need hardly be surprising; and, if sometimes they seem spasmodic and not very definite of aim, yet even then they are part of a complex whole, which, no doubt, somehow and somehow gets benefit from them. There is always something new when the British Association sits in Belfast, and so we were prepared for a stirring of the waters in the Education Section. The waters, accordingly, were stirred. It behoves us to ascertain the significance of the event.

The main assault on the existing educational system was led by Prof. Armstrong, the President of the section, who marshalled his well tried battery to bear on the stubborn citadel. Educational science—why, there is no such thing! It boots not now to dispute the allegation; there is, no doubt, much room for improvement, but still, even in these days, the business of teaching is not conducted altogether at haphazard. What we are concerned to know is not the unhelpful opinion (as expressed by one of George MacDonald's people) that we are "a'thegether a' wrang," but precisely where and how the system is in fault and may be improved. Prof. Armstrong certainly referred to specific points. He properly insisted that theory is superior to practice, and he urged that education would be more fruitful if teachers would give greater attention to "imagination"—"theory"—"the considered use of facts." Is it true, then, that teachers neglect the exercise of the imagination? At this moment we have on our table new school-books expressly devoted to the cultivation of the imagination generally; we have others expressly devoted to natural facts and "encouraging children to use their eyes always and to reflect on what they see"; and we have others of general contents embracing a liberal supply of what we will call—*pace* Prof.

Armstrong—excellent lessons of both characters, to say nothing of shoals of editions of our best literature as well as floods of elementary books presenting the newest ideas in all branches of science. But "education has ceased to be practical because it has failed to keep pace with the march of discovery." In what respect? Both school-books and the methods of using their contents are indefatigably kept up to date. One great bugbear seems to be the classics; but it is enough to point to the fact that non-classical subjects are steadily making room for themselves, in spite of some injudicious opposition or short-sighted discouragement. But the chief difficulty appears to be that the school is not "for the most part modelled on the work-shop, giving to this term the most varied meaning possible," and that "a great part of the time" is not spent "at the work-bench, tool in hand." How far the suggested change ought to be made is a question for much further consideration. But Prof. Armstrong's examples of criticism do not carry us far. He holds up the importance of economy of coal, and tells us that food is "outside the schoolmaster's ken." Is it possible that such things are ignored in the schools so as to deserve the Professor's sneers? We do not believe it for a moment. All such criticisms are too vague to do more than suggest to teachers the constantly recurring duty of self-examination.

Where does Prof. Armstrong lay the blame for all the inefficiency he castigates? He has already thrown part of it on the teachers, and, to our mind, not justly, or at least extravagantly and vaguely. Then there are the examining bodies. Three courses are open to these—to lead, to keep abreast of the times, to stagnate. Prof. Armstrong says they almost invariably stagnate, "a syllabus, when once adopted, remaining in force year after year." The charge, undoubtedly, applies to certain University examinations; but otherwise it is less than fair. Obviously it is waste of ammunition to fire over the heads of the examinees; but a lower aim does not mean "stagnation," and we are much inclined to think that most syllabuses are framed so as to test examinees with reasonable fairness and completeness. The real point, we take it, is an alleged want of practicality—a point that it is for the critics to prove to demonstration. True enough, examinations tend to retard, rather than to favour, the introduction of improved methods of teaching; but, then, where is the line to be drawn? Again, there are the School Boards. We are heartily with

Prof. Armstrong when he urges that "it is imperative that a sound public policy should be framed and that nothing should be allowed to stand in the way of the public good." But what is that policy? Lord Hugh Cecil and Dr. Clifford will agree that "nothing should be allowed to stand in the way of the public good"; but that leaves us still face to face with the Sphinx. However, Prof. Armstrong considers that the blame to be put upon the School Boards "is as nothing as compared with the blame to be put upon the Education Department." The Education Department has a broad back. The first necessary step, according to Prof. Armstrong (who employs another metaphor) is "to reorganize the Education Department, root and branch, to imbue it throughout with sound ideals," and so forth. We wish him luck in the undertaking. We shall hope to see that "monthly bonfire of red tape and official forms." We shall be still more interested to see Prof. Armstrong's substitutes. He would establish an Intelligence Board, partly official, but partly unofficial, so as to maintain constant touch with outside opinion and effort. But, really, does the Education Department not know what is going on outside? And is it so certain that it would be an advantage to education if its functions were to become "those of an exchange and inquiry office, rather than directive and assertive"? We dare say it is not a perfect institution; but most people would probably like to know more definitely how it is to be reorganized before lending a hand to pull it to pieces.

We are glad that Prof. Armstrong urged strongly the necessity for better provision for the training of teachers, whether in connexion with the Universities or otherwise. We recognize that full explanations of his objections to the existing system of education could not find room in a single address, and that any criticism of his utterances may, therefore, do him less than justice. The general bombardment is very well in its way; it will, at least, waken up some people, and attract attention. Prof. Armstrong's forecast of the regenerated future is interesting, and much of it seems probable enough. But reforms take time, and we do not care to ride off on imagination. "Why cannot we agree," asks Prof. Armstrong, "to scrap our scholastic and academic ideals, if not our schools and schoolmasters, and refit on scientific lines?" The answer is that our way is to proceed by reform and not by revolution—to satisfy ourselves of the worthlessness of the one system and the value of the other before making the exchange. Besides, there is something more in life than "science." In fact, we "exercise our imagination" upon the story of the elephant, who is said to try the bridge or the swamp with his sagacious foot before trusting his weight upon it. In any case, the country is open to instruction and persuasion. Let Prof. Armstrong and his friends now proceed to draw up (1) a detailed criticism, and (2) a fresh detailed scheme, so that we may know precisely the wrongs and the rights of the case in particulars—a modern "Chrestomathia," up to date, reasoned out on accurate information as well as on sound principle, taking account of the pertinent facts at each stage of the process, and so calculated to conciliate public approval and to compel the acquiescence of those that possess the power of the last word in the matter.

## NOTES.

THOUGH the opposition to the Education Bill has been largely based on educational and political grounds, it can no longer be ignored that more and more impetus is being sought from ecclesiastical or theological opinion and purpose. The *Daily News* (September 15) makes this open avowal:

This Bill is in all its essential aspects the work of Convocation, and it bears upon its face throughout the impress of priestly pretension. It is this fact which is the source of the intense hostility which has been aroused against the Bill, not merely among Nonconformists, but among Churchmen who still cherish their Protestantism and who fear nothing so much as the insidious workings of those who desire to make the Church of England an appanage of the Church of Rome.

Dr. Clifford, indeed, draws "a clear distinction between the English Church as a whole and that section of it which has made itself notorious by its denunciations of Protestantism, its repeated approaches to the Pope, and its inordinate appetite for Roman Catholic beliefs and practices." But, for all that, he calls the measure "this bishops' Bill." It is surely not to be supposed that all the bishops that favour the Bill belong to this obnoxious section and are leagued to betray the Church to Rome. No doubt "a clerical war" is popularly more effective than a sober discussion of the specific provisions of the Bill in view of the simple facts. Education may well cry a plague on a good many ecclesiastics of both patterns.

FROM the standpoint of unexcited reason, half of Dr. Clifford's nine points would seem to be much better than the whole. For half of them a good deal of sound argument might be put forward; in fact, we have already urged, or at least indicated, such lines of solid objection. But to say that "the primary rights of the people to control their own life, directly and freely, in the indescribably important department of elementary and secondary education" and "the enjoyment and exercise of full liberty of conscience" are among the things at stake is rather tall language for the facts intended. Dr. Clifford means every syllable of it; but then he is in an elevated frame of mind on the subject—a frame of mind not easy to accommodate to the House of Commons level. Again, all citizens may justly have concern for "the fair fame and augmented serviceableness of the English Church"; but, then, the English Church has its legally constituted custodians, who, with full knowledge of the situation, appear to think that the Bill is a good thing, and they, too, are entitled to their convictions and bound to act upon them. We certainly need not trouble our heads in this connexion about "the stability and growth of our Empire." Except for popular purposes, such extravagance is not merely futile, but hurtful. In this Bill there is a direct conflict between opposing views on certain specific points, and the question is how to reach an accommodation. To engineer a crusade against the existence of the Bill is quite another affair, and a risky affair in more ways than one.

THE promoters of the Yorkshire demonstration at Leeds, as well as the promoters of the demonstration at Glasgow,

while advancing some substantial criticisms, also materially weakened their case by giving prominence to the argument that the Government is proceeding with the Education Bill "without mandate or authority from the electorate." There is no possible objection to their "calling upon the Prime Minister to withdraw the Bill or to dissolve Parliament and submit the measure to the judgment of the country without delay." But to base such a demand on the absence of "mandate or authority from the electorate" is preposterous. The Government, if they have no "mandate," undoubtedly have "authority," which seems good enough for the occasion. It is obviously impossible to foresee, or, even if you do foresee, to deal with, every possible question of the next six or seven years at an election time in such wise as to give the victorious party a specific authority [or "mandate" on every important subject of their term of office. If this "mandate" principle be valid, the Government had no business to deal with anything—outside routine—except the South African War and the subsequent settlement of the country. But the moment the Government were put in office they were established for the statutory term and placed under obligation to propose such laws as they might think necessary or desirable. All this should have been considered by the electors at the ballot-box. They were well warned. To turn round now with this preposterous cry of "no mandate" is ridiculous.

PROF. DEWAR, in his very able Presidential Address to the British Association, put in a strong word for the better endowment of education, and contrasted the chemical equipment in this country and in Germany so forcibly as to startle the *Times*, if not those that were already familiar with the facts. His example of the firm of Friedrich Bayer & Co. is but one of many; but it is rather painful that "the fundamental discoveries upon which this gigantic industry is built were made in this country and were practically developed to a certain extent by their authors," and yet slipped through their fingers because "we did not possess the diffused education without which the ideas of men of genius cannot fructify beyond the limited scope of an individual." The root of the mischief, says Prof. Dewar, "is in the want of education among our so-called educated classes, and, secondarily, among the workmen on whom these depend"; we are two generations behind Germany "in point of general training and specialized equipment." But, even if we were on a level with Germany, what can be done with our "leaders of industry," who look askance at science, and will not, in spite of the incessant remonstrances in Consular Reports, adapt their products or even their price lists to their customers? Are we to be told that the schools cannot supply brains and energy equal to those of Germany, if there is a demand for them? We trow not.

PROF. PERRY told the British Association and the world that the ordinary system of mathematical study is "abominable," and that "our whole public-school system ought to be 'scrapped.'" We venture to think that the *ἄβρις* of the scientific man ought to be peremptorily "scrapped." Out of

his abounding contempt for teachers below professorial rank and not protected by large incomes, he said:

The difficulty about all laboratory exercise work worth the name is that of finding demonstrators and assistants who are wise and energetic. Through foolishness and laziness the most beautiful system becomes an unmeaning routine, and the more smoothly it works the less educational it is. In England just now the curse of all education is the small amount of money available for the wages of teachers—just enough to attract mediocre men. I have been told, and I can easily imagine, that such men have one talent over-developed, the talent for making their job softer and softer, until at length they just sit at a table, maintaining discipline merely by their presence, answering the questions of such students as are earnest enough to come and worry them.

The wretched calumny deserves no answer—in words, at least. But, while Prof. Perry boasts that teachers are nowhere in comparison with engineers, we adopt for English teachers what Dr. Albert Shaw says about American teachers (*Educational Review* for September):—

A large part of the progress of our times, even in the field of wealth production, has been due to research and study by men who were actuated not in the least degree by the motives of gain. But the greatest example of all is afforded by what is now the foremost of all our professions, namely, the profession of teaching. Here we find scores of thousands of men and women, rendering noble, unselfish, and indispensable service to the community on the basis of fixed, moderate stipends, removed almost wholly from the competitive sphere of activity, and inspired to diligence and efficiency in their work by a sense of duty and responsibility.

AMONG other matters of educational interest discussed at the meeting of the British Association was the well worn question of the teaching of English. While others were glorifying the spread of English abroad, and even looking forward to its universal dominion, Prof. Hartog, of Owens College, contended that it is very badly taught at home—reinforcing his view by certain criticisms in a recent Blue Book. There is no sacramental efficacy in a Blue Book, however, and one must deal with the criticisms on their merits. Every one agrees that English should be taught "rationally and systematically" at school, and probably there is no teacher but labours to do this very thing. It is pitiful, of course, so far as it is the fact, that our boys should be so "nearly inarticulate" and so "deficient in the art of expressing themselves on paper." But it is to be remembered that facile literary expression is a complicated and by no means easy attainment, and that teachers, however sensible and ardent for more rational methods, are controlled by the requirements of examinations.

ELSEWHERE we draw attention to the reopening of the evening continuation schools under the London School Board. The fees that must now be charged in most of the schools will be seen to be practically nominal, and will not bar any student that has a desire for further knowledge. The subjects are of the most varied character, and in the main practical; but the provision for history is surprisingly limited. We trust, of course, that the schools will be largely attended, and we note especially that any one interested in the work may obtain "copies of a prospectus for circulation amongst those who would be benefited by a course of instruction in the schools" from the Clerk of the Evening Continuation Schools Committee, School Board for London, Victoria Embankment, W.C. Now is the time, indeed, to bring all such institutions to the notice of young men and maidens. The Northampton Institute, Clerkenwell (St. John Street Road), for example, makes large provision for the teaching

of technological and trade subjects in day as well as in evening courses; and this is but one branch of the City Polytechnic, which also holds multifarious classes in literary, commercial, and science and art subjects at the Birkbeck Institution and the City of London College.

We cordially welcome the first number of *Indian Education* (1s., Longmans), whose advent we recently heralded. We like the look of it, and have high hopes of its future. It is liberally printed and got up, and the matter is varied and of good quality. The opening article is by a native—Mr. J. G. Agashe: it gives interesting glimpses of education in ancient and mediæval India, and is, indeed, the most instructive contribution in the number. We cannot agree with the editor's suggestion that the lack of "published work" by Indians implies "that India is not ready for a University," or that the people of India do not "really study or criticize Western life, literature, philosophy, or history." The test is too limited, especially under the conditions. Mr. Yoxall, M.P., writes the London Letter. He tells how he beheld among the Volunteers at Oxford on the King's birthday "several Indian students ranked; and a gallant show they made." Then at Cambridge, on another day, he "heard with what satisfaction the University authorities regard the increasing number of Indian students on the banks of the Cam." And "these are Imperial links." But, we venture to remind him, he did not behold a gallant show of Indian Volunteers at Cambridge. Indians are not admitted to the Cambridge ranks; nor are they admitted as Volunteers at the Inns of Court. Mr. Yoxall should inquire into this dubious condition of the "Imperial links."

In these days, when Nature-study has taken such a hold on educationists, it is interesting to chance upon a strong favourable opinion expressed more than half a generation back by a distinguished Oxford tutor. "I hold it to be an unquestioned fact," says Mr. W. Warde Fowler, in "A Year with the Birds"—a very charming and instructive volume, reissued the other day by Messrs. Macmillan—"that the direction of children's attention to natural objects is one of the most valuable processes of education." We are more concerned, however, to note an obstacle mentioned by Mr. Fowler. "When the boys go to a public school," he says, they will find themselves in the "grip of a system of compulsory game-playing which will effectually prevent any attempt at patient observation."

There is doubtless very much to be said for this system, if it be applied, like a strong remedy, with real discriminating care; but the fact is beyond question that it is doing a great deal to undermine and destroy some of the Englishman's most valuable habits and characteristics, and among others his acuteness of observation, in which, in his natural state, he excels all other nationalities. It is all the more necessary that we should teach our children, *before* they leave home, some of the simplest and most obvious lessons of natural history.

This conflict of interests is well worth attention. An accommodation ought not to be a matter of any great difficulty.

"EDUCATIONIST" or "educationalist"? Well, what does it matter? Or, rather, why should one not use either form according to one's taste or fancy, without posing other people with such an inane question? It is a correspondent of the

*Daily News* that is in perplexity, and our contemporary does not shrink from giving the preference to "educationalist." The reason is that "it seems to soften the impropriety of the word a little to spin it out." But wherein lies "the impropriety"? Our contemporary seems to make answer when it says: "For our own part, we confess we are among the objectionists as to the manufacture of new hybrid words." By the way, has the word "objectionist," which seems to be equally hybrid, yet been adopted in any reputable dictionary? Both "educationist" and "educationalist" have been so adopted. Besides, the latter word is not "new"; it has been freely used for at least twenty years. And, if the formative "-ist" is not yet naturalized, there will have to be a very extensive weeding of the accepted English vocabulary. It is interesting to recall that Trench regarded "educational"—which is now at least two generations old—as an "offensive, at best a very questionable, novelty in the English language." Now it is very much at home.

### SUMMARY OF THE MONTH.

THE agitation against the Education Bill has been steadily prosecuted throughout the month. While much attention has been locally directed to ways and means of thwarting the operation of the Act in case the Bill becomes law, the protagonist of the opposition—the Rev. Dr. Clifford—has set forth "what is at stake in the war raised by this Education Bill" under the following heads:—

1. The primary rights of the people to control their own life, directly and freely, in the indescribably important department of elementary and secondary education.
2. The enjoyment and exercise of full liberty of conscience.
3. The maintenance of constitutional law in the procedure of Government.
4. The efficiency and adequacy of education, sustained by the funds of the people, in what are known as denominational schools.
5. The continuance and extension of the people's schools, and the progressive realization of the true ideal of State education.
6. The complete equipment of the teaching profession, its deliverance from theological and ecclesiastical tests, and the opening of its doors as a profession, and of its training schools, to ability, industry, willingness to serve, and citizenship.
7. The exclusion of women from the ranks of those who may be freely and directly chosen to serve in the administration of national education.
8. The fair fame and augmented serviceableness of the English Church.
9. The stability and growth of our Empire.

THE Northern Counties Education League held a "great Yorkshire demonstration" against the Education Bill at Leeds (September 20). The following resolution was put from five platforms, and of course carried:—

That this great meeting of inhabitants of the West Riding of Yorkshire, held on Woodhouse Moor, and addressed from several platforms, condemns the Government Education Bill, because it deprives men and women, who have hitherto elected or served upon School Boards, of the constitutional rights they have hitherto enjoyed; because it abolishes direct popular control of the schools for which the people are taxed; because it weakens the guarantees of efficiency, progress, and liberty in national education; and because it proposes to levy local rates everywhere in support of sectarian dogmas, ecclesiastical tests for teachers, and clerical management. This meeting expresses its indignation that the Government, without mandate or authority from the electorate, should propose to destroy School Boards and to make sectarian schools a charge upon the ratepayers. Finally, the meeting calls upon the Prime Minister to withdraw the Bill, or to dissolve Parliament and submit the measure to the judgment of the country without delay. And that copies of this resolution be forwarded to the Prime Minister.

THE Committee of the Baptist Union have decided to propose to the autumn assembly at Birmingham a resolution declaring the "solemn determination" of the ministers and delegates "not to submit to this measure even if it becomes law," but "to offer passive resistance to its enforcement and to render it unworkable by every means in their power." After justifying this position

on the grounds of "clerical control" and taxation without popular control, the resolution concludes thus:

They regard the Bill as the product of an alliance between the Government, the High Anglican party, and the Roman Catholic Hierarchy, having for its main purpose the clericalizing of education, the disregard of the just rights of all Free Church citizens, and the undermining of Protestantism and Nonconformity. And since this attempt occurs at the end of a series of sectarian aggressions in our national education legislation, and as a fresh and unprovoked disturbance of the present arrangement, they are resolved to use their political influence to secure a system of national education in harmony with the principles of justice and efficiency, and in which no public money shall be granted to denominational schools, every public elementary school shall be unsectarian and placed under the management of representatives of the people, and no citizen, teacher, or scholar be placed at any legal disadvantage on account of religious opinions.

THE resolution of the Congregational Union submitted to the Glasgow meeting also "urges all friends of education and of civil and religious liberty (1) to organize themselves more thoroughly to secure the abandonment of the measure or an appeal to the people; and (2), if the Act is forced upon the nation, to use all honourable means to make it unworkable." "The final clause," says Dr. Parker, "greatly needs strengthening; it wants accent, fire, and passion; in short, it wants to be Cliffordised."

A UNITED Committee of representatives from the National Free Church Council, the Metropolitan Federation of Free Church Councils, and various educational and women's organizations has been formed to make arrangements for important meetings throughout London during the autumn. It is proposed to hold a great gathering in St. James's Hall on the eve of the opening of Parliament.

THE *Times* says that "the recasting of the Ministry under its new chief has accomplished a long-hoped for, but long deferred, step in our educational administration."

Up to now education has remained an annex, so to speak, of the Privy Council, in the position accorded to it in 1839, when the State first gave grudging attention to a matter that had previously been left to voluntary effort. In no other country of Europe would such a state of things as regards national education have been conceivable during the past fifty years; in no other country would the accident of appointment as Lord President of the Council have placed a statesman *ipso facto* at the head of national education. . . . It is unfortunate that the first President of the Education Board, though distinguished for industry and good sense, should have so little claim to be an educational authority; but, on the other hand, it is satisfactory, at a time of education crisis, that the responsible Minister should be in the Cabinet. To Mr. Gladstone belongs the credit of having given Mr. Acland a position which, no doubt, helped him to do considerable work for elementary education. . . . We trust that henceforth it will be almost a matter of course that the Minister for Education will be a member of the Cabinet. The Board of Education has now achieved its independence. It is about to take over the educational powers of the Charity Commission; and the fusion between Whitehall and South Kensington, though not yet complete, is gradually proceeding. By the time that the Local Authorities to be created under the Education Bill have got fairly to work, the Central Authority will, we may hope, be sufficiently strong and coherent for its work of general supervision. In the Consultative Committee, already in active operation, it has a valuable means of access to expert opinion.

THE educational system was subjected to fiery criticism in the Educational Science Section of the British Association at the Belfast meeting. Prof. Armstrong, President of the Section, said the Section was in advance of the times, "being concerned with a non-existent science."

He enforced Tyndall's prescription of "the cultivation and exercise of imaginative power—the scientific use of the imagination"—as a preservative from "the fate of an organism too rigid to adjust itself to its environment," and a means of "plasticity to the extent that the growth of knowledge demands." . . . The importance of the part played by theory in science could not be exaggerated. . . . If teachers generally would pay more attention to theory, their teaching would doubtless be more fruitful of results; facts they knew in plenty, but they lacked training in the considered use of facts. We were ceasing to be practical because modern practice was based on a larger measure of theory, and our schools were paying no proper attention to the development of imaginative power or to giving training in the use of theory as the interpreter of facts; didactic and dogmatic teaching were producing the result which infallibly followed in their wake—sterility of intellect. Our system of education had no proper theoretical basis. Educators had ceased to be practical, because they have failed to keep pace with the march of discovery; the theoretical basis underlying their profession having been enlarged so rapidly and to

such an extent that it was beyond their power to grasp its problems. The priesthood of the craft were, in fact, possessed by the spirit of narrow parochialism, and upholders of an all too rigid creed. . . . We do not sufficiently consider the economy of coal: waste not, want not. Food, again, is an important subject "outside the schoolmaster's ken." Cooking, a branch of applied chemistry, is a failure for want of imaginative power in the cook. . . . Whether or no there be "good in everything," children must at least be encouraged to seek it—to use their eyes always, and to reflect on what they see.

"WHY," asked Prof. Armstrong, "cannot we agree to scrap our scholastic and academic ideals, if not our schools and schoolmasters, and refit on scientific lines?"

Unfortunately, it too often happened that those placed in authority were the very last to attempt to march with the times. Bodies such as our Universities, the Education Department, and the Civil Service Commissioners might have been expected to lead the way, to keep the most watchful eye on all that was happening, and to note and apply all improvements. The very contrary had been the case. At bottom the spirit of commercialism was the cause of much of this contorted action. . . . Three courses were open to examining bodies—to lead; to keep just abreast of the times; and to stagnate. The last was almost invariably chosen, a syllabus remaining in force year after year. Consequently, examinations tended to retard, rather than to favour, the introduction of the improved methods of teaching. . . . At the present time, when the responsibility of controlling all grades of education is about to be cast upon the community, and the actual call to arms is imminent, it is imperative that a sound public policy should be framed, and that nothing should be allowed to stand in the way of the public good. The blame to be put upon School Boards in England for having allowed an impracticable system of education in the schools is as nothing as compared with the blame to be put upon the Education Department for having allowed such a system to grow up by the adoption of academic ideals and academic machinery. The first necessary step will be to reorganize the Education Department root and branch, to imbue it throughout with sound ideals, and lead it to understand its great importance as the head centre of the educational system. But its functions will be those of an exchange and inquiry office rather than directive and assertive. Such a department will have an Intelligence Board, whose members are partly official, partly unofficial, so that it may maintain itself in constant touch with outside opinion and effort. One function of this Board will be to preside at a monthly bonfire of red tape and official forms, for in future, even if no other subject of Government concern be kept in a lively and living state, education must infallibly be.

PROF. ARMSTRONG foresees that gradually a complete revolution must take place in school procedure and in school buildings, which are but "extensions of the monkish cell and the cloister."

Instead of being a place fitted only for the rearing of what I have elsewhere termed "desk-ridden emaculates," the school will be for the most part modelled on the workshop, giving to this term the most varied meaning possible, and a great part of the time will be spent at the work bench, tool in hand. Nature's workshop will, of course, be constantly utilized, and the necessary provision will be made for outdoor exercise and physical training. Scientific method will underlie the whole of the education. It will be recognized that education has two sides—a literary and a practical—that the mind can work through fingers—in fact, through all the senses—and that it is not embodied only in the so-called intellect, a narrow creation of the schools. The practical training will, therefore, be regarded as at least equal in importance to the literary. Heads of schools will not only be potential bishops, but almost all careers will be open to them. The class system will be largely abandoned; children's school time will not be chopped up into regulated periods in a manner which finds no analogy in the work-a-day world, but they will have certain tasks confined to them, and will be allowed considerable latitude in carrying them out. In fact, they will be treated as rational beings, and their individuality and self-respect developed from the outset.

Dealing finally with the training of teachers, Prof. Armstrong urged that power of thought, individuality, and imagination should be developed. It was a lasting shame to the State and the School Boards that so little had been done to provide competent teachers. The future rested with the Universities; but to save the nation they must be practical, and admit broader conceptions.

PROF. PERRY, President of the Engineering Section, trenchantly discussed the education of the engineer, and also gave his opinion upon "what general education is best for the average English boy."

The public schools of England teach English through Latin, a survival of the time when only special boys were taught at all, and when there was only one language in which people wrote. Now the average boy is also taught Latin, and when he leaves school for the Army or any other pursuit open to average boys he cannot write a letter, he cannot construct a grammatical sentence, he cannot describe anything he has seen. The public school curriculum is always growing, and it is never subtracted from or rearranged. There is one subject which ordinary schoolmasters

can teach well—Latin. The other usual nine subjects have gradually been added to the curriculum for examination purposes; they are taught in water-tight compartments—or, rather, they are only crammed, and not taught at all. Our school system resembles the ordinary type of old-established works, where gradual accretion has produced a higgledy-piggledy set of shops which one looks at with stupefaction, for it is impossible to get business done in them well and promptly, and yet it seems impossible to start a reform anywhere. What is wanted is an earthquake or a fire—a good fire—to destroy the whole works and enable the business to be reconstructed on a consistent and simple plan. And for much the same reason our whole public-school system ought to be “scrapped.” What we want to see is that a boy of fifteen shall have had mental training in the study of his own language, in the experimental study of mathematics, and in the methods of the student of natural science. Such a boy is fit to begin any ordinary profession, and, whether he is to enter the Church, or take up medicine or surgery, or become a soldier, every boy ought to have this kind of training. When I have advocated this kind of education in the past I have usually been told that I was thinking only of boys who intend to be engineers; that it was a specialized kind of instruction. But this is very untrue.

As to technical education, Prof. Perry rejects all known standards: “the worst we can copy is what we find now in Germany and Switzerland”; “what we must strive for is the discovery of a British system suiting the British boy and man.”

Technical education is an education in the scientific and artistic principles which govern the ordinary operations in any industry. It is neither a science, nor an art, nor the teaching of a handicraft. It is that without which a master is an unskilled master, a foreman an unskilled foreman, a workman an unskilled workman, and a clerk or farmer an unskilled clerk or farmer. The cry for technical education is simply a protest against the existence of unskilled labour of all kinds. To have any good general system the employers must co-operate. Much of the training is workshop practice, and it cannot be too often said that this is not to be given in any college. . . . In fact we have all got to see that there is far too much unskilled labour among workmen and foremen and managers, and especially in owners. . . . I laugh at the idea that any country has better workman than ours, and I consider education of our workmen to be the corner-stone of prosperity in all engineering manufacture. . . . There is another important thing to remember. Should foreigners get the notion that we are decaying, we shall no longer have our industries kept up by an influx of clever Uitlanders, and we are much too much in the habit of forgetting what we owe to foreigners, Fleming and German, Hollander, Huguenot, and Hebrew, for the development of our natural resources. . . . In our country nearly all discoveries come from below. The leaders of science, the inventors, receive from a thousand obscure sources the germs of their great discoveries and inventions. When every unit of the population is familiar with scientific ideas our leaders will not only be more numerous, but they will be individually greater. And it is we, and not the schoolmasters, who are familiarizing the people with a better knowledge of nature.

PROF. H. L. WITHERS, of Owens College, addressed the Educational Science Section on the training of teachers.

The problem of the training of teachers is essentially different in a primary and a secondary school. . . . As regards secondary schools, the multiplicity of types is so great that any single stereotyped system of training would be futile. . . . Each University must for the future be equipped with a department of education as effective as its departments of law and medicine. In this a concrete and comparative study of educational organism and method, material for which exists in Mr. Sadler's volumes of Special Reports, should be carried on together with practical exercises in teaching and observations of actual school work. Experienced masters and mistresses should give lectures and demonstrations in connexion with the work of such a department, and there should be a museum of educational appliance and a library of educational literature. Secondary teachers have usually to specialize in one subject or group of subjects, and they will need the help of specialists in their study of method. As much as time allows must also be done to refer students to the principles of mental, moral, and physical science upon which the theory and practice of education must ultimately be based. The history of education and of educational institutions must not be neglected. A continuous course of probation must be served by each student in a school of the same type as that in which he is preparing to work as a master. Room must be made for other forms of training also, and the utmost freedom of experimentation must be allowed, to begin with, consistently with thoroughness and efficiency. If vigorously taken up by Parliament and Local Authorities as well as by Universities and schools, all working together, the professional training of teachers cannot but exercise an immense influence upon the future of education in England, and help to provide that army of disciplined and resourceful men and women upon which the success of the country in peace and war must finally depend.

The evening continuation schools under the School Board

for London reopened in the middle of the month. Owing to new regulations of the Board of Education, fees are charged in most of the schools to scholars above 16; scholars under 16 are admitted free to all schools; and in 66 schools no fees will be charged to any students. In the majority of schools the fee will be 1s. the session for any number of subjects; in commercial schools, 2s. 6d.; and in science and art schools, 5s. 382 schools give general instruction, 21 special instruction in commercial subjects, and 10 in science and art. Special schools for adults are opened, and in the ordinary schools adult pupils are, as far as possible, taught by themselves. Lectures on English literature are given in about 40 schools, and on history in 3. Gymnastics are taught at 104 centres, and doctors and nurses teach first aid and home nursing in upwards of 200 schools. There are also facilities for women and girls to learn practical cookery, dress-cutting and making, and laundry; and for men and boys to receive instruction in woodwork. Students are prepared for the examinations held by the Board of Education (South Kensington), the Civil Service, Society of Arts, London Chamber of Commerce, &c., and prizes and certificates are awarded.

SIR HENRY CRAIK'S remarks in his annual Report on Secondary Education in Scotland, on the early withdrawal of pupils from schools, apply equally to English practice:

This is, indeed, one of the most serious difficulties against which secondary education in Scotland has to contend. The only remedy for it lies in the growth of a more enlightened public opinion. It is not uncommon to see comparisons drawn between the results achieved by secondary schools in Scotland and in Germany. Such comparisons are altogether unfair, inasmuch as they ignore the difference in the conditions that prevail. So long as the Scottish lad continues to leave school two or three years earlier than his German contemporary, so long must the responsibility rest not upon teachers, but upon parents. For some time there has been a growing dissatisfaction in Scotland regarding the defective education of youth entering upon a mercantile career. That dissatisfaction is a thoroughly healthy sign. It means that commercial men are more and more realizing the supreme importance of a sound mental training. The remedy for the present state of affairs lies in their own hands. The educational machinery of the country can never have a fair chance until merchants in a body set their faces against the practice of putting boys into business at thirteen or fourteen, and until in their selection of apprentices they give preference and reasonable encouragement to those who can produce evidence of having profited by their school training. It is to this, rather than to the institution of fresh examinations, that the country must look if it desires that lads should enter business properly equipped for the work of life. Examining may become a serious danger if there is too much of it.

AMONG the Bills announced at the opening of the Dutch States General (September 16) were measures for extending facilities for intermediate and higher education, for developing technical education, and for making better provision of pensions to teachers in private schools and to the widows of teachers in general. A Royal Commission is to be appointed to codify the various laws relating to education.

## CORRESPONDENCE.

[We do not hold ourselves responsible for the opinions expressed by our correspondents.—ED. E.T.]

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### CURRENT EVENTS.

THE next monthly meeting of members of the Fixtures. College of Preceptors will take place on Wednesday, October 15, at 7.30 p.m., when Mr. L. W. Lyde will read a paper on "The Teaching of Geography in Lower Forms (with special reference to Examinations)."

\* \* \*

A CONFERENCE of representatives of the Universities and of associations of teachers and others will take place at Cambridge on November 14 and 15, to discuss questions relating to the training of teachers, with special reference to the Order in Council as to registration.

\* \* \*

AT St. Andrews University, Mr. Carnegie will be installed as Lord Rector on October 24.

Mr. R. B. Haldane, M.P., K.C., LL.D., will deliver the Gifford lectures on October 14-21.

◆◆◆

MR. JOHN M'CONNELL has promised £1,000 towards the establishment of a Faculty of Commerce in Queen's College, Belfast.

\* \* \*

THE RIGHT HON. W. J. PIRRIE has provided a site for the Pirrie laboratories of the College. The building will contain departments for physical, optical, and engineering science, and several rooms for practical work.

\* \* \*

THE Aberystwyth Town Council has made a free grant of land to Aberystwyth University College for the extension of the buildings.

\* \* \*

ALDERMAN HENRY HARRISON, J.P., President of the Blackburn Chamber of Commerce, has made to the Peel Trustees a gift of £1,000 in North-Eastern Debenture Stock for the purpose of establishing a scholarship for modern languages.

◆◆◆

MR. P. A. BARNETT, H.M.I.S., has gone out to be Superintendent of Public Education in Natal.

\* \* \*

MR. JOHN SIME, M.A. (St. Andrews and Oxford), Lecturer in Moral Philosophy in St. Andrews University, has succeeded Dr. Baillie as Lecturer in Logic and Moral Philosophy in University College, Dundee.

\* \* \*

HERR JULIUS FREUND, Ph.D., Lecturer in German in the University of Lund, has been appointed Lecturer in German in the University of St. Andrews. Dr. Freund is a native of Marburg and an old pupil of Prof. Vietor, whom he has several times assisted in conducting holiday courses for English-speaking teachers of German at Marburg.

\* \* \*

MR. H. W. MALCOLM, M.A., B.Sc. of Aberdeen University, has been appointed Lecturer and Demonstrator in Physics at University College, Bristol.

Literary Items. THE Clarendon Press has in preparation the final volumes (or parts) of the "Coptic Version of the New Testament (Northern dialect)," Dr. Redpath's "Concordance to the Septuagint," Mrs. Margolionth's "Syriac Dictionary," Mr. Macaulay's "Works of John Gower," Mr. Toller's "Anglo-Saxon Dictionary" (Supplement), and Thorold Rogers's "History of Agriculture and Prices." Also: "The Mediæval Stage" (2 vols.), by E. K. Chambers, M.A.; an edition of "The Lay of Havelok the Dane," by Prof. Skeat; "The Arab Conquest of Egypt," by Prof. A. J. Butler; Messrs. Vigfússon and York-Powell's edition of "The Land-náma-bóc" (2 vols.); and an "Historical Atlas of Modern Europe, from the Decline of the Roman Empire," edited by Dr. R. L. Poole.

MR. MURRAY promises at an early date a first series of "St. Margaret's Lectures" (6) on the "Criticism of the New Testament," by well known scholars; two volumes of biographical essays on "Some Eighteenth Century Men of Letters," by the late Rev. Whitwell Elwin; and a new "Greek Grammar for Schools and Colleges," embodying "some of the results of the linguistic discoveries of the present day," by John Thompson, M.A.

MESSRS. LONGMANS have in the press a volume of "Historical Essays and Reviews," by the late Bishop Creighton; a work on "Constitutional Law" (Dr. Hart's "American Citizen Series"), by the Hon. Judge McClain, of Iowa; "The Age of the Fathers," two volumes of "chapters in the history of the Church during the fourth and fifth centuries," by the late Prof. Bright; "The Making of our Middle Schools," an account of the development of secondary education in the United States, by Prof. Brown, of the University of California; and Prof. Sully's exposition of the philosophy of "Laughter and Humour."

MESSRS. G. BELL & SONS will shortly publish a new edition of Carlyle's "French Revolution," with introduction, notes, and appendices by Mr. J. Holland Rose, and with numerous illustrations and portraits from contemporary prints, which were in many cases used by Carlyle himself, and can be seen to have inspired some of his more graphic passages. The work will be issued, like the original edition, in three volumes, uniform with the editor's "Life of Napoleon I."

MESSRS. CASSELL announce the immediate issue of an illustrated edition of "Social England," revised and partly re-written, in fortnightly parts, at 1s. net each. There will be about 2,500 illustrations reproduced from authentic historic documents and pictures, and numerous coloured plates and maps.

THE *International Monthly* has become the *International Quarterly*. The September number is the first of the new issue. Mr. Fisher Unwin is the publisher.

MESSRS. BELL will publish immediately a volume on "The Art of Walter Crane," by Mr. P. G. Konody, the editor of the *Connoisseur*. The book will be profusely illustrated with coloured plates, photogravures, and other illustrations, covering all sides of the artist's work.

THE County Councils of the Ridings have published a very interesting pamphlet on "Agricultural Education in Yorkshire," giving a general account of the steps taken by them in conjunction with the Yorkshire College "to further educational and scientific work as applied especially to agriculture." There are many instructive illustrations.

General. EARLY next month the Privy Council will be ready to hear the case for a charter incorporating a University for Liverpool.

THE Belfast Chamber of Commerce, after consultation with the authorities of Queen's College, has drawn up a scheme for the establishment of a Faculty of Commerce, with a diploma and a degree in the college; and this scheme has been laid before the Royal Commission on University Education in Ireland. (See "Endowments.")

THE British Association meets next year at Southport. Sir Norman Lockyer will be the President.

FORMS of entry for the Cambridge Local Examinations commencing on December 15 can now be obtained from the Local Secretaries at the several centres.

THE Leipziger Lehrerinnen-Verein is projecting the erection of an "Auguste Schmidt Haus" in Leipzig in memory of the lady that was Honorary President of the General German Women Teachers' Union and of the Federation of German Women Teachers' Unions, and "the soul of the German women's movement."

MESSRS. ROBERT BOYLE & SON (64 Holborn Viaduct) intend "to present to the schools of this country and the colonies a large educational diagram illustrating 'natural ventilation.'" A very fine diagram it is, and sure to prove instructive and practically useful.

THE Board of Education has issued its Report for 1901-02 (Cd. 1275; 6d.); Report for 1901 on Museums, Colleges, and Institutions under its administration (Cd. 1266; 11d.); General Reports of H.M.I. on Science and Art Schools and Classes and Evening Schools, and of Examiners in Science and Art, for 1901 (Cd. 1214; 5½d.); and Model Course of Physical Training for Upper Departments of Public Elementary Schools (3d.). Messrs. Eyre & Spottiswoode also publish the Report on Secondary Education, 1902 (4d.), and the Third Report of the Royal Commission on University Education in Ireland (6s.).

### UNIVERSITY LIFE IN GERMANY.

By W. B. WALLACE, B.A.

WHAT Nuremberg is to the hideousness of the towns, that the German student is to the stereotyped human figures, of contemporary Europe—a quaint and interesting survival of mediævalism in the midst of the dull uniformity and the Philistine conventionality of modern life.

This is no new doctrine, for the *Burschen* have always been invested with a halo of romanticism, with which, strange to say, the fumes of their beer and tobacco by no means incongruously blend.

Literary interest, of course—a factor whose influence can scarcely be overrated—more than even the bizarre realities of his surroundings, has elevated the Teuton student to a Walhalla in which his Oxford, Cambridge, Dublin, and Paris fellows have no part. Was not Dr. Faustus—the Faustus of legend, of Marlowe, of Goethe, and of Gounod—a student ere he became a professor at Wittenberg and enjoyed the posthumous acquaintance of Helen of Troy? Has not an English writer, famous in politics as well as poesy, depicted for us in tragi-comic verse the somewhat ludicrous woes of an *alumnus* in the "U—niversity of Göttingen"? The sweetest of Transatlantic bards loved the memories of his Heidelberg—his by virtue of the adoptive prerogative of genius—even as he loved the bouquet of his own Catawba wine; and who that has read "Vanity Fair" can ever forget the infatuated youths who paid their court to Becky, that rather dubious *Engel Engländerin*, in the ducal town of Pumpernickel?

The savour and aroma of the middle ages which that subtle distiller of strange, old-world essences, Charles Reade, has so marvelously reproduced in his "The Cloister and the Hearth," still hangs, as we *Baye sail*, around the *Museumschloesse* of the Fatherland

and their abodes. Let us try to catch a whiff of it, fragrant as the breath of one of their own coloured meerschauams, ere it vanish into the *Ewigkeit* before the strong, merciless furnace-blasts of utilitarianism and progress.

In Germany, as everybody knows, Universities—there are twenty of them—are scattered broadcast over the face of the land; and they preponderate, not in number only, but in social influence as well. At Oxford, Cambridge, and Dublin, the University—to use a simile of Petronius, with slight but necessary alteration—is merely the fringe: the town, with its municipal life and interests, is the robe: while, with our Teutonic cousins, on the other hand, everywhere, with the obvious exception of Berlin, it is the University that is the robe, while the town is merely the fringe. The students pervade the place, and are very strikingly in evidence wherever you turn; they are, so to speak, the ruling caste, while the *Philisters*, as they call the townsmen, are nowhere. They have their customs, their rights, their peculiar costumes; all other buildings are dominated by those of the University.

There are, of course, cliques and “sets” in our English Universities, but not to such a marked extent as in Germany. Here there are the *Corps*, the *Burschenschaften*, and the less pretentious *Vereine*, to one or other of which clubs or unions the student, as a rule, belongs, although in theory it is open to him to hold aloof from all such allurements and devote himself to hard work.

On ordinary occasions the *Bursch* wears a flat cap displaying the colours of the corporation to which he belongs, or else a kind of three-cornered hat called a *Stürmer*, similarly adorned. The proper time to see him, however, is when he is “dressed all in his best” on high days and holy-days, when he appears, in short, in *collem Wichs* (full fig), as they call it. He is then arrayed in braided jacket of green, red, or white, as the case may be, and sports a broad scarf, high jack-boots, great leather gauntlets reaching nearly to the elbow, a long rapier, and a small embroidered cap, which can only be kept balanced on the head by an effort of ingenuity, the result of long practice. Witnessing a procession of these gentry in their quaint but picturesque gala attire, each wearing the distinctive badge and colours of his society or club, you might well fancy yourself back in the days of good old Albrecht Dürer.

The *Kneipen* (beer saloons) of the various unions are decorated more or less gorgeously. Tables are ranged along the walls in the form of a horseshoe. There are banners, escutcheons, photographs, the inevitable bust of the Kaiser, and, last but not least, Gargantuan beakers for Gargantuan drinkers. An entertainment is generally given once a week, wherein beer and music and tobacco are very much to the fore, under the auspices of a president, duly supported by assessors. This *thaliarchus* is an absolute monarch in his small domain: a sword is placed before him when he takes his seat to show his sovereign authority, and in questions of drink or song there is no appeal from his decisions. All these festive gatherings are conducted according to fixed rules, and have a language of their own. There are different modes of drinking, known by extraordinary names (*Salamanderreiben*, &c.); comrades are addressed as *commilitones*; and the assembly is called the *corona*. The students of the first year, who are dubbed *Füchs* (foxes), sit apart under the presidency of a senior, whose duty it is to instruct them in the mysteries of drinking and chorus singing, *selon la règle*.

Drinking contests are frequent; and every student possesses—or is supposed to possess—what is called a *Kommerzbuch*, which is a veritable anthology containing songs of all kinds—patriotic, bacchanalian, and sentimental. Perhaps the most celebrated of these ditties is the “*Gaudeamus*.” The ring of pessimism rather reminds us of our own “*Down among the Dead Men*”:

*Gaudeamus igitur juvenes dum sumus !  
Post jucundam juventutem,  
Post molestam senectutem,  
Nos habebit humus, nos habebit humus.*

Drinking, smoking, and singing, however, are not the only relaxations of the true student; there is also the time-honoured institution of the *duello*. Duels are strictly forbidden in the Universities, as well as in the Army—“*e pur si batte!*” Traditions die hard, and the duel, like the Chaldaean astrologers and soothsayers in ancient Rome, is proscribed, and yet connived at and retained. As a rule, at a University, one takes place every week. Needless to say, these encounters are not à l'outrance. When the principals, with their seconds and companions, take their place on the *Mensur* (ground)—which, for prudential reasons, is generally in the vicinity of

some quiet country *Gasthaus* (tavern)—they are encased in a *quasi*-armour of stout leather. It is only the face or head that can be reached by the rapier—the weapon in use on such occasions. Ugly, if not dangerous, wounds are quite possible, and a combatant sometimes loses a portion of an ear or of a nose, or receives a nasty slash across the cheek; but such hurts are regarded as “honourable scars.” The duration of the duel is strictly limited to fifteen minutes.

Life even at a German University is not all “beer and skittles,” as the saying goes, and duelling. The students have to prepare for that great and serious struggle in the world, in which the Teutons are certainly not the men to go to the wall; and the twenty seats of learning of which the Fatherland can boast are leading centres, now as of old, of thought, culture, and research. The Government is most munificent in its support of learning. It has spent, for instance, no less than £120,000 recently on the University of Strasburg, and the German University professor is an important and well paid functionary, although, of course, salaries vary. At Königsberg a professor receives from 3,900 to 7,200 marks per annum; at Berlin, from 3,300 to 12,000; at Halle, from 3,500 to 9,000.

A student's matriculation fees also vary from 18 marks at Bonn and Berlin to 20 marks at Leipzig, and he must also pay for each course of lectures he attends. The fixed *honorarium* which a professor receives at Heidelberg from every student who attends his classes is 5 marks an hour; at Göttingen it is as much as 7 marks. This system of payment is obviously not without its advantages. Monetary considerations compel the student to exercise prudence in his selection of courses, and it is the interest of each professor to make his lectures as useful and attractive as possible; for, of course, the more pupils he has, the larger are his receipts.

As a rule, the professors' lectures are, as the derivation of the word imports, simply “readings” (*Vorlesungen*). It is seldom, indeed, that a teacher is found who, like the great metaphysician and Kantian commentator Kuno Fischer, of Heidelberg, can address a class without notes. The average German *savant* is painstaking, thorough, and accurate to a degree, but he is rarely brilliant or eloquent.

The number of professors and students varies considerably in the different Universities. In the year 1896–97 there were 341 professors at Berlin University, and over 5,000 students; while at the same period at Rostock the professors numbered 44, and their *alumni* 500.

### MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.

A MEETING of the Council was held at the College, Bloomsbury Square, on September 13. Present: Rev. J. Stewart, Vice-President, in the Chair; Mr. Barlet, Mr. Baumann, Mr. Bidlake, Mr. Brown, Mr. Butler, Mr. Chettle, Mr. Harris, Mr. Holland, Miss Jebb, Mr. Kelland, Mr. Millar Inglis, and Rev. Dr. Scott.

The minutes of the last meeting were read and confirmed.

Diplomas were awarded to the following persons, who had passed the required Examination for the Associateship of the College:—Miss M. M. Baugh, A. F. Corridon, A. H. Harris, D. M. Periton, and Miss K. A. Perratt.

The report of the Finance Committee was adopted.

On the motion of Mr. Millar Inglis, a Committee was appointed to consider in what ways the usefulness and influence of the College might be extended.

The following persons were elected members of the College:—

Miss E. S. Gandy, A.C.P., Queen Street, Deal.  
Miss M. Punnett, B.A. Lond., Cambridge Training College.  
Mr. C. B. Hughes, A.C.P., Willow House School, Walsall.  
Miss H. Hamilton-Gibbs, Convent of the Assumption, Richmond, Yorks.  
Mr. S. H. Mitchell, L.C.P., Elmwood House, Port Talbot.  
Mr. T. R. Wilson, Wethersfield House, Victoria Park, Cambridge.

The following books had been presented to the Library since the last meeting of the Council:—

By the VOLTA BUREAU, WASHINGTON.—International Reports of Schools for the Deaf; Statistics of Speech-Teaching in American Schools for the Deaf, 1901.  
By E. ARNOLD.—Arnold's New Shilling Geography; Arnold's Literary Reading Books (In the World of Books and In Realms of Gold); Fletcher's Elementary Geometry.  
By G. BELL & SONS.—The Abbey History Readers, Books I.-V.; Macnair's Introduction to Chemistry; Lodge's Differential Calculus for Beginners.  
By BLACKIE & SON.—Blackie's Illustrated Continental Geography Readers (Australasia); Reversible Copy-Books, Nos. 5, 6, and 7; Scholle and Smith's First Steps in German, and First German Grammar; Smart's Selections from De Musset; Wimbolt's Virgil's Georgics, Book IV.  
By C. J. CLAY & SONS.—Harper's Song of Solomon (Cambridge Bible for Schools and Colleges).  
By W. B. CLIVE.—Matriculation Directory, No. XXXII., June, 1902.

By GINN & Co.—The Youth's Companion Series (Northern Europe and The Wide World); Allen and Greenough's Cicero's Orations and Letters; Benan and Smith's Academic Algebra; Blaisdell's Life and Health; Brownell's Valerius's El Pajaro Verde; Davis's Elementary Physical Geography; Gage's Introduction to Physical Science; Heinemann's Curso Completo de Arithmetica; Hodge's Nature-Study and Life; Litchfield's Selections from English Poets; Loomis's Original Investigation, or How to Attack an Exercise in Geometry; Meier's Herbarium and Plant Description; Myers's The Middle Ages; Pimney's Spanish and English Conversation (First Book); Pratt's Invertebrate Zoology; Stone and Fickett's Trees in Prose and Poetry; Turk's Selections from De Quincey; Wightman's Hugo's Notre Dame de Paris; Witmer's Analytical Psychology.

By MACMILLAN & Co.—Bradshaw's First Step in Arithmetic; Downie's Holmes's The Autocrat of the Breakfast Table; Webb's Selections from Campbell; Duncan's Applied Mechanics for Beginners.

By METHUEN & Co.—Rose's Rose Reader; Williamson's Class-Book of Easy Dictation and Spelling.

By RALPH HOLLAND & Co.—Clough's Reprint of Scholarship Questions.

By RIVINGTONS.—Robinson's Short History of Rome; Morich's Premieres Lectures Francaises.

By the UNIVERSITY EXAMINATION POSTAL INSTITUTION.—Cambridge Higher Local French and Arithmetic Papers.

By HACHETTE & Co.—Hermann Lange's Household German, Part I.; Spencer's Le Baccus.

Calendars of University College of Wales, Aberystwyth; St. Andrews University; Glasgow University; Manitoba University; University College, Bristol.

COLLEGE OF PRECEPTORS.

CERTIFICATE EXAMINATION—PASS LIST.

JULY, 1902.

The following is the list of the successful candidates at the Colonial Centres—Colombo, Grenada, and Lagos:—

N.B.—The small italic letters denote that the candidate to whose name they are attached was distinguished in the following subjects respectively:—

a = Arithmetic, h = History,  
al = Algebra, ms = Mensuration,  
e = English, s = Scripture.

The small figure 2 prefixed to names in the Third Class List denotes that the candidates were entered for the Second Class.

Bracketing of names implies equality of merit.

BOYS.

SECOND CLASS [OR JUNIOR].—HONOURS DIVISION.

Perkins, F. B. ms. Private tuition.  
Johnson, A. O. C.M.S. Grammar School, Lagos.

SECOND CLASS [OR JUNIOR].—PASS DIVISION.

Shogbesan, A. O. a. al. C.M.S. Grammar School, Lagos.  
Gairy, E. J. h. Private tuition.  
Thomas, S. A. C.M.S. Grammar School, Lagos.  
Rodrigo, J. B. City College, Colombo.  
Silva, B. Private tuition.  
Turton, J. R. C.M.S. Grammar School, Lagos.

THIRD CLASS.—HONOURS DIVISION.

Turlo, S. A. s. a. al. C.M.S. Grammar School, Lagos.  
Baptiste, E. C. e. a. Private tuition.

THIRD CLASS.—PASS DIVISION.

<sup>2</sup>Baptist, S. A. C.M.S. Grammar School, Lagos.  
<sup>2</sup>Fernando, M. J. City College, Colombo.  
Mahon, H. e. a. Private tuition.  
Dubissette, J. C. " " "  
Cadore, C. A. " " "  
Mitchell, D. Da C. R. " " "  
<sup>2</sup>Trimane, L. P. City College, Colombo.  
Agbebi, D. s. a. al. C.M.S. Grammar School, Lagos.  
Williams, A. E. N. " " "  
<sup>2</sup>Wanigasoorya, D. J. A. Private tuition. " "  
Shosun, W. F. C.M.S. Grammar School, Lagos.  
Rode, L. S. e. City College, Colombo.  
<sup>2</sup>Andrews, J. R. Private tuition.  
Jibona, S. A. C.M.S. Grammar School, Lagos.  
<sup>2</sup>Suppramanian, S. Private tuition.  
<sup>2</sup>Jayawardene, J. P. " "  
Luxana, A. S. City College, Colombo.

GIRLS.

THIRD CLASS.—PASS DIVISION.

Wilson, R. Private tuition.  
Hurley, M. F. " "  
Robert, E. e. " "

LOWER FORMS EXAMINATION.

Bassanayake, D. W. M. City College, Colombo.  
Jayatilake, A. " "

PROFESSIONAL PRELIMINARY EXAMINATION—PASS LIST.

SEPTEMBER, 1902.

The Supplementary Examination by the College of Preceptors for Certificates recognized by the General Medical Council, the Incorporated Law Society, the Royal College of Veterinary Surgeons, the Pharmaceutical Society of Great Britain, the Board of Education, and other bodies, was held on the 2nd, 3rd, and 4th of September, in London, and at four other local centres, viz.,

Birmingham, Bristol, Leeds, and Liverpool. The following candidates obtained Certificates:—

FIRST CLASS.

Pass Division.

Bliss, M. F. Penny, E. A.  
Bloxsome, H. E. Platts, H.  
Brown, C. M. Reynolds, J. L.  
Horner, H. W. Watson, W. H.

SECOND CLASS.

Honours Division.

Capon, R. S. Meers, J. H.  
Heron, F. W. D. Price, C. E.

Pass Division.

Atkins, F. R. L.	Hollick, R. G. <i>ch.</i>	Pitt, E. J. <i>a. al.</i>
Barlow, E. C.	Keats, B. A.	Pool, G. W.
Basford, F.	King, T. H. V.	Ravenhill, E. L. B.
Bintcliffe, J. W. <i>a.</i>	Kirk, G. C. K.	Rawson, H. F. <i>ch.</i>
Bowman, A. G.	Knowles, J.	Roberts, D. C.
Briggs, W. E. P.	Land, E. T. <i>ge.</i>	Roberts, J.
Burdett, J. H.	Lang, J. E.	St. John, A. H. V. <i>f. ge.</i>
Clarke, C.	Lloyd, T. P.	Skilleter, A. E. W. C.
Colwell, R. M.	Lucas, G. B.	Sleep, T. L.
Cooper, H. W. <i>a.</i>	Lucas Tooth, A. L.	Stainer, C. H. <i>al.</i>
Davies, A. W.	Mathew, P. W. <i>gr.</i>	Startin, J.
Falconer, A.	Maynard, A. C. M.	Strange, C. F. <i>g.</i>
Farrant, H. B. <i>a.</i>	Miles, A.	Tamplin, F. S.
Ferguson, G. D. G.	Miller, H. C.	Torry, E. N.
Foster, H. E. B.	Minchin, R. S.	Turkington, J. S.
Gee, P. <i>a.</i>	Nairn, J.	Verity, T.
Gibbings, R. J.	Neale, W. E.	von Braun, C. R. B. <i>ge.</i>
Gilbert, N. H.	Nicholson, M. A.	Wakeham, W. R. B.
Greig, S.	Oukley, P. D.	Webb, M. V.
Heap, H.	Packham, G.	Wilson, H. A. F.
Hemingway, N.	Parkhouse, G.	Young, J. F.

N.B.—The small italic letters denote that the candidate to whose name they are attached was distinguished in the following subjects respectively:—

a = Arithmetic, g = Geography,  
al = Algebra, gr = German,  
ch = Chemistry, gr = Greek,  
f = French.

REVIEWS.

WHAT TO TEACH, AND WHY.

Principles of Class Teaching. By J. J. Findlay, M.A., Ph.D. (Macmillan.)

This is the third volume of Messrs. Macmillan's series of "Manuals for Teachers"; and, though it is not likely to be generally recognized as a text-book for students in training, it will for that very reason commend itself more to the educational world that has passed the stage of examinations. English writers on pedagogics may be roughly divided into two camps—the theorists who have never taught and the teachers who have no theory. Dr. Findlay would show us a more excellent way. Theory and practice, he holds, cannot be divorced, and little is gained by drawing a sharp distinction between the two. As he puts it epigrammatically: "Theory without Practice is wind; Practice without Theory is quackery." The charge is partly true. But Dr. Findlay does scant justice to his predecessors. Thus, it is hardly fair to dismiss Sir Joshua Fitch's "Lectures on Education" with a patronizing compliment as the most favourable specimen of the "frankly empirical." But this is a venial error compared with the supercilious arrogance of calling Prof. Bain's "Education as a Science" the "dull and pointless essays of an Aberdeen philosopher." Here is the first time, we should say, that Dr. Bain's writing has been called "pointless"—the most inapplicable epithet in the dictionary. Dr. Bain was a pioneer, and, whatever grounds there may be for dissent from any of his conclusions, we remember too well the yeoman service that he rendered in the early days of the Education Society against the ancient reign of sciolism and obscurantism "to speak ill of our father Parmenides." Dr. Findlay might learn from R. H. Quick's "Remains"—a book with which he seems unacquainted—how a philosopher should treat a brother philosopher from whom he dissents. Besides, it is well to remember that there is pretty certainly a reply to the dissent.

Such blemishes, however, are happily rare—the defects, in fact, of the author's qualities, his rather aggressive determination to call no man master, and to think out independently the educational problems that confront him. The question that Dr. Findlay has set himself to solve is "What to teach, and why?"

and the book needs some such sub-title to make its scope clear and to distinguish it from manuals like Thring's "Theory and Practice of Teaching" and Mr. Arthur Sidgwick's "Class Discipline." Of desks and blackboards, of marks, place-taking, and removes, of examinations internal and external—in short, of all the machinery of a school-class—we hear nothing; or, to speak by the card, all such details are brushed aside as accidentals with which the philosopher has no concern. Now it may be quite true that among English teachers these externals are apt to usurp the whole field of education; yet we cannot help recalling the importance that a great political philosopher attached to a round or a square table at the Council Board, and we picture to ourselves the disappointment of the young teacher whose soul is vexed by the indeterminate equation of marks when he consults a writer who announces in his preface that the first charge he has laid upon himself is "to set out the matter in a form adapted to the practical requirements of teachers now at work, and reads: 'Marks may have a proper place in class management; for the individual, especially before adult life, is unable to rise to the full practice of the corporate virtues.'" We fear that, instead of reading on to see how the corporate virtues may be stimulated in Jones *minimus*, who gets nought each week for his dictation, and Smith *major*, who forfeits all his marks for talking, he will, like the rich young man in the Gospel, go away very sorrowful.

We have so far indicated what the reader must not expect to find, and the more agreeable task remains of adumbrating in brief the contents, and showing, as far as can be done by sample, how far the volume, though it does not pretend to be a *vade mecum* for the journeyman teacher, deserves to be perused and studied by every one who aspires to be an educator.

The treatise falls into two sections of about equal length—Curriculum and Method. The introduction discusses briefly the meaning of Education and dismisses as foreign to the present inquiry two of the three branches, Aim and Administration, and limits the third branch, Practice, to the conduct of a class—that is, any number of pupils between twenty and forty. The superior limit, we may note in passing, strikes us as arbitrary, and in the Welsh schools, with which Dr. Findlay is conversant, the head form rarely exceeds a dozen.

After these preliminary definitions, the motives in the selection of material are treated at length. The two conflicting principles of inheritance or tradition and self-development are excellently stated, and the diagonal of forces, if we may borrow a mathematical term, worked out. The motto chosen for the chapter is a quotation from "Dombey and Son." We would suggest, as putting the argument in a nutshell, a sentence from President Murray Butler's "Addresses": "When we hear it sometimes said: 'All education must start from the child,' we must add: 'Yes, and lead into human civilization'; and when we hear it said, on the other hand, that all education must start from the traditional past, we must add: 'Yes, and be adapted to the child.'"

The third chapter treats of the nature of the pursuits selected for class teaching. On these there is now a pretty general agreement among teachers, and we need not discuss the six groups of Dr. Findlay's scheme. The only novelty—an eccentricity, we are inclined to call it—is that language is grouped with music, and drawing among the arts. Now we may concede to Dr. Findlay that one aim of language is "to create new forms for expressing idea, to put thought and feeling into speech, precisely as the painter puts thought and feeling upon canvas"; but this is not, as he would have it, the only aim—nor, indeed, the chief aim—from the educator's point of view. The language teacher, whether his subject-matter is Thucydides or Goethe or Chaucer, aims, above all, at getting his pupils to understand and to interpret. When they have grasped the meaning, words (as Horace says) will naturally follow. To bracket a language lesson such as this with fiddling and freehand drawing is a fantastic paradox.

In the next chapter the general scheme is applied to the three existing types of schools—(1) primary, with a special primary stage; (2) higher primary; and (3) secondary schools. The guiding principle here is that specialization, or preparation for a particular career, should be confined to the last year, or in the case of high schools the last two years, of the course.

We particularly welcome Dr. Findlay's testimony, based on practical experience, as to the advisability of postponing the study of Latin. A daily lesson for two years in French—it need not last more than half an hour to three-quarters—will give pupils a real grip of the language, and then (at fourteen) will come a year of Latin for all, and Latin will be afterwards dropped by those who elect for the scientific or commercial side. As to

the supposed danger of postponing Latin and Greek, "sufficient experience has already been gained to show that clever pupils (and these alone are worthy of a classical education) can attain the highest University standards by commencing later with as much ease as those who used to commence in childhood."

We had intended similarly to analyze Part II., on "Method," but space forbids, and no *résumé* could do justice to the various specimens of lessons given as illustrations of first principles. Only, as we said at starting, the assistant master will be conscious at each step that he is "moving about in worlds not realized." It is an ideal class-room for which Dr. Findlay legislates. He presupposes a trained head master who knows his business co-operating with a homogeneous staff who know theirs, carrying out a scheme of work which has been planned in common council and in which the various parts are dovetailed to a nicety—a scheme in which Matriculation and Joint Board Examinations are ignored, and into which the thought of scholarships does not enter; which moves on the poles of self-culture and the common weal. We turn to the reality that will confront most commencing teachers—a head master who believes in the classics and has never heard the name of Herbart; governors whose sole test of success is the number of scholarships won by the school; colleagues chosen, one for his scholarship, another for his cricket, and a third because he can talk French, each pursuing his own method and agreeing only (with the head master) in the belief that pedagogics is an invention of visionaries and charlatans, of no more concern to practical men than crystal-gazing or thought-reading.

#### THE LATEST DICTIONARY OF THE BIBLE.

*Encyclopædia Biblica: a Critical Dictionary of the Literary, Political, and Religious History, the Archæology, Geography, and Natural History, of the Bible.* Edited by the Rev. T. K. Cheyne, M.A., D.D., and J. Sutherland Black, M.A., LL.D. Vols. I.-III. 20s. net each. (Black.)

The idea of this remarkable work originated with a remarkable scholar—the late Prof. Robertson Smith, to whose memory it is dedicated. On his premature death, the execution of his conception was undertaken by his friends, Drs. Cheyne and Black, "as a charge from one whose parting message had the force of a command." What Robertson Smith contemplated "was no mere collection of useful miscellanea, but a survey of the contents of the Bible as illuminated by criticism—a criticism which identifies the cause of religion with that of historical truth, and, without neglecting the historical and archaeological setting of religion, loves best to trace the growth of high conceptions, the flashing forth of new intuitions, and the development of noble personalities, under local and temporal conditions that may often be, to human eyes, most adverse." How thoroughly well Robertson Smith's friends have carried out his ideas must be apparent to the most casual reader of these volumes. One cannot, indeed, ignore the obvious fact that many sincere persons have been not a little disturbed by the character of the results and the whole tendency of the work. But here there seems to be a profound, though by no means unnatural, misconception. It is to be recognized that the fresh positions are taken up, not wantonly and provocatively, but under stress of prolonged and severe special study; and that they are advanced, not in a dogmatic and aggressive tone, but with the judicial seriousness befitting the difficulty of the questions involved. We find, indeed, a constant carefulness of discrimination between points that are advanced with confidence and points that are offered as more or less uncertain, being based on probabilities of varying strength, which are set forth for the reader's consideration. No one can reasonably demand more, or be content with less. Criticism of the Sacred Scriptures is as old as the Fathers of the Church, and the so-called "higher criticism," which is simply the criticism of the best scholars, has to be reckoned with. Galileo affirmed that the earth goes round the sun, in opposition to the universal belief of his time and much to the disturbance of the settled notions of many good people; but no harm has come of it, either to the sun or to the earth, and nobody now disputes the theory any more than the multiplication table. In the same way, we apprehend, the fears of many good people for the results of modern scholarly examination of the Sacred Books, though really inevitable, are yet quite vain. Scholars will sift the wheat from the tares and from the chaff of the conclusions put forth, and the faith will thus be rectified and purified. When a Nonconformist divine like Prof. Archibald Duff tells us, incidentally, in his new "Hebrew Grammar," that the second chapter of Genesis was written some four centuries

before the first chapter, one cannot but recognize that the flood-gates of inquiry are opened and that no man can shut them. It is only a mind lulled in lethargy that can calmly wave aside investigation of such a striking and authoritative assertion, with all its train of consequences. Now there is hardly a page of these three volumes but raises questions of varying degrees of importance similarly calling for solution; and it seems perfectly clear, therefore, that the scholars contributing the articles—foremost scholars of every civilized country and of every denomination—are doing a very high service, not only to true learning, but to true religion, by placing every one of the difficulties in the strongest light of modern scholarship with the most careful and reverent expression both of question and of attempted solution.

Here, of course, it is impossible to discuss any one question of the thousands treated in these masterly volumes. In so far as the articles set out the latest information on matters involving no dispute whatever, their utility needs no recommendation. Such matters necessarily occupy a very considerable portion of the space; and in these the habitual care and high scholarship of the writers are manifest. In so far as the articles deal with difficulties, whether obvious to the unlearned reader or discerned only by the acumen of scholarly observation, the points are marshalled in lucid array and frankly handled; and, if in any case the critic adventures on speculations that seem to be bold, not to say rash, he is certain to be promptly brought to book by other critics of no less capacity and learning. We are bound, however, to say that we do not anticipate much danger to the contributors to these volumes. We certainly find conclusions that look daring and are far-reaching; but they are uniformly expressed with the qualifications that warn every attentive reader of the degree of certainty implied, and accompanied with reasons and references whereby they can be tested. One could not readily conceive a more valuable aid to the serious student of the Sacred Books. How far the results may be put forward in teaching or in preaching is a matter for the judgment of the particular teacher or preacher; but it is a matter that calls for careful consideration. An oculist is chary about letting a patient suddenly into the full light; and so it is with the practitioners of the mind. Robertson Smith was expelled from his professorial chair amidst a convulsion of his church; yet now the very opinions that caused such an upheaval are all but commonplaces of educated religious thought. What is fit for the atmosphere of scholars is not always fit for the atmosphere of the pulpit, and still less for the school. There is a discretion in these things. But the work of the scholars—especially such careful, scholarly, and judicious work as is contained in these volumes—ought to be closely followed by those whose duty calls upon them to teach in the church or in the school. The maps, sketches, plans, and illustrations are of the best; and the editorial skill is of the very first division of the first class.

#### THE "ENCYCLOPEDIA BRITANNICA."

*The New Volumes of the "Encyclopædia Britannica."* Vol. V. (being Vol. XXIX. of the complete work). (A. & C. Black and the *Times*.)

The prefatory essay, by Mr. Benjamin Kidd, reviews the application of the doctrine of evolution to sociological theory and problems. Mr. Kidd enumerates the earlier theories leading up to natural selection, and explains the position of Darwin, Spencer, Wallace, Huxley—and Kidd. He is necessarily confined to the congenial region of large generalities, and, while he justly points the general drift of development under the four great names, he shows an easy and gratuitous contempt for what he calls the "Ptolemaic standpoint" of the Utilitarians. It is, of course, a suggestive article; but there are lying at the back of it assumptions that require a good deal of fortification. The articles of the volume run from "Glarus" to "Jutland," occupying 763 pages. Several important countries fall to be described—none more important, from the British point of view, than India. Mr. J. S. Cotton writes an able, painstaking, and judicious account of the geography and statistics of India, the history of the country and the position of the Native States being assigned to two retired Anglo-Indians of eminence, who take care to veil the seamy side. Sir Auckland Colvin does indicate disapproval of the "Forward Policy" and the urgent necessity for peaceful internal development; but official restraint still has hold of him, and his account of the National Congress is amazingly misconceived. Sir Alfred Lyall does not mention the attitude of the Nizam during the Mutiny, and he decorously covers up one

of the most disgraceful of Anglo-Indian injustices in this sentence:

Since that time [1800] the only material transaction with the Haidarabad State has been the assignment to the British Government of certain districts yielding a net revenue set apart for the payment of an auxiliary force that the Nizam had undertaken to maintain, the surplus, if any, of revenue, after payment of the troops, to be credited to the Haidarabad Treasury.

A very "material transaction," indeed! But what reader would understand from this sentence that the Nizam was publicly acknowledged by the Viceroy to be under no obligation to maintain that force; that we were under obligation to do the work for which that force was maintained; that the Nizam could not of his own motion disband that force; that we seized the Berars—the richest of the Nizam's provinces, "the great field of supply of the best and cheapest cotton grown in India"—to guarantee a debt that was never due and has been officially shown to have never been due; that from 1853 to 1860 we never once furnished accounts (as we were bound to do under Article VIII. of the Treaty of 1853); and that in 1860 we compelled the Nizam to forgo the obligation? "The districts," Sir Alfred does state, "are still thus held in trust under British management." "In trust"! One only wishes that the "trustees" could be subjected to the opinion of a Chancery judge. It is very painful to find "history" permanently recorded in this fashion under authoritative names. Sir Alfred will find the true story of this discreditable business concisely set forth in *India*, May 9, 1902. The very elaborate account of Japan is exceedingly useful at the present time. The article on Ireland, too, contains a valuable set of statistics. The historical account is fair enough, but colourless and pointless. There are many articles of large social and commercial importance—those on the Grain Trade of the World, Heredity, Hops and Hop Growing, Hospitals, Hygiene, Income Tax, Industrial and Reformatory Schools, Iron and Steel, Irrigation, &c. The great scientific subjects are very fully dealt with, and the judicious notices of living persons of distinction continue to be a useful feature. The illustrations are numerous and excellent.

#### ITALY AND THE BARBARIANS.

*The Barbarian Invasions of Italy.* By Pasquale Villari. Translated by Linda Villari. Two volumes. (32s. Fisher Unwin.)

Prof. Villari's initial purpose in writing this "first volume of Italian history"—the original is in a single volume—was patriotic and practical; for why should Italian students not have "a series of volumes treating separately and in a popular style of the different periods of Italian history under all its different aspects, and also comprising the history of other civilized nations," just as the students of other European countries and of America have their series of historical manuals? The work will be useful here also: the period is of much importance, and we have no book of manageable size and popular character already in possession. Dr. Hodgkin's monumental work, to which Prof. Villari acknowledges his indebtedness, is for the big library and the scholar. Prof. Villari makes a somewhat modest estimate of his book: "It is neither a learned nor a scholastic book," he says, "nor is it a philosophic study of universal history. . . . I merely narrate events in chronological and logical order, without commenting or descanting on them, doing my best to avoid dryness." Dryness he certainly avoids; but, though his course is plain narrative, he indicates clearly enough the bearing of events; and his work is well fitted for an introduction to the upbreak of the Roman Empire and the rise of modern Italy.

Prof. Villari starts with an examination of the causes of the fall of the Roman Empire—civil, military, economic, and religious—and not merely the *latifundia*. With the first introduction of the Barbarians he naturally avails himself of the descriptions by Cæsar and Tacitus, but he evades, rather than clears up, the well known points of difficulty, and he speaks of the Teutonic Mark as if Fustel de Coulanges had never discussed the matter. "The Romans were the first to create private property by freeing it from its archaic form": this looks like a trustful paraphrase of G. L. von Maurer's doctrine in 1854. When the author gets to his strictly historical business, however, he is on firm ground, and may be safely followed. From his earlier chapters on the political and social conditions English readers will insensibly draw comparisons that merit serious consideration. He describes the successive waves of invasion with great spirit, with unflagging interest, and with much discrimination; shows how the doomed Empire struggled against its swarming foes; notes the

origin and progress of the historical opposition between the civil and religious powers; and glances at the varying conditions of the mass of the people. The real beginning of modern Italy may be dated from the occupation of the Longobards, whose monarchy was, in fact, independent of the Empire; and this is narrated in the second of these volumes. The work ends with the coronation of Charles the Great.

We have not the original before us, but we judge that the translation is rather literal. There must be some omission on page 243. The Latin terms seem strangely liable to misprints, and there are other marks of unintelligent or careless reading. "Ætius" seems intentional, but it ought to be "Aëtius." No doubt such slight but vexatious blemishes will be removed in another—and cheaper—edition.

#### ILLUSTRATIONS OF ENGLISH MEDIEVAL HISTORY.

*Companion to English History (Middle Ages).* Edited by Francis Pierpont Barnard, M.A., F.S.A. With 79 Plates. (Clarendon Press.)

A very handsome, elaborate, and instructive volume. It is divided into twelve sections, each written by a specialist on the particular matters—ecclesiastical architecture, domestic architecture, military architecture and the art of war, military and civil costume, heraldry, shipping, town life, country life, monasticism, trade and commerce, learning and education, art. There need be no exacting inquiry as to the limits of "medieval" times for the purposes of the book; the point has been settled in a practical way that will commend itself to all readers. Nor need there be any objection to the overlapping observable in several of the sections. "This," as the editor reasonably remarks, "apart from being unavoidable, will not be without its advantage in illustrating the connexion and interdependence of the matters treated." The illustrations form a most prominent and useful feature. They have been for the most part "specially drawn or photographed for the book, and all that could be made from the objects themselves have been so made." They are in great variety—often half a dozen or more on a single plate—and they convey the idea of the objects with a definiteness and vividness beyond the power of any description. They are beautifully reproduced.

The more technical sections—on architecture, costume, heraldry, and art—are written in simple language, and the more special terms are incidentally explained. They bring into clear relief a very large number of matters essential to a just realization of the conditions of the times, matters that are commonly left to the helpless imagination of the pupils. The other sections extend, deepen, and render more precise such knowledge of the subjects as find place in the ordinary text-books. They are not overloaded with details, and the arrangement (with help of the index) makes reference quite easy. The whole work contributes immensely to a distinct conception of the main lines of gradual development of methods in the organization of different departments of national activity—military, civil, and social. The lists of books of reference appended to the various chapters will be helpful to teachers. The volume, however, will be found just as useful by private students of English history. It marks a distinct advance in the means of historical instruction.

#### MATHEMATICS FOR PHYSICISTS.

*Higher Mathematics for Students of Chemistry and Physics.*

By J. W. Mellor, D.Sc. (Longmans.)

The excellent object of this work is to place within the reach of science students a means of gaining as much knowledge of higher mathematics as will enable them to pursue their special practical study and research with the greatest power and facility. Such students have no need to follow all the intricacies of every subject included in pure mathematics; but they do require to have a clear grasp of the general principles and leading theorems of several of its branches in order that they may be convinced of the importance of the tools that mathematics can furnish to the scientist, and that they may also learn to use those tools with the necessary skill. Throughout the volume the author constantly dwells on the complementary nature of mathematical and physical science. Here the mathematician finds the practical example that adds the impress of reality to his interesting theories, and here the student of physical science is led to find in mathematical language the natural expression of a wealth of scientific truths. The writer deals mainly with the fundamental principles of the differential and integral calculus and of differential equations, with infinite series, with the elementary por-

tions of analytical geometry, plane and solid, and with some of the higher portions of algebra, including probability and the theory of errors. The principles of the various subjects are ably treated, and great use is made of the valuable assistance afforded by graphical methods.

Having regard to the extended scope and consequent size of the work, it is, perhaps, scarcely to be expected that the first edition should be free from errors. Unfortunately there are a great many. In addition to the numerous misprints there are inaccuracies of greater importance, some of which appear to be the result of want of precision in expressing ideas correct in themselves, whilst others are actual mistakes. On page 322 it is stated that friction is proportional to velocity; on page 134 the test for convexity or concavity with regard to the foot of a positive ordinate is wrongly worded and the blunder is repeated; on page 140 it is asserted that the total curvature of an elementary arc is equal to the limit of  $\delta a' \delta a$ . These examples sufficiently indicate the necessity for a careful revision of what is essentially a most valuable text-book for students. One other remark seems to be called for—viz., that the ellipse can scarcely, with any show of justice, be classed as "not a very important curve," even though it may play a less important part in some branches of science than the parabola or hyperbola; for is it not absolutely fundamental in astronomy and in lunar and planetary theory? The diagrams, which are very numerous, are often wanting in the delicacy of finish that is naturally looked for in a publication such as the present one.

## GENERAL NOTICES.

### CLASSICS.

*Select Orations and Letters of Cicero.* (Allen and Greenough's Edition.) Revised by J. B. Greenough and G. L. Kittredge. (6s. Ginn.)

The Orations presented in full are the Defence of Roscius, Pompey's Military Command ("Pro Lege Manilia"), the four against Catiline, and the Citizenship of Archias; and from the Verrines are taken "Actio Prima" and "Actio Secunda" IV. 52-60 (the Plunder of Syracuse), and V. 61-66 (Crucifixion of a Roman Citizen). There are twenty-one Letters, six from those "ad Atticum" and the rest from those "ad familiares." The long syllables are marked throughout the text. Brief prefatory explanations put the student in position for the text, and the notes are very useful as far as they go, though they are far from being so detailed as Dr. Reid's. A general introduction (53 pages) contains a sketch of the life of Cicero, remarks on Roman oratory, on Cicero as an orator, on Latin and English style, and on ancient oratorical delivery, and a pretty full outline of main points in the Roman Constitution. There are five maps, a plan of the Forum (exhibiting the remarkable series of excavations begun in 1890), and more than a hundred excellent illustrations, especially busts, coins, views, &c.; also a vocabulary (226 pages). The work is marked by competent scholarship and painstaking care throughout; and it is beautifully printed and strongly bound.

"Parallel Grammar Series."—*A Parallel of Greek and Latin Syntax.*

By C. H. St. L. Russell, M.A. (Swan Sonnenschein.)

Mr. Russell has carried out the system of this well known series with great care and efficiency. The examples are judiciously selected; the explanations are succinct and clear; the graduation of the materials is successful; and there is a scheme "assigning definite sections of the book to every Form, and suggesting the points at which each subject may successively be begun, continued, and summarized." The first Part, dealing briefly with "English Syntax and the Laws of Agreement," might have been dispensed with; at least, it ought to be unnecessary. It is prefixed "from the belief that half the difficulty of Greek and Latin grammar arises from ignorance of the common laws of speech"—ignorance that ought to be dispelled beforehand. The Latin and the Greek portions may be studied independently; and either or both may be read in connexion with the ordinary manuals of accidence or prose. The latter procedure will probably be found more effective than independent use of the volume. But on its own lines the volume is exceedingly well devised and executed.

### MATHEMATICS.

*A First Step in Arithmetic.* By J. G. Bradshaw, B.A. (2s. Macmillan.)

The object of this little book is to furnish the teachers of the youngest boys in our preparatory schools with a large collection of exercises suitable for oral and for written work. The opening chapter gives valuable suggestions on the teaching of the principles of the first four rules, simple and compound. These introductory pages will be full of interest also to all engaged in the education of children, whilst they are likely to be of the greatest use to very many.

*Commercial Arithmetic.* By Frank L. Grant, M.A., F.R.A.S., and Alexander M. Hill, M.A. (3s. 6d. Longmans.)

This text-book has been written mainly to meet the requirements of

students preparing for a commercial career and already possessing a knowledge of the elementary portions of arithmetic. Attention may be drawn to some of the special and interesting features of the work. The authors, for example, having first explained the general principles which underlie the treatment of algebraic equations, apply these to the discussion of many of the practical problems of arithmetic; the excellent chapter on "Profit and Loss" affords a good illustration of the advantages that may often be derived from such methods. Again, a very useful elementary treatment of the theory of logarithms is introduced, enabling students to appeal to logarithmic calculation in solving questions on compound interest and annuities. The work, however, needs some careful revision, for all parts of it do not make an equally satisfactory impression. There are, moreover, definitions that might be improved, and errors and misprints that require correction. Amongst the latter one or two of importance should be noted: the incorrect formula given for the determination of the area of any regular polygon, and the evident misprint in Article 343, where the value of  $\pi$  is discussed.

#### MODERN LANGUAGES.

"Heath's Modern Languages Series."—*Practical French Grammar*. By W. H. Fraser, B.A., and J. Squair, B.A., Professors in the Romance Department of the University of Toronto. With an Introduction by William Robertson, M.A., Examiner in Modern Languages for Aberdeen University.

The aim is "to provide a practical and thorough course in French grammar and elementary composition for schools and colleges" in accordance with "recent advances in the methods of modern language teaching." There is a brief phonetic introduction, not too minute, and phonetic transcriptions are put in brackets after vocabulary words throughout Part I., as well as in the general French-English vocabulary at the end of the book. Part I. (pages 13-128) is a well graded series of exercises based on the elements of the grammar, beginning with "Où est le livre?" and "Montrez-moi le papier, la plume et l'encre," and so forth, but less inane than usual, and quickly getting on to connected narrative. Part II. (pages 129-336) furnishes a systematic grammar, commencing with the verb, which is very fully treated, with various devices for intelligent and ready apprehension. The handling of the various parts of speech, as well as of the syntax, is most careful and thorough. Perhaps Mr. Robertson exaggerates but little when he anticipates that the syntax "will undoubtedly command the unqualified admiration of teachers." The exercises for Part II. are placed separately at the end (pages 337-394). There are full vocabularies and a good index. The book is a substantial piece of work, and teachers will do well to look at it.

*A German Skeleton Grammar*. By Prof. H. G. Atkins, M.A. Lond., B.A. Cantab. (1s. 6d. Blackie.)

Prof. Atkins gives the "irreducible minimum" by way of "guide for the beginner who proceeds direct to the translation of a German text," and emphasizes points of special importance—especially inflexions and irregularities—by printing them in red ink. Quite a sensible little book.

*First Steps in German: Speaking, Reading, Grammar, Songs*. By W. Scholle, Ph.D., and G. Smith, M.A. (1s. 6d. Blackie.)

The first volume of a projected series. "What, to our knowledge, is new in this series," say the authors, "is the strict adherence to the principle of observation, more particularly in the present book, which is entirely based upon the—practically acquired—certainty that language teaching in the sound, meaning, and grammatical structure of the word offers to pupils of various ages an inexhaustible, well graded, and interesting wealth of material for observation." Hölzel's "Der Frühling" and "Der Winter" are reproduced and used as typical object lessons for conversation. The ear is primarily addressed. The book comprises the whole accidence (except the subjunctive) and elementary syntax. Clarendon type is freely used to give prominence. The songs are useful for forming and impressing a vocabulary, as well as for exciting interest. The idea of the book makes strong, but quite reasonable, demands upon the flexibility of the teacher.

#### NATURAL SCIENCE.

*Elementary Treatise on Physics, Experimental and Applied*. Translated from Ganot's "Éléments de Physique" by Prof. E. Atkinson, Ph.D., F.C.S. Sixteenth Edition. Edited by Prof. A. W. Reinold, M.A., F.R.S. (15s. Longmans.)

Prof. Reinold has introduced considerable modifications into the new edition of Ganot's classical work, while taking care to maintain the general features that have given it such wide and prolonged popularity. His object has been "to render the general treatment more systematic, by rearranging, especially in the Books on Magnetism and Electricity, the subject-matter, and to add information respecting recent developments." That is to say, he has carefully brought the work up to date both in matter and in form. Yet, although he has added a large amount of new matter and some 90 new illustrations in the text, he has managed to keep the bulk of the volume down to its former proportions. This result he has achieved by the omission of many descriptions of apparatus and machines that have ceased to be

of interest, and also of "certain mathematical disquisitions which seemed to be of doubtful value in a work of this kind." All this is clearly in the way of improvement; for the book aims at giving a simple account of the most important facts and general laws of all branches of physics, and must, therefore, keep step with the times and refuse to go too deeply or too exhaustively into any one branch. Evidently Prof. Reinold has given this standard work another long lease of life and usefulness.

*Elementary Plant Physiology*. By Daniel Trembley MacDougal, Ph.D. (3s. Longmans.)

Dr. MacDougal, who is Director of the Laboratories, New York Botanical Garden, is favourably known to teachers and students of botany, and this new volume will prove another addition to his reputation. It is intended to replace his "Experimental Plant Physiology" (1895) and "to meet the constantly increasing demand for a course in elementary demonstrations which may be followed by beginners in the subject of botany." Simple methods are purposely used to illustrate important scientific principles, both chemical and physical. The chapter on "Stimulation and Correlation" is particularly interesting and instructive. The present volume, though small, is the work of an artist in practical scientific teaching. It is beautifully got-up and profusely illustrated with more than a hundred excellent diagrams.

#### ENGLISH.

- (1) "The Windsor Shakespeare."—*Othello; The Merry Wives of Windsor; King Lear; The Tempest*. Edited by Henry N. Hudson, LL.D. (Jack.)
- (2) "The Warwick Shakespeare."—*King Lear*. Edited by D. Nichol Smith, M.A. (1s. 6d. Blackie.)
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- (4) "Gill's Oxford and Cambridge Edition."—*A Midsummer Night's Dream*. Edited by Stanley Wood, M.A.
- (5) *Questions on A Midsummer Night's Dream*. Compiled and arranged by George Carter, M.A. (Relief.)
- (6) "The Pictorial Shakespeare."—*Richard II.* (1s. Blackie.)

(1) The Windsor edition is most tastefully got up, a pleasure to read and to handle. Dr. Hudson's introductions and notes, which were originally prepared for Messrs. Ginn's Harvard Edition, are brief and discriminating, but adequate for the general reader; and the longer "critical notes" at the end contain much illustrative information as well as judicious criticism. Each volume has an excellent frontispiece. A charming, handy, and instructive edition.

(2) Mr. Nichol Smith provides the usual school appliances in reasonable fulness and with scholarly discrimination. In appendices he gives interesting extracts showing "the sources of the plot," and a careful treatment of the metre. There is also a concise glossary. An able, sensible, and manageable school edition, and thoroughly well got up.

(3) Mr. Smeaton's introduction presents lucidly the facts of Shakespeare's life, with an examination of the play. His notes are largely fresh, and the numerous parallels are effectively illustrative. The glossary is tolerably detailed, and should be very useful. Mr. Walter Crane contributes eight charming full-page pictures; the coloured frontispiece shows Italian costumes of the period; and there are many interesting illustrations from contemporary prints. Altogether a useful and attractive edition.

(4) Mr. Wood is bewilderingly exhaustive. He makes "a patched fool" of the text, printing in italics all such words and phrases as are explained in the margin or at the bottom of the page, and marking one set by reference letters and the other by reference figures. The pupil ought not to be confused and peppered with notes on all sides. Introduction, supplementary notes "intended principally for senior students," plays on words, anachronisms, grammar, metre, classical names, glossary, examination papers, works of reference—appalling to the pupil, but a full treasury to the teacher. The work is thoroughly well done, but overdone. There are some very good illustrations.

(5) Mr. Carter is possessed by a like fury of exhaustiveness. "Masters," says Bottom, "I am to discourse wonders; but ask me not what." Mr. Carter would "master" him to some purpose. What does he not ask? We should like to set him to answer his own questions: we dare prophesy he would rise a sadder, if not a wiser, man. How would he "correct the language or grammar of the following":—"Say he comes to disfigure, or present, the person of Moonshine," and "I'll meet thee, Pyramus, at Ninny's tomb"? We fancy there would be more scope in "correcting the language or grammar of the following":—"Give instances from this scene of (1) the use of words bearing exactly opposite sense to which it is intended; (2) the use of words which have a different sense, but a similar sound to that which is intended." A merciful teacher may turn the collection to useful account, but it indicates how pupils may be incurably disgusted with Shakespeare and all his works.

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#### HISTORY AND GEOGRAPHY.

*A History of Russia*. By W. R. Morfill, M.A. (Methuen.)

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"Cambridge Historical Series."—*History of Scotland*. Vol. II. By P. Hume Brown, M.A., LL.D. (Cambridge University Press.)

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MATHEMATICS.

15080. ((Professor NANSON.)—Lines drawn through the vertices of a triangle  $\Delta$  divide the angles into the segments  $\alpha, \alpha'; \beta, \beta'; \gamma, \gamma'$ , and form a triangle  $\Delta'$ . If  $R, R'$  are the radii of the circum-circles of  $\Delta, \Delta'$ ,

prove that 
$$\frac{R'}{R} = \frac{\sin \alpha \sin \beta \sin \gamma - \sin \alpha' \sin \beta' \sin \gamma'}{\sin(\beta + \gamma') \sin(\gamma + \alpha') \sin(\alpha + \beta')}$$

and deduce the theorems of CEVA and MENELAUS.

Solution by R. TUCKER, M.A., and Rev. T. ROACH, M.A.

$BR = c \sin \alpha / \sin(\alpha + \beta')$ ,

$BP = a \sin \gamma' / \sin(\beta + \gamma')$ ;

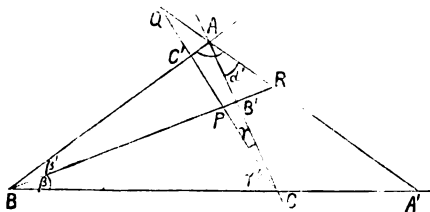
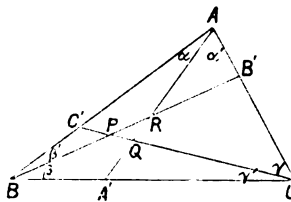
therefore

$$\begin{aligned} PR \sin(\alpha + \beta') \sin(\beta + \gamma') \\ &= c \sin \alpha \sin(\beta + \gamma') - a \sin \gamma' \sin(\alpha + \beta') \\ &= 2R [\sin(\gamma + \gamma') \sin \alpha \sin(\beta + \gamma') \\ &\quad - \sin(\alpha + \alpha') \sin \gamma' \sin(\alpha + \beta')] \end{aligned}$$

= (after reduction)

$$\begin{aligned} 2R [\Pi \sin \alpha - \Pi \sin \alpha' + \sin^2 \gamma' \sin \alpha \cos(\beta + \gamma) - \sin^2 \alpha \sin \gamma' \cos(\alpha' + \beta') \\ + \sin \alpha \sin \gamma' \cos \gamma' \sin(\beta + \gamma) - \sin \alpha \sin \gamma \cos \alpha \sin(\alpha' + \beta')] \\ &= 2R [\Pi \sin \alpha - \Pi \sin \alpha' + \sin \alpha \sin \gamma' \{ \sin(\beta + \gamma + \gamma') - \sin(\alpha + \alpha' + \beta') \}] \\ &= 2R [\Pi \sin \alpha - \Pi \sin \alpha']; \end{aligned}$$

therefore  $R'/R = [\Pi \sin \alpha - \Pi \sin \alpha'] / \Pi \sin(\alpha + \beta')$ ,



$R'$  vanishes when numerator vanishes, which proves CEVA's and MENELAUS's theorems (cf. LACHLAN, *Modern Pure Geometry*, pp. 52, 58).

A Corollary to Euclid III. 22.

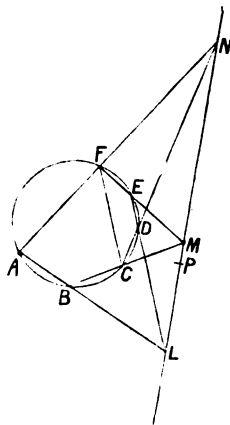
By the Rev. C. TAYLOR, D.D.

Let the sides AB, BC, CD of a convex cyclic hexagon meet the opposite sides DE, EF, FA in successive points L, M, N. Then  $\angle L + \angle N = \angle M$ .

This would be useful in editions of EUCLID as a Corollary or additional Proposition. Assuming it as a Lemma, we see that the three circles LDB, MBE, NFD meet in a point P, and PASCAL's theorem follows at once for the case of the circle. For the point P is evidently in line with LN, and so with LM or MN.

This note was suggested by the elementary proof of PASCAL's theorem for the case of the circle given by Mr. R. F. DAVIS in the *Mathematical Reprint*, Vol. LXXIV, p. 112.

The use of the lemma as above seems to me to make the proof somewhat simpler and much easier to remember.



15109. (Lt.-Col. ALLAN CUNNINGHAM, R.E.)—Find the least solution in positive integers of  $x^3 + y^3 = mz^3$ , where  $m = (3\mu - 1)$ , a positive integer  $> 2$ , and  $x \neq y$ ; and  $x, y, z$  have no common factor.

Solution by the PROPOSER.

$(x^3 + y^3) = (x + y)(x^2 - xy + y^2) = mz^3$ .

As  $(x^2 - xy + y^2)$  is known to contain no factors of form  $m = 3\mu - 1$ , the latter must be a factor of  $(x + y)$ . Hence  $x + y = m$ , or  $m\lambda$ ; but the latter will be found (see the PROPOSER's solution of Question 14945) to involve  $x = \lambda\xi, y = \lambda\eta, z = \lambda\zeta$ , an excluded case. Substituting  $x + y = m$ , and dividing by  $m$ , gives

$m^2 - 3xy = z^3$  and  $xy = \frac{1}{3}(m^2 - z^3) = a$  positive integer.

Hence also

$(x - y)^2 = \frac{1}{3}(4z^3 - m^2) = a\alpha$ .

These involve  $z = 3\zeta + 1$  (since  $m = 3\mu - 1$ ), and  $4 > m^2/z^3 > 1$ . A few trials now suffice to give the lowest solution  $m = 20, z = 7, x - y = 18, x + y = 20, x = 19, y = 1$ , and  $19^3 + 1^3 = 20 \cdot 7^3$ .

5734 & 5702. (5734.) (A. MARTIN.)—A has  $m$  dollars and B  $n$  dollars, and they play at a game for which it is  $b : a$  that B shall win any one game; prove that the chances for the ultimate success of each player are

$a^n (b^m - a^m) : (b^{m+n} - a^{m+n})$  and  $b^m (b^n - a^n) : (b^{m+n} - a^{m+n})$  respectively.

(5702.) (Rev. Prebendary W. A. WHITWORTH, M.A.)—A and B play at a game which cannot be drawn, and the odds are  $\mu : \nu$  in favour of A winning any assigned game. They agree to play until either A shall have won by scoring  $m$  games ahead of B, or B shall have won by scoring  $n$  games ahead of A. Show that, when A has scored  $p$  games more than B, the odds in favour of his winning the match are

$\mu^{m+n} - \mu^m - \nu^{m+p} : \mu^{m-p} \nu^{m+p} - \nu^{m+n}$ .

[From this follows as a corollary Ex. 236 in the 3rd Edition of *Choice and Chance*.]

Solutions (5734) by H. W. CURJEL, M.A., and Professor NANSON; (5702) by H. W. CURJEL, M.A.

(5734) Let  $u_m$  = chance of A's ultimate success when he has  $m$  dollars. Then  $u_x = a/(a+b) u_{x+1} + b/(a+b) u_{x-1}$ , and  $u_0 = 0$  and  $u_{m+n} = 1$ . Hence

$u_x = A + B (b/a)^x = (b^x a^{m+n-x} - a^{m+n}) / (b^{m+n} - a^{m+n})$ ,

from the initial and final conditions; therefore

$u_m = a^n (b^m - a^m) / (b^{m+n} - a^{m+n})$ ,

and B's chance of ultimate success =  $1 - u_m = b^m (b^n - a^n) / (b^{m+n} - a^{m+n})$ .

(5702) This follows from the above by putting  $\mu$  and  $\nu$  for  $a$  and  $b$ , and assuming that A and B have  $n+p$  and  $m-p$  dollars respectively, and we get  $u_{n+p} : 1 - u_{n+p} = \mu^{m+n} - \mu^m - \nu^{m+p} : \mu^{m-p} \nu^{m+p} - \nu^{m+n}$ .

15104. (R. KNOWLES.)—Prove that the sum to  $r$  terms of the series

$1 - 10 + 35 - 84 + \dots \pm \frac{1}{2} r (4r^2 - 1)$

is  $-\frac{1}{2} r (4r^2 + 6r - 1)$  when  $r$  is even and  $\frac{1}{2} (4r^3 + 6r^2 - r - 3)$  when  $r$  is odd.

Solution by T. PEELE, A.I.A.

Using the same notation as in Question 15051,

$s_p = -\frac{1}{2} (48p^2 - 24p + 3), S_{2n} = \sum_{p=1}^{2n} s_p = -\frac{1}{2} n (16n^2 + 12n - 1)$

Let  $r$  be even, =  $2n$  say;

$S_r = -\frac{1}{2} r (4r^2 + 6r - 1);$

$S_{2n-1} = S_{2n} + t_{2n} = -\frac{1}{2} n (16n^2 + 12n - 1) + \frac{1}{2} n (16n^2 - 1) = \frac{1}{2} (16n^3 - 12n^2 - n).$

Let  $r$  be odd, =  $2n - 1$  say;

$S_r = \frac{1}{2} (4r^3 + 6r^2 - r - 3).$

14930. (EMILE LEMOINE.)—Trouver dans un triangle ABC un point M tel que si l'on mène par M une parallèle à BC coupant AB en  $A_b$ , AC en  $A_c$ ; une parallèle à CA coupant BC en  $B_c$ , BA en  $B_a$ ; une parallèle à AB coupant CA en  $C_a$ , CB en  $C_b$ , les deux triangles  $A_b B_c C_a, A_c C_b B_a$  soient égaux.

Solution by J. PRESCOTT, B.A.

If M be the centre of gravity of the triangle, M satisfies the required condition. For, let AMX be one of the medians. Then since  $AM = 2MX$ , therefore

$AA_b = 2A_b B$

and

$AA_c = 2A_c C,$

that is,  $B_a, A_b, C_b, B_c, A_c, C_a$  are the points of trisection of the sides of the triangle. Now  $BC_b = \frac{1}{3} BC = \frac{2}{3} BX$ ; therefore  $B_a C_b = \frac{2}{3} AX$ . Similarly,

$C_a B_c = \frac{2}{3} AX;$

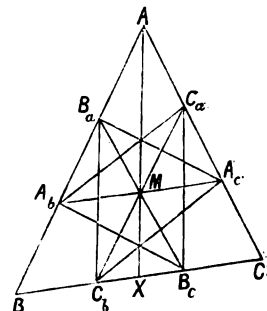
therefore

$B_a C_b = C_a B_c.$

In the same way

$A_b C_a = A_c B_b$  and  $B_c A_c = B_a A_b;$

therefore  $\Delta A_b B_c C_a = \Delta A_c C_b B_a.$

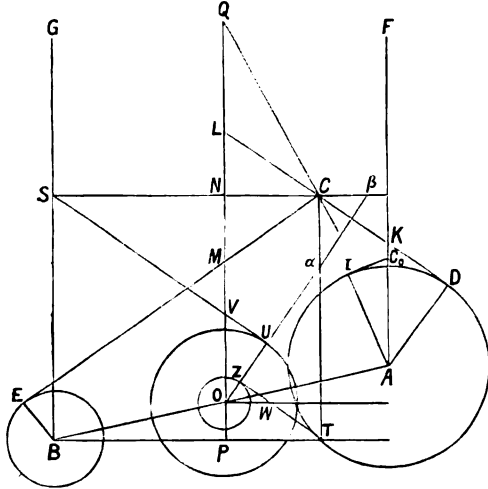


15118. (Professor NEUBERG.)—On mène à deux cercles donnés A, B des tangentes a, b telles que la bissectrice de l'angle ab soit parallèle à une droite donnée m. Trouver le lieu du point de rencontre C des droites a, b, et construire la tangente à ce lieu au point C.

Solutions (I.) by D. BIDDLE; (II.) by the PROPOSER.

(I.) This question comprises three cases, namely, (1) that in which the two circles lie between the two tangents, (2) that in which the two tangents lie between the two circles, (3) that in which one circle is internal and the other external to the tangents. But the principle is much the same in each, and we will therefore consider the first alone.

Let O be the mid-point between the two centres of the given circles.



Draw OQ, AF, BG parallel to the given straight line, and take D, E on the circumferences, such that  $\angle DAF = \angle EBG = \theta$ , and let the tangents DC, EC meet OQ in L, M respectively. Then

$$\frac{1}{2}(OL + OM) = ON = x \quad \text{and} \quad \frac{1}{2}(OL - OM) \cot \theta = NC = y.$$

Let  $BP = p$ ,  $OP = q$ : then

$$OL = R \sec \theta + p \tan \theta + q \quad \text{and} \quad OM = r \sec \theta + p \tan \theta - q,$$

where R, r are the radii to A, B respectively. Consequently

$$x = \frac{1}{2}(R+r) \sec \theta + p \tan \theta \quad \text{and} \quad y = \frac{1}{2}(R-r) \operatorname{cosec} \theta + q \cot \theta.$$

About O describe two circles, of radius  $\frac{1}{2}(R+r)$ , and  $\frac{1}{2}(R-r)$  respectively. Then a simple method of finding a point on the required locus is as follows:—Take U on the larger of the two concentric circles and join OU, cutting the smaller circle in Z. Draw the tangents US, ZT meeting BG, BP in S, T respectively. Then C is found on completing the parallelogram. It is evident that the locus intersects AF at  $C_0$ , where the tangent to circle B also touches A, the proper tangent to A being on the opposite side of AF to  $IC_0$ .

In order to draw, at C, a tangent to the locus, produce OU to cut TC, SC in  $\alpha, \beta$  respectively, and on OQ find Q, such that

$$QN : NC = SB : Ta.$$

That QC is tangential to the locus appears from the fact that

$$Ta = \left\{ \frac{1}{2}(R-r) \cot \theta + q \operatorname{cosec} \theta \right\} \operatorname{cosec} \theta$$

and

$$S\beta = \left\{ \frac{1}{2}(R+r) \tan \theta + p \sec \theta \right\} \sec \theta,$$

which, the former taken negatively, are the respective differential coefficients of  $y, x$  with respect to  $\theta$ .

(II.) (i.) J'adopte les axes coordonnés OQ, OW et les notations de M. BIDDLE. Les coordonnées des centres A, B étant  $(p, q), (-p, -q)$ , les équations des tangentes DC, EC sont

$$(x-q) \cos \theta + (y-p) \sin \theta = R, \quad (x+q) \cos \theta - (y+p) \sin \theta = r.$$

Tirons-en les valeurs de  $\cos \theta, \sin \theta$  pour les substituer dans l'égalité  $\cos^2 \theta + \sin^2 \theta = 1$ ; nous aurons pour le lieu de C une équation du quatrième degré.

(ii.) Décomposons la vitesse V du point C sur sa trajectoire ( $1^o$ ) en deux vitesses  $v$  et  $w$  dirigées suivant CD et une perpendiculaire à DC; ( $2^o$ ) en deux vitesses  $v'$  et  $w'$  dirigées suivant CE et une perpendiculaire à EC. Alors les composantes  $u$  et  $u'$  sont proportionnelles aux longueurs des tangentes DC, EC; car ces tangentes ont des vitesses angulaires égales et de sens contraires. Il résulte de là que

$$\frac{\cos(V, u)}{\cos(V, u')} = \frac{\sin(V, CD)}{\sin(V, CE)} = \frac{CD}{CE};$$

par conséquent la tangente est dirigée suivant la symédiane du triangle CDE.

15136. (Professor COCHEZ.)—Etudier les courbes

$$(1) (x-y)^2 x + 2(x-y)y + 1 = 0, \quad (2) y^2 = (x^4 - 1)/x^2.$$

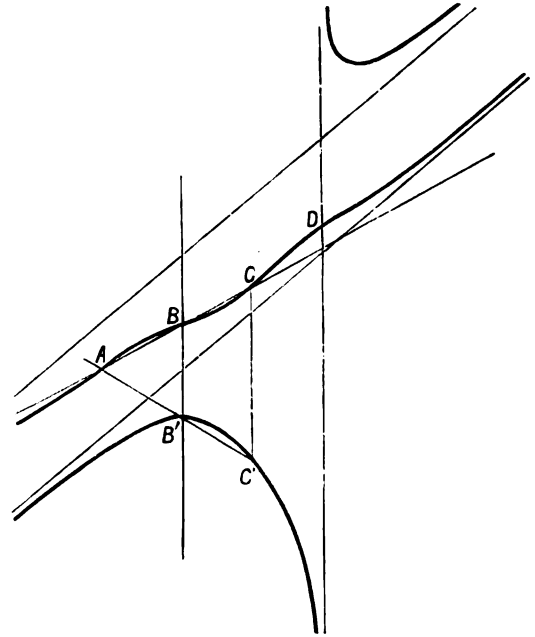
Solution by A. M. NESBITT, M.A.

(1) The asymptotes are  $x-y+2=0, x-y=0, x+2=0$ .

The points B, B' (0,  $\pm 1/\sqrt{2}$ ), C, C' (1,  $\pm \sqrt{2}$ ), A (-1, 0), and D (2,  $\frac{2}{3}$ ) are on the curve; and the values of  $dy/dx$  (exact or approximate) at these points are B (.68), B' (-.32), A ( $\frac{2}{3}$ ), C (.77), C' (-2.77), D (.9).

The three points A, B, C are collinear, as are also A'B'C'.

The serpentine branch is difficult to draw exactly, as the inclinations



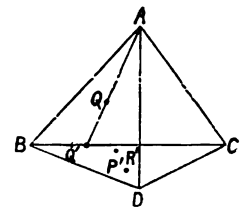
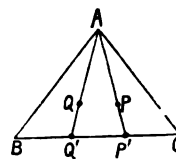
at A, B, C are so nearly equal; but it crosses ABC from the lower side to the upper at A and C.

[Rest in Vol.

Note on two connected Problems in Mean Value.

By R. CHARTRES.

- (1) Two random points are taken in a triangle and joined to a vertex: find the mean value of the triangle thus formed.
- (2) Three random points are taken in a tetrahedron and joined to a vertex: find the mean value of the tetrahedron thus formed.



Let the area of ABC, and the volume of ABCD, be each unity.

(1) The mean value of  $AQ'P' = \frac{1}{3}$ . Now let Q move in the element  $AQ'$ , and this result will be reduced to  $\frac{2}{3}$  of its value. Therefore mean value of  $APQ = (\frac{2}{3})^2$  of  $\frac{1}{3} = \frac{4}{27}$ .

(2) Since the mean value of  $P'Q'R' = \frac{1}{3}BCD$ , therefore mean value of  $AP'Q'R' = \frac{1}{3}$ . Now, let Q move in the element  $AQ'$ , and this result will be reduced to  $\frac{2}{3}$  of its value. Therefore mean value of  $APQR = (\frac{2}{3})^3$  of  $\frac{1}{3} = \frac{8}{27}$ .

15150. (Professor LANGHORNE ORCHARD, M.A., B.Sc.)—Find the product of the two series

$$(1) 1 + 3 + 7 + 13 + 21 + 31 + \dots \text{ to } n \text{ terms;}$$

$$(2) 1 + 13 + 73 + 241 + 601 + 1261 + \dots \text{ to } n \text{ terms.}$$

Solutions (I.) by R. W. D. CHRISTIE and Rev. T. ROACH, M.A.;  
(II.) by J. BLAIRIE, M.A.

(I.) The general terms are  $n^2 - n + 1, n^4 - n^2 + 1$ .  
The sums are  $\frac{1}{3}n(n^2 + 2)$  and  $\frac{1}{15}n(2n^4 + 5n^2 - 5n + 8)$ .  
The product required is  $\frac{1}{45}n^2(n^2 + 2)(2n^4 + 5n^2 - 5n + 8)$ .

(II.) Series (1)

$$= \sum \{1 + (n-1)n\} \\ = n + \frac{1}{2}(n-1)n(n+1) = \frac{1}{2}n(n^2 + 2).$$

Series (2)

$$= \sum \{1 + (n^2 - 1)n^2\} \\ = \sum \{1 + \frac{1}{2}(n-2)(n-1)n(n+1) + \frac{1}{2}(n-1)n(n+1)(n+2)\} \\ = n + \frac{1}{15}(n-2)(n-1)n(n+1)(n+2) + \frac{1}{15}(n-1)n(n+1)(n+2)(n+3) \\ = \frac{1}{15}n(2n^4 + 5n^2 - 5n + 8);$$

therefore product of series =  $\frac{1}{45}n^2(n^2 + 2)(2n^4 + 5n^2 - 5n + 8)$ .

**15033.** (R. TUCKER, M.A.)—Three circles are given by  $x^2 + y^2 + C = 0$ ,  $x^2 + y^2 + Ax = 0$ ,  $x^2 + y^2 + By = 0$ .

Find the area of the triangle formed by the polars of their radical centre with respect to the three circles. [Has the question been considered in the general, or any particular form, geometrically or analytically?]

*Solution by Professor SANJANA, M.A., and CONSTANCE I. MARKS, B.A.*

The radical centre is evidently  $x' = C/A$ ,  $y' = C/B$ . Its polars with respect to the given circles are

$$xx' + yy' + C = 0, \quad xx' + yy' + \frac{1}{2}A(x + x') = 0, \quad xx' + yy' + \frac{1}{2}B(y + y') = 0.$$

Twice the area of the triangle formed by these

$$= \frac{\left\{ -\frac{1}{2}AB(x'^2 + y'^2) + \frac{1}{2}C(Bx' + Ay') + \frac{1}{2}ABC \right\}^2}{\frac{1}{2}ABx'y' \left\{ \frac{1}{2}(Bx' + Ay') + \frac{1}{2}AB \right\}}$$

see SALMON, § 39. Substitute the values of  $x'$  and  $y'$ , and simplify; we

$$\text{shall get the area} = \frac{\left\{ C(A^2 + B^2) + A^2B^2 \right\}^2}{2AB \left\{ 2C(A^2 + B^2) + A^2B^2 \right\}}$$

Professor SANJANA remarks:—"I have not seen the Question treated analytically anywhere; in the form given, it does not seem capable of geometrical solution."

**5473.** (H. W. HARRIS.)—Prove that, if

$$F(m, n, p) = \begin{vmatrix} 1 & 1 & 1 & 1 \\ \alpha^m & \beta^m & \gamma^m & \delta^m \\ \alpha^n & \beta^n & \gamma^n & \delta^n \\ \alpha^p & \beta^p & \gamma^p & \delta^p \end{vmatrix},$$

$$\text{then } F(m, n, p) \{ F(1, 2, 3) \}^2 = \begin{vmatrix} F(m, 2, 3) & F(1, m, 3) & F(1, 2, m) \\ F(n, 2, 3) & F(1, n, 3) & F(1, 2, n) \\ F(p, 2, 3) & F(1, p, 3) & F(1, 2, p) \end{vmatrix},$$

and generalize for a similar determinant of any order.

*Solution by Professor NANSON.*

If  $(abc)$ ,  $(xyz)$  are any two third order determinants, it is known that

$$\begin{vmatrix} (ayz) & (xaz) & (xya) \\ (byz) & (xbz) & (xyb) \\ (eyz) & (xcz) & (xyc) \end{vmatrix} = (abc)(xyz)^2.$$

Further, if  $H_n$  is the complete symmetric function of  $\alpha\beta\gamma\delta$  of order  $n$ , it is known that

$$\frac{F(m, n, p)}{F(1, 2, 3)} = \begin{vmatrix} H_{m-1} & H_{n-1} & H_{p-1} \\ H_{m-2} & H_{n-2} & H_{p-2} \\ H_{m-3} & H_{n-3} & H_{p-3} \end{vmatrix}.$$

It therefore follows that

$$F(mnp) \{ F(\mu\nu\omega) \}^2 = \begin{vmatrix} F(m\nu\omega) & F(\mu n\omega) & F(\mu\nu m) \\ F(n\nu\omega) & F(\mu n\omega) & F(\mu\nu n) \\ F(p\nu\omega) & F(\mu p\omega) & F(\mu\nu p) \end{vmatrix}.$$

Taking  $\mu, \nu, \omega = 1, 2, 3$ , the required result follows. The same proof applies to determinants of any order.

**3619.** (OMEGA.)—Given the sides of three squares inscribed in a triangle, determine the triangle. [Mr. BIDDLE points out that the equations given in the allied Question 9526 are incorrect, but could be readily put into the proper form. See Old Questions in *Ed. Times*, May 1, 1902.]

*Solution by D. BIDDLE.*

Let  $l > m > n$ , and let  $a, b, c$  be the sides of the required triangle ABC, on which the squares of side  $l, m, n$  are respectively based. Then

$$a = l(1 + \cot B + \cot C), \quad b = m(1 + \cot A + \cot C), \\ c = n(1 + \cot A + \cot B),$$

$$\text{and } l(1 + \cot B + \cot C)/\sin A = m(1 + \cot A + \cot C)/\sin B \\ = n(1 + \cot A + \cot B)/\sin C.$$

Multiply by  $\sin A \sin B \sin C$ , and reduce; then

$$l(\sin A + \sin B \sin C) = m(\sin B + \sin A \sin C) = n(\sin C + \sin A \sin B),$$

$$\text{whence } \sin A = \frac{\sin B(m - l \sin C)}{l - m \sin C}, \quad \sin B = \frac{\sin C(n - m \sin A)}{m - n \sin A},$$

$$\sin C = \frac{\sin A(l - n \sin B)}{n - l \sin B}.$$

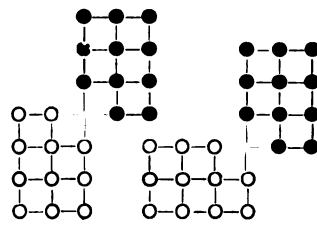
From these values we obtain

$$\frac{\sin B}{\sin A} = \frac{b}{a} = \frac{l - m \sin C}{m - l \sin C} \quad \text{and} \quad \frac{\sin C}{\sin A} = \frac{c}{a} = \frac{l - n \sin B}{n - l \sin B}$$

in which the lengths of  $b$  and  $c$  in relation to  $a$  are shown to be dependent on the angles formed by  $b$  and  $a, c$  and  $a$  respectively. If  $a$  be taken of a given length, we can trace, by aid of the two formulae, two loci of  $A'$ , and where these intersect will be the apex of a triangle having the given length as base, and similar in all respects to that required. It will be easy to alter the size to suit the given inscribed squares.

QUESTIONS FOR SOLUTION.

**15205.** (J. C. ST. CLAIR.)—Two equal rectangular boards, divided into the same number of squares, are placed so as to have a common corner as shown in the figures. On the corners of the squares are placed  $mn - 1$  white pieces in the lower board, and  $mn - 1$  black pieces in the upper one, the common corner being vacant. A piece of either colour may be moved into the place that happens to be vacant, either by a single step or by leaping over an intervening piece of the opposite colour; the white pieces moving always upward or to the right along the lines, and the black pieces downward or to the left. The number of pieces in the outer sides of each board being  $m, n$ , show that the minimum number of moves (steps and leaps) in which the positions of the white and black pieces can be interchanged is  $M = mn(m + n - 1) + 2\mu\nu - 1$ , where  $\mu, \nu$  are the greatest integers in  $\frac{1}{2}m, \frac{1}{2}n$ . In the figures  $m = 4, n = 3, \mu = 2, \nu = 1$ , and  $M = 75$ , of which 30 are steps and 45 are leaps.



*Note.*—There is no actual solution of the puzzle for  $m = n = 2$ . When  $n = 1$ , we have the familiar puzzle where  $m - 1$  pieces of each colour are placed in a row with a vacant space between them.

**15206.** (H. MACCOLL, B.A.)—The letter  $A$  denoting a proposition, what are the respective chances of  $A', A'', A''', A''''$ , first, on the assumption that  $A'$  and  $A'$  are equally probable; secondly, on the assumption that  $A', A'', A'''$  are equally probable? *Definitions.*—The exponents (or predicates)  $\tau, \iota, \epsilon, \eta, \theta$  respectively denote true, false, certain, impossible, variable (neither certain nor impossible); the symbol  $A^\tau$  asserts that  $A$  is  $x$  (or belongs to the class  $x$ ); the symbol  $A^{\tau\nu}$  means  $(A^\tau)^\nu$  and asserts that  $A^\tau$  is  $y$  (or belongs to the class  $y$ ); and so on. The symbol  $A^\circ$  means  $A^{\circ A}$  and asserts that the chance of  $A$  is neither 1 nor 0, but some proper fraction between the two.

**15207.** (Professor NANSON.)—Prove that

$$\int_0^\infty (a^2 + x^2) \dots (a_n^2 + x^2) = \frac{\Pi \Delta}{2 PQ}$$

where  $P = \Pi a_r, Q = \Pi(a_r + a_s)$  ( $r, s = 1, 2, \dots, n$ );  $\Delta = (a_{\rho\sigma})$ ,  $a_{\rho\sigma} = \rho a_{\rho-\sigma}$  ( $\rho, \sigma = 1, 2, \dots, n - 2$ ); and  $\rho_\sigma$  is the sum of the products  $\rho$  together of  $a_1, a_2, \dots, a_n$ . Deduce the value of  $\int_0^\infty (a^2 + x^2)^{-n} dx$ .

**15208.** (G. H. HARDY, B.A.)—Prove that, if  $a$  and  $b$  are co-prime odd positive integers, and  $a$  is an even positive integer  $< a + b$ ,

$$\frac{1}{a} \sum_{-1}^{a-1} (-)^i \frac{\sin i\pi/a}{\sin ib/\pi} + \frac{1}{b} \sum_{-1}^{b-1} (-)^i \frac{\sin i\pi/b}{\sin ia/\pi} = -\frac{a}{ab}.$$

**15209.** (T. MUTR, LL.D.)—If  $\Delta$  be the discriminant of  $ax^2 + by^2 + cz^2 + 2fyz + 2gzx + 2hxy$ , and  $A, B, \dots$  be the cofactors of  $a, b, \dots$  in  $\Delta$ ,

$$\text{then } \frac{\partial(A, B, C, F, G, H)}{\partial(a, b, c, f, g, h)} = 2 \left( \frac{ABC}{abc} \right)^2 \frac{\partial(F\sqrt{BC}, G\sqrt{CA}, H\sqrt{AB})}{\partial(f\sqrt{bc}, g\sqrt{ca}, h\sqrt{ab})}.$$

**15210.** (J. S. LAWSON, M.A.)—If all the terms, except  $u_5$ , of the series  $u_1, u_2, \dots, u_9$  be given, show that

$$u_5 = \frac{1}{75} [56(u_1 + u_6) - 28(u_3 + u_7) + 8(u_2 + u_8) - (u_1 + u_9)].$$

**15211.** (R. W. D. CHRISTIE.)—Investigate methods for determining whether a given prime  $1/\rho$  has or has not (1) a complete period, and (2) an odd or even period.

**15212.** (Professor SANJANA, M.A.)—Resolve into prime factors the numbers  $2^{2^k} + 1, 3^{2^k} + 1, 12^{2^k} + 1$ .

**15213.** (M. R. PEIRIS.)—The series of odd natural numbers is divided into groups 1, 3, 5 ... to  $r$  terms,  $(2r + 1), (2r + 3), (2r + 5) \dots$  to  $2r$  terms, and so on; each group having the number of terms of the first group more than the group that precedes it. Show that the sum of the terms in the  $n$ -th group bears to the sum of the first  $n$  odd natural numbers a relation which depends only on  $r$ . Hence obtain the sums of the  $n$ -th groups of the similarly divided series (1) of even natural numbers and (2) of natural numbers.

**15214.** (D. BIDDLE.)—Having it given that  $x^2 - y^2 = a$ , and  $xz - yw = b$ , find  $x^2 - w^2$ , all the values being integral, but (except  $a$  and  $b$ ) unknown.

**15215.** (W. P. WORKMAN, M.A.)—If a fraction whose denominator is not divisible by 3, 11, or 37 give rise to a decimal with six figures in the recurring period, and  $a, b, c, d$  be four cyclically consecutive figures of this period, prove that  $(a - b + c)(b - c + d) = -10$ . Generalize the theorem.

**15216.** (R. C. ARCHIBALD, M.A., Ph.D.)—The trisectrix of MACLAURIN ( $r \cos \frac{1}{3}\theta = C$  or  $r \sin 2\theta + a \sin 3\theta = 0$ ), the logocyclic curve or strophoid ( $r \cos \theta + a \cos 2\theta = 0$ ), and the cubic of TSCHIRNHAUSEN ( $r^3 \cos \frac{1}{3}\theta = a^3$ ) are nodal cubics. Express their equations in the form  $X^3 + Y^3 + Z^3 = 0$ , where  $X, Y, Z$  are linear functions of the Cartesian coordinates.

**15217.** (R. TUCKER, M.A.)—In the figure to Question 15153, the projections of AB, AC on BC are constant: prove that the join of the circum-centres of ABC, ABC' touches a parabola.

**15218.** (JAMES BLAIKIE, M.A.)—If  $x$  be the edge of an icosahedron and  $y$  the radius of the circumsphere, show that  $5x^4 - 20x^2y^2 + 16y^4 = 0$ .

**15219.** (Professor NEUBERG.)—D'un point quelconque M d'une circonférence donnée on abaisse une perpendiculaire MP sur un diamètre fixe AB; on prolonge la courbe AM d'une longueur MN = AP. Trouver l'aire de la courbe engendrée par le point N.

**15220.** (A. M. NESBITT, M.A.)—A perpendicular AQ is drawn from the vertex A of a parabola to the common chord of the parabola with its circle of curvature at P, meeting it in Q. Show that the locus of Q is a cissoid.

**15221.** (H. BATEMAN.)—A parabola circumscribes a triangle and touches the circum-circle: prove that it also touches the radical axis of the inscribed and circumscribed circles.

**15222.** (I. ARNOLD.)—There are two inclined planes each 100 feet long, viz., AC and BC, and each inclined at an angle of  $15^\circ$  to the horizon. A small smooth weight slides freely down AC and then ascends BC; after descending BC it reascends AC; and so on. It is required to find the number of times it will ascend the plane AC before losing half the velocity acquired in the first descent.

#### OLD QUESTIONS AS YET UNSOLVED (IN OUR COLUMNS).

**8508.** (A. GORDON.)—If the four common tangents  $T_1, T_2, T_3, T_4$  be drawn to two circles  $A_1$  and  $B_1$ , and cut two concentric circles  $A_2$  and  $B_2$  in  $P_1R_1, Q_1S_1, \&c.$ , show that the four quadrilaterals similar to that formed by  $T_1$ , viz., with sides the tangents at  $P_1, Q_1, R_1, S_1$ , will have their sixteen vertices concentric.

**8517.** (Professor GILLILAND, M.A.)—A vessel formed by cutting a segment of depth  $d$  from a sphere of radius  $r$  has a handle movable about a horizontal axis which is a diameter of the plane face of the segment: show that the equilibrium is unstable if the weight of the liquid poured in exceed  $[d/2(r-d)] \times$  weight of the vessel.

**9138.** (A. B. BASSET, M.A.)—A liquid prolate spheroid is rotating in steady motion about an equatorial axis, under the influence of its own attraction;  $a, b$  are the semi-major and minor axes of a meridian section,  $\gamma$  the molecular rotation of the liquid, and  $h$  the angular momentum. If the free surface receive a small ellipsoidal displacement, prove that the motion is stable provided the disturbance does not change the values which  $\gamma/b$  and  $h$  have in steady motion; but, if  $h$  is altered by the disturbance, prove that the motion is unstable.

**9220.** (EMILE VIGARIÉ.)—Étant donné un triangle ABC, son cercle circonscrit et un point Q dans son plan, (1) Trouver deux points P, P' tels que, si par Q on mène une corde quelconque MN, les droites MP, NP (ou MP', NP') coupent le cercle circonscrit aux extrémités d'un même diamètre; (2) Les quatre points M, N, P, P' sont sur une même circonférence; (3) Quelle est la relation qui existe entre les deux points P, P'? (4) Par rapport à quelle droite ces points sont-ils symétriques?

**9539.** (Professor HANUMANTA RAO, B.A.)—In Question 9316 (Vol. XLIX., p. 28), if P is defined by the equations  $x = a \cos^2 \theta \sin 2\theta$  and  $y = a \sin^2 \theta \cos 2\theta$ , the locus of Q will be the curve  $r = \frac{1}{4}a \sin 4\theta$ .

**10196.** (D. BIDDLE.)—Two equal circles, A, B, are described at random within a given circle C. The line joining their centres is produced at each end to meet the particular circumference, and upon the line so produced, as major axis, an ellipse is described having the centres of A and B for its foci. Find the average area of this ellipse.

**10319.** (Professor RAMASWAMI AIYAR.)—The density at any point of an arc of a logarithmic spiral varies inversely as the distance of the point from the pole. Determine the centroid of the arc geometrically.

**10342.** (Professor NASH, M.A.)—A variable circle passes through a fixed point A on a conic, and meets the conic again in B, C, D; the SIMSON-line of A with respect to the triangle BCD passes through a point whose position is independent of the position and magnitude of the circle. This point lies on the diameter through the image of A with respect to the axis; in the rectangular hyperbola it coincides with the centre.

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It is requested that all Mathematical communications should be sent to the Mathematical Editor,

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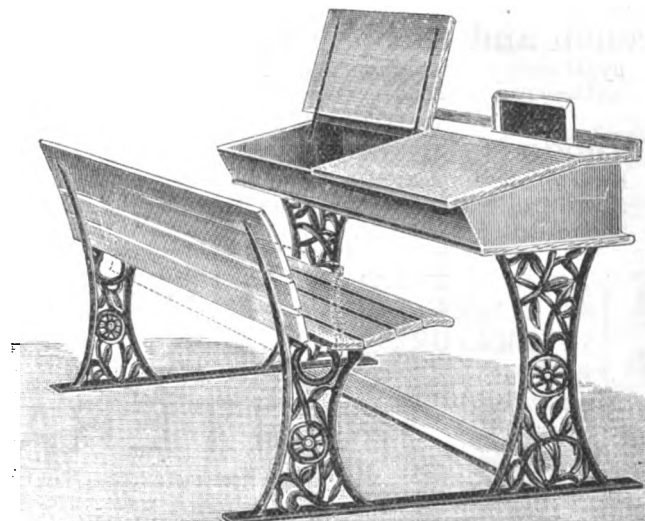
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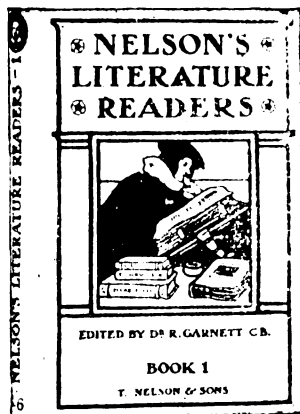
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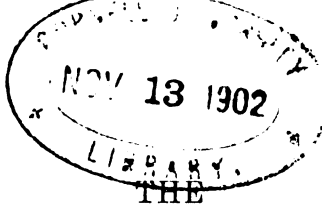
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## CONTENTS.

	Page		Page
The Secondary Problem .....	449	Current Events .....	463
The Cambridge Conference .....	450	Fixtures—Honours—Endowments—Scholarships—Appointments and Vacancies—Literary Items—General.	
Notes .....	450	The Teaching of Geography: Lecture at the College of Pre- ceptors. By Mr. L. W. Lyde .....	463
The Education Bill in the Recess—Modifications on Clause 8— Prof. Adams's Inaugural Address—Manual Training here and in Germany—Religious Instruction in Training Colleges—The New London Matriculation Examination—External Commercial Lectures at Birmingham—The Acton Library offered to Cambridge—The Bodleian Tercentenary—The Whitworth Scholarships—Secondary Education Reform in France—The "American Mother" at Oxford		The New Day Training College: Prof. Adams's Inaugural Lecture .....	464
Summary of the Month .....	452	A University School of Education. By Prof. J. P. Gordy, New York .....	465
Universities .....	455	Reviews .....	466
The Registration of Teachers: Official Explanation .....	457	The Eton Schoolmaster—Engel's History of English Literature— The Semitic Series: (1) The Early History of Syria and Palestine; (2) The Theology and Ethics of the Hebrews—The Sixth of the New Volumes of the "Encyclopædia Britannica"—Scottish Philo- sophy in its National Development—Henderson's Short History of Germany.	
Rewards and Punishments .....	457	General Notices .....	469
Correspondence .....	457	Gift-Books and Prizes.—I. ....	471
The Tenure of Head Masters—The Use of the Term "Empirical" —Private Schools and Public Competition.		First Glances .....	472
College of Preceptors—Meeting of Council .....	458	Mathematics .....	475

## The Educational Times.

### The Secondary Problem.

THERE is always a certain fascination in the idea of killing two birds with one stone. But the idea is not always practical. Well trained candidates for the Mathematical Tripos know that it is better to concentrate on one problem than to leave it half-solved and pass to another to be left in the same condition. By the Report of the Royal Commission on Secondary Education statesmen had a definite problem set before them, to supply the long-delayed answer to Matthew Arnold's challenge: "Organize your secondary education." The Endowed Schools Commission, afterwards merged in the Charity Commission, had already been working steadily, if slowly, at the first steps of organization. The accidental appropriation of the "whisky-money" to technical education and the Board of Education Act mark further stages of progress. A driving-force was created in the new-born zeal of the County Councils, guided as it was, in some cases—for example, in Staffordshire and Norfolk—by men who combined administrative ability with long experience as practical schoolmasters. Moreover, many of the endowed schools, whose houses had been already set in order, were brought into touch with a Government Department rapidly learning its business and able to enforce its wishes by the power of the purse. Then came the Cockerton decisions, raising grave questions, but questions surely not beyond the power of statesmen to settle by judicious legislation in detail, without recourse to heroic measures. Everything seemed to point to a supplementary Bill or succession of Bills to complete the slowly growing fabric of organized secondary education.

On the other hand, it is urged that the unsolved problems of primary education were so pressing, and that primary and secondary education were so interdependent, that nothing short of a revolutionary measure would meet the case, even at the expense of rousing one of the bitterest political conflicts of our time. Be that as it may, it is incumbent on us to point out how far the present Bill, unless supplemented by additional clauses, falls short of grappling with some of the most pressing problems of secondary education.

In the first place, the addition of the care of primary schools to the multifarious duties of the County and Borough

Councils is likely to divert their energies from the good work they are doing in the secondary field. It is to be hoped that they will not follow the proverbial advice to be off with the old love before they are on with the new. The temptation will be great. They should at least have some guidance from headquarters, perhaps even some form of compulsion to secure efficiency. Again, a review of existing educational machinery, optional under the Board of Education Act, should be universally enforced. No point has been more urgently pressed by experts during the last few years. Then comes the difficult question of fitting private schools into our educational machinery. This is of importance, not only on the ground of doing justice to existing interests, but also because such schools afford the best field for experiments in education. Mixed education is an example, and so are the principles of schools like Abbotsholme, Bedales, and Clayesmore. When our great public schools were un-reformed, private schools, carried on by enlightened teachers, did much to fill the gap and point the way to improvements. Dr. Arnold himself gained his experience in his private school at Laleham. More recently the efficient preparatory schools, all due to private enterprise, have done much to advance education, and might have done more had they been less fettered by the slowly diminishing want of elasticity in the public-school system. At this moment, perhaps, schools under public management are not less receptive of progressive ideas in education than private schools; but it may not always be so, and, in any case, competition is healthy. In particular there is, apart from boarding schools, a field in which the encouragement of private enterprise is, in all probability, distinctly for the benefit of the community. In a small town a private school run by a master prepared to make it his life's work stands a good chance of success; a small endowed school, farmed by a head master who can barely make ends meet and who is naturally on the look out for promotion, often in another profession, may easily languish. There seems to be no adequate reason why the one should be debarred from the full public recognition which is granted to the other. Even to subsidize a good private school may, in many cases, be the cheapest and most efficient way of promoting secondary education as a part of the national machinery. "To him that hath shall be given" is not necessarily a statesmanlike maxim. But enough has been said to

show that no Education Bill can be complete which does not at least lay down the general lines on which private schools can be worked into our machinery for secondary education. Lastly, one must never forget that

*Quicquid delirant reges, plectuntur Achivi;*

and the "Achivi" include not only the children, who have the first claim, but also the hard-worked, struggling race of schoolmasters.

*The Cambridge Conference.*

We look forward with much hope to the Conference that meets at Cambridge in the middle of the month to discuss the training of teachers in secondary schools for boys. The Vice-Chancellor of the University, by authorization of the Senate, has invited some fifty representatives of Universities and of associations of teachers, and others, to confer on this important and urgent question. The principal subject of discussion is found in the Order in Council relating to the Registration of Teachers:—the alternative systems of professional training recognized by the Order, namely (1) a course of training at a University or training college, and (2) a period of probation as a teacher at a recognized secondary school. The possibility of combining the two systems will also be discussed. And attention will, we understand, be devoted to financial and other economic questions connected with the training of teachers as affecting Local Education Authorities, governing bodies and head masters of schools, and candidates for masterships. There is no lack of materials, and the members of the Conference will substantially represent all really important opinions on the subject. We may take the opportunity of referring to our January number, which contained a report of Mr. P. A. Barnett's lecture before the College of Preceptors and the Metropolitan Sections of the Teachers' Guild, with the debate thereon, as well as suggestive correspondence, and other discussion. The College of Preceptors, whose efforts in this matter do not need to be recited in these columns, will be represented at the Conference by the Dean (Mr. H. W. Eve) and Dr. Wormell. It is refreshing to find one of our ancient Universities giving a strong lead on a question that so intimately concerns the future of their students, as well as their own and the public interest.

### NOTES.

THE educational oratory of the recess was more voluminous and impetuous than discriminating; the orators for the most part firing past each other. Mr. Balfour promptly disposed of the rather absurd rumour that the Bill was to be dropped, and expounded frankly, and with some warmth, the main points in dispute. Mr. Chamberlain's difficulties with his supporters in the Midlands, though at first wearing a promising aspect for his opponents, have been substantially relieved by amendments on Clause 8, which, however, seem to have raised anxiety in other quarters. On the whole the Bill seems very likely to go through entire, with more or less essential modification—enough, it is to be hoped, to disarm the professed wreckers among its opponents. In the practical working of the measure the good sense of the people may be

trusted to damp down smouldering ashes of passion. Elsewhere we indicate points on which amendment on report is still urgently necessary in the interests of secondary education.

CLAUSE 8, so far as it has been settled at the time of writing, has been laboriously reformed so as to express more clearly the intentions that Mr. Balfour has stated to be in the minds of the Government, and to satisfy suspicions and doubts of adversaries. The Local Education Authorities are distinctly laid under compulsion to maintain and to keep efficient the elementary schools within their jurisdiction, and they are vested with full control of their own expenditure on such schools. Moreover, their directions as to secular instruction must be complied with by the managers; and, if not, they "have power themselves to carry out the direction in question as if they were managers." Mr. Balfour readily accepted Mr. Charles McArthur's motion that such directions should expressly include "any directions with respect to the number and educational qualifications of the teachers to be employed for secular instruction, and with respect to the dismissal of any teachers on educational grounds." Provision is also made for school inspection, and for audit of managers' accounts. Much of this detail may be really superfluous, but it at least will have the great merit of allaying distrust and dissatisfaction.

THE inaugural address of Prof. Adams was well worthy of the occasion, though it kept in beaten ways and offered no fresh departures. It was none the worse for that, and the Professor is known to have stores of goods that he does not display in the front window. The formidable array of high officials both from the County Council and from the University of London, all primed with speeches pertinent to the special circumstances of the establishment of the College, inevitably reduced the prominence of the new Professor in the inaugural scene. That over, Prof. Adams will have elbow room, and all educationists will wish him every success in the important work committed to his charge.

IN view of all that Dr. Otto Beyer has told us of manual instruction in Germany (in the third volume of the Board of Education's Special Reports), it is somewhat reassuring to find another German expert in the subject acknowledging a certain superiority in one part of this benighted country. Dr. Pabst, the Director of the Manual Training College for Teachers in Leipzig, has been visiting the West of Scotland, and is reported to have pronounced the opinion that the work he saw in elementary and secondary schools in drawing, manual training, Nature study, and practical science was much in advance of that done in similar German schools. We hope that this is something more than an expression of politeness liberally interpreted. We confess we regard with uneasiness a particular case of comparison: there are eleven centres of manual training in Glasgow and only one in Leipzig. That may be, but we should not infer from it the superiority of Glasgow, without further information. We shall be interested to see Dr. Pabst's considered and formally expressed conclusions.

PREBENDARY BERNARD REYNOLDS makes some suggestive points in his report on religious instruction in training colleges. He states, for instance, that "far too many students come into college without having given or received any religious instruction"—a sufficiently striking remark. Then he urges that the difficulties of men pupils in regard to religious belief should be treated with sympathy: "there is nothing worse in a youth's training than to give him the impression that he cannot think." One can only marvel that any ground for such a criticism should be found in these days in any training college. Again, he writes:

There is not evidence of any large number of such students who, for reasons of conscience, cannot get trained; there are far more who call themselves members of the Church of England when they are only nominally so, in order to get trained. I heard recently of a man who changed his "religion" three times in order to get into college, and even then did not succeed.

But, even if there be no "large" number, there is a practical difficulty, which appears to lead, at least on occasion, to a shocking expedient. The Prebendary does not think that the remedy is difficult. His solution is this:—

The Nonconformists might provide hostels, where necessary, where their students would attend such religious services and instruction as they desire, while the Church students are similarly occupied. It is, however, quite out of the question to introduce a conscience clause inside the colleges, or to put our students at the great disadvantage of competing with those whose whole time is devoted to secular work; many of the undenominational colleges have religious instruction and services, and their students would be equally handicapped. Moreover, does anybody pretend that it is a right thing to train teachers who will soon be amongst our boys and girls, without giving them religious instruction? The Church cannot fairly be expected to help atheists to become teachers.

The proposal is not new, and the Nonconformist attitude is hardly encouraging. And "atheist" is a strong word.

"THE new Matriculation Examination," said Sir Arthur Rücker in his address to St. Mary's Hospital Medical School on the reorganized University of London, "is not intended to be easier than the old form: it is intended to be more elastic, . . . to leave more to the teacher and less to the examiner." The reduction of the obligatory number of subjects and the narrowing of the range, however, do seem to make it easier, and that in a very legitimate way. But no doubt the standard in the particular subjects will not be lowered, and the general value of the examination will stand as high as ever. The freedom of the teacher is highly important, but examiners are masterful.

THE activity of the young Faculty of Commerce in the University of Birmingham is commendable, and may become inspiring. Not content with the formal exercises of the lecture room, Prof. Ashley has arranged and set going a series of external lectures on commercial subjects. The series aims at two objects: first, to supplement the instruction given to the University students of commerce by the permanent staff, and to bring them into touch with the men acquainted with the several industries of the country; and, second, to give information and suggestions to prominent business men with regard to lines of trade outside the immediate range of their observation. Prof. Ashley has in view "managers, buyers, the heads of departments, chief clerks, and persons occupying similar positions, as well as their principals." The programme is varied, and the lecturers are capable men of practical experience. The useful results

may probably be expected less in the way of systematic and detailed information than in the form of suggestion and impulse. A single lecture can convey but limited particulars, but it may touch the imagination to large issues.

MR. MORLEY has offered the Acton Library as a gift to the University of Cambridge, through the Duke of Devonshire, the Chancellor, who properly acknowledges "the splendid donation" as an "act of rare generosity." "In this way," says Mr. Morley, "Cambridge will have the most appropriate monument of a man whom, though she thrice refused him as a learner, she afterwards welcomed as a teacher—one of the most remarkable men of our time, extraordinary in his acquisitions, extraordinary in the depth and compass of his mind." The library will be not merely "a valuable instrument of knowledge," but also "to the ardent scholar a powerful stimulus to thought." And, as Mr. Morley recalls, "it was Acton himself who said that the gifts of historical thinking are better than historical learning." It will be interesting to watch for the fruits.

THE commemoration of Sir Thomas Bodley's foundation of the great Oxford library three centuries ago has been dutifully and worthily celebrated. When Bodley went to Oxford in 1560, a boy of sixteen, that seat of learning was destitute of a library—in the sense of books, for, if we mistake not, there still survived a building, eviscerated by the well intentioned fanaticism of ultra-Protestant vandalism. Duke Humphrey's library was no more—a library that had probably (as Mr. Lewis Einstein, in his fresh and distinctively able work on "The Italian Renaissance in England," thinks) encouraged the desire for learning that urged the Oxonian pioneers to cross the Alps in search of the new humanism. It was a shrewd sagacity that withdrew Bodley from the diplomatic service "to set up his staffe at the Library door in Oxford." He himself justly said of his project:

Without some kind of knowledge, as well in the learned and modern tongues, without some purse ability to go through with the charge, without very great store of honourable friends to further the design, and without special good leisure to follow such a work, it could but have proved a vain attempt and inconsiderate.

But happily Bodley had all these material aids at his command in competent measure, and he had the foresight to devise arrangements efficient to conserve his efforts and to promote his purposes. The library was opened with 2,000 volumes—a great collection for the time; now it has some 600,000 volumes and 30,000 manuscripts. Yet, strange to say, in these days of material prosperity, it is hampered for lack of funds! Is there no second Bodley among our public-spirited citizens?

OUR contemporary *Engineering* gives expression to the dissatisfaction alleged to be generally prevalent among practical engineers with the system of awarding the valuable Whitworth Scholarships. The award is made by competitive examination, and the competition is keen; but it is not every competitor that can, or will, take the "royal road" of South Kensington, and "the staff of the Royal College are, to a considerable extent, the examiners for the Board of Education Examinations, on the results of which the scholarships

are awarded." There is no suggestion whatever of improper practices, but it is felt that the students of the examiners somehow must have the better chance.

Unless the examination for these scholarships be conducted by independent examiners, drawn from various sources, all students other than those at South Kensington are necessarily handicapped. Perhaps this is inevitable: but, if the subjects of examination, and the weight attached to each separate subject, were such as is common in most engineering courses in the institutions providing technical or scientific instruction in this country, this handicap would not be nearly so heavy as it is at present.

The chief objection appears to be an excess of pure physics. In any case, when the subjects and the marks for the subjects are known, why cannot teachers outside the Royal College work up to the syllabus? Is there any explanation of the success of the Royal College to be found in the quality of the professors? We do not venture on an opinion, but it is important that the alleged dissatisfaction should be removed, or shown to be groundless.

THE new reform of secondary instruction in France, to which we refer elsewhere, appears to be favourably received by educational experts. It introduces options: the student may choose any one of four different routes to the Bachelor's degree. It is motived in the main by practical, if not purely economical or commercial, considerations. The teaching of modern languages is to be directed to mastery of the current speech, not to familiarization with the beauties of literature. German is said to be declining in importance in French eyes, and English and Spanish to be recognized as the two commercial languages *par excellence*. Modern methods will inevitably acquire a great impulse. The ascendancy of practical ideas is not to be disputed, but it does not necessarily follow that literary interests will eventually suffer.

It may be true enough, as the *Spectator* adventures to remark, that

Clean paint cannot a scholar make,  
Nor "soft-toned rugs" a sage.

But it is probably just as true that the absence of these things is not any more effective for the purpose, and it is quite certain that people accustomed to such things are offended by their opposites, and that it is not quite fair argument to pooh-pooh the revulsion as the sensitiveness of luxury. The "American Mother" that criticized the upholstery of undergraduates' rooms at Oxford adversely, and sent her son to Harvard instead, may or may not have had unduly luxurious notions of cleanliness or comfort, or, as an ex-College Bursar suggests, she may have committed the mistake—venial in the present case—of generalizing from one or two particular cases. The quarrel is a pretty one as it stands, and we do not want to interfere in it. We are more interested in the views that the American lady's criticism has elicited. An "Undergraduate" appears to confirm part at least of her animadversions, and puts the blame on the "incorrigible scout." An "incorrigible scout" at once replies, shifting the blame—if blame there must be—upon the Bursar, and suggesting the efficacy of surprise visits by that officer. We now await with interest the champion of the Bursars. The determination of the facts in question—that will naturally come last, if at all.

## SUMMARY OF THE MONTH.

THE Parliamentary recess has let loose a flood of speeches on the Education Bill in the constituencies, and the great educational institutions have been opened by addresses from many eminent men in different departments. Our space compels us to make a severe selection.

MR. CHAMBERLAIN discussed the Education Bill in conference with 105 representative members of the Birmingham Liberal Unionist Association (October 9). He at once declared that the Government would not withdraw the Bill. He defended himself from the charge of inconsistency by urging the difference of circumstances. He said:

While then [1870] I tried for an ideal which I still believe to be the right one, I have convinced myself that, whatever strength of support I may gain from individuals who accept logical conclusions in these matters, I have no hope whatever of persuading the majority of my fellow-countrymen, to whatever party they belong, to accept these ideas, and I for one will not waste my life and time upon what I have found to be absolutely impossible and beyond the scope of reasonable aspirations, but will devote myself to what I believe will serve, at all events, the main interests of the nation and will do justice to all classes in the controversy, although it will not, perhaps, exactly carry out my own view of the situation.

After considerable discussion, Mr. Chamberlain put to the meeting four questions:

(1) Are you or are you not in favour of popular control of secular instruction, whilst safeguarding the religious instruction in accordance with the views of the founders?—This was answered in the affirmative by a large majority, the noes numbering ten. (2) With a view of safeguarding this instruction, are you ready to leave the election of the head teachers in the hands of the managers?—Answered in the affirmative by a large majority, the noes numbering sixteen. (3) Are you in favour of the abolition of the Cowper-Temple clause?—Answered in the negative, the ayes numbering four. (4) Should the Council appoint a majority of the Education Committee from its own body?—Answered in the affirmative, there being but one no.

At the request of Mr. Titterton and Mr. Harry Payton, another question was put:

(5) Are you in favour of the proposal that the majority of the Management Committee of each of the voluntary schools, so far as secular instruction is concerned, should be popularly elected?—This was carried by a large majority, the number of noes being two.

MR. BALFOUR, at Manchester (October 14), scouted the notion that the Education Bill is "the offspring of some dark clerical intrigue," and scorned the "insensate clamours from north to south, and from east to west," "loud-mouthed speeches," and "mendacious pamphleteers." He said:

I am brought, as regards secular education, to the single Authority, that Authority being the County Council or the Borough Council; and, as regards religious education in this country, I believe that we must, as part of our system, so long as we maintain the Cowper-Temple Clause, maintain the right to have the children of that party which desires it taught in voluntary schools.

On the term "managers" he remarked:

I think it is very natural that anybody who saw the term "managers" in the Bill would say, "These are the people who have got control of the schools." It is a mistake; but it is a natural mistake. I do not think it is a mistake for which either the Government draftsman or the Government are responsible, because we have borrowed the term "manager" from the preceding Act of 1870, and in the Act of 1870 "management" and "manager" are terms which do not carry with them the idea of control. . . . The theory of our Bill is that the control should be not with the managers, but with the Borough Council or with the County Council, as the case may be; and I would say to the friends of the Bill that, if they desire, as the Government most heartily desire, that public control should be made a reality—and it should be adequate to the amount of support given out of public funds—I would earnestly ask them to turn their attention not to the balance of power among the managers for secular education, but to increasing the authority of the Borough Council or County Council, as the case may be.

Mr. Balfour insisted that it would be "a profound delusion" to suppose that the voluntary schools have everything to gain and nothing to lose by the Bill on the point of authority of the existing managers:—"No doubt there are schools to whom this Bill will be very little but pure gain from the managers' point of view, but there are many others who will come into it with grave misgivings and much reluctance."

THE ARCHBISHOP OF CANTERBURY, speaking at Ashford (October 15), said Mr. Chamberlain was right in maintaining that there were only two alternatives, either to have no religious instruction in elementary schools at all or to have schools which did impartial justice to every denomination alike. He (Dr. Temple) was bound, however, to say that Nonconformists had a right to complain that the Education Bill was not absolutely just to them, for there were not a few instances of Church schools that were the only schools available in certain districts. In such places children of Nonconformists had to receive the religious instruction given by the Church authorities, or no religious teaching at all. He would have been prepared himself to suggest means of obviating this injustice, but it was unnecessary, because Mr. Balfour had already taken notice of the grievance, and had implied that he would consider how to deal with it. Where the Bill is indefinite as to the burden of repairs, he had no doubt it would be made clear. Changes were much needed in the curriculum of secular instruction in the elementary schools, though violent alterations would be unwise. He was overjoyed that the Government was making an honest and sagacious attempt to deal with education as a whole. He did not think his speaking out on the subject would make Nonconformists any hotter than they were, for they had already over-roasted their goose.

SIR JOHN GORST, in the *Nineteenth Century and After* for October, insists on five main considerations:

(1) Not a moment should be lost in dealing with the present state of public instruction in England and Wales. (2) One public Local Authority should have jurisdiction over schools of all kinds. (3) Parliament should not halt between two opinions, but adopt at once either Municipality or School Board as that Authority. (4) The secular instruction in all elementary schools should be given at the public expense, and be under the absolute control of the public Authority. (5) In the case of certain voluntary schools public security for the maintenance of their religious character must be given.

He regards the Cowper-Temple clause as a fetish, and thinks the religious difficulty has no practical existence in the schools. "It is no exaggeration," he says, "to call the state of public instruction in England an emergency. The danger is imminent. Teachers and schools cannot be created in a moment by Act of Parliament." The Board schools in towns are the best part of the system, but the best voluntary schools are better than the best Board schools. The worst elementary schools are to be found among rural Board schools. Most voluntary schools, however, are "inefficient for lack of proper means"—buildings, staff, apparatus, &c.

In the same review, the Bishop of Hereford sets out "a plea for mutual concessions." While enumerating various plans of compromise, he offers a concordat formulated by himself and the Rev. Dr. Paton. The provisions are:

(1) That the denomination which owns a school shall appoint one-third of the managers, the Local Education Authority one-third, and the parish the remaining third, either in parish meeting or through the Parish Council; (2) that the managers appointed by the denomination shall have the right, if they choose to exercise it, whenever the office of head teacher is vacant, to require that candidates must be members of the denomination, all other posts being open to members of any religious denomination; (3) that the clergy or ministers of the denomination shall have free access to the school at suitable times for the purpose of giving denominational instruction to the children of parents who desire such instruction. Subject to these provisions the necessary rules as to prayers, hymns, and general Biblical instruction would be made by the Local Education Authority for all schools under its administration.

THE BISHOP OF MANCHESTER, addressing the Diocesan Conference (October 22), denied that the Bill would increase clerical influence and promote taxation without representation. Its only effect upon clerical influence was demonstrably to diminish that influence. Taxation under the Bill would far more closely correspond to representation than it had ever done, and the more one examined the Bill the more one was amazed and confounded by the unscrupulous misrepresentation and savage outburst of anger and scorn of certain political Nonconformists. Quiet extinction and concealed confiscation was the future planned by Nonconformists for voluntary schools. Hence their rage at the Bill. On the same day the Bishops of Rochester and Winchester, addressing their Diocesan Conferences, spoke to like effect.

THE BISHOP OF BARKING, speaking at Southend (October 22) said:

We must put ourselves in the place of the man who conscientiously objects to definite Church teaching, such as the sacramental portion of our Catechism. If there is to be a permanent settlement, it behoves Churchmen in future to be much more considerate than some have been. There must be facilities offered, whether they are accepted or not, for children whose parents object to our definite Church teaching to receive religious instruction such as they approve. I do not consider the "conscience clause" meets their case at all satisfactorily. It would not satisfy me if I were living in a place where the only school was a Roman Catholic school. Let us be absolutely fair in making allowance for other people's religious scruples. If, as stated on high authority, there are eight thousand places where the children of Nonconformists can have no religious teaching such as their parents desire, it is a great and legitimate grievance, and we ought to do all we can to remove it. The Nonconformist minister, or a teacher trusted by the parents, should be at liberty, if parents desire it, to give the teaching they wish, either in a class-room or elsewhere—with no sort of prejudice to the children—of course at fixed times and under reasonable conditions, so as not to upset the regular teaching or discipline of the school. As it seems to me, until we have done this we have no right to ask—as I should like to ask—that this same religious liberty should prevail all round.

THE subject of Mr. Andrew Carnegie's rectorial address at St. Andrews (October 22) was "The Industrial Ascendency of the World." He concluded:

That ascendency, once yours, has now passed to your lineal descendant, who bears the industrial crown. The old home is too small to produce, under any conceivable conditions, material things rivaling in amount those of a continent almost as large as Europe. All thought of material ascendency, even with the Empire united, must be abandoned. But, gentlemen, in this audience, assembled in Scotland's oldest University, the thought that fills your heart and appeals to mine is: of what value is material compared with moral and intellectual ascendency, supremacy not in the things of the body, but in those of the spirit! what are the barbarous triumphs of the sword compared with those of the pen! . . . what the action of the thews and sinews against that of the God-like reason, the murdering savage armies of brutal force against the peaceful armies of Literature, Poetry, Art, Science, Law, Government, Medicine, and all the agencies which refine and civilize man, and help him onward and upward! . . . What matters what part of the world makes the most steel, iron, cloth, or ships, if you produce the highest poets, historians, philosophers, statesmen, inventors, teachers? There is an ascendency of the world, and that the highest, where neither unbounded fertile territory, immense store of minerals, nor numbers, nor sought material are of value, where megalomania reigneth not. For the crown of this realm you have no cause to struggle. It is already yours; it has never been lost; it remains here in the old home. Nor has the blast yet been blown of any challenger from either of the four winds of heaven. . . . See to it that you do your best to guard it well against all comers, men of St. Andrews, for precious it is beyond all others, and blessed among and beyond all other nations is she whose brow it adorns. Let other nations, therefore, distribute among themselves as they may the victories of materialism. Precedence for Britain, the dear old home of our race, in the things of the spirit, the modern Greece, and more than Greece ever was to her world, at whose shrine all that is highest and best of the nations of the whole world will dutifully attend to testify their gratitude, admiration, reverence, and love!

LORD LONDONDERRY assembled the Chief Inspectors of Elementary Schools at the Board of Education (October 17), to consult them about recent allegations of a falling off in the thoroughness and accuracy of the work done in some of the elementary schools. His lordship said there were many village schools in England that did not possess the latest system of desks, the best lighting and heating, large cloak rooms and hat pegs, or accommodation of a luxurious character, like some of the large Board schools in London. And yet these village schools, comparatively incomplete as they were in equipment, were giving the very best education to the children. This was because the teacher was in absolute sympathy with the interests of the children. He was an ardent advocate of the practical education of children in the wants and requirements of their future life, and was anxious to promote by every means in his power the development of physical training for both boys and girls as a very important element of education. A conference was held in private.

SIR ARTHUR W. RÜCKER delivered the opening address of the new session at the Birkbeck Institution (October 1). He pointed out that the Institution was established, in part, by those through whose energy and zeal the University of London was founded. Referring to its relations with the University, he said that

a great effort had been made to maintain a University standard, avoiding, at the same time, too rigid a system, and leaving as much as possible to

the initiative of the teacher. Thus, in fixing the number of hours during which students had to attend lectures and classes, they had put the minimum as low as was consistent with a thorough training. In the case of evening students, who were employed during the day, a substantial reduction in the number of hours had been made, though the evening students would probably find it necessary to extend the degree course over four years.

In short, there was a most earnest desire on the part of the Senate to maintain a University standard, and to make arrangements as convenient as possible both to teacher and to student.

ADDRESSING the students of St. Mary's Hospital Medical School (October 3), Sir Arthur Rücker explained that

the new Matriculation Examination was deliberately framed so as to leave the schoolmaster a wide latitude of choice of subjects. It must not be taken as indicating that in the opinion of the University a school curriculum should embrace five subjects only, or that any of the permitted combinations of five subjects were in ordinary cases equally suitable. For himself he thought that a boy looking forward to a scientific career would be wise not to neglect Latin. He thought it desirable that all boys should be taught some science; but very much doubted if the kind of science which was the best counterpoise to a too exclusively literary education was that in which proficiency could best be tested by examination. For the moment, however, he wished only to point out that the new examination made it possible for London medical students to enter upon the University course whatever their previous educational history might have been. After matriculation, the question arose whether it was not desirable that the students' preliminary medical studies should be carried on in an institution specially devoted to these subjects and not in connexion with a particular medical school. On this point he would not presume to lay down any general rule. In such matters it was the business of the University not to act on any *a priori* hypothesis, but to find out what those most competent to judge believed to be desirable, and then, if possible, to assist in carrying out their wishes. He could, therefore, only say that there was no reason why, even if some medical schools preferred to teach physics and chemistry in their own laboratories, others should not combine to teach them in common; and, further, that, as the efficiency of medical training was a matter of the highest public importance, public support would be more readily given to improve that part of the curriculum which was not necessarily associated with a hospital, if the teaching were concentrated in a few central institutes under the direct control of the University. This matter was receiving the most careful consideration.

PRINCIPAL MACKINDER opened the eleventh session of Reading University College (October 3) with a comprehensive address on "Bases of Empire, Past and Present." He declared mobility to be the essence of empire; and with mobility must go organization. As to education:

Education should be placed by the nation above all party. We ought to sink small differences and come together with English practical common sense. We might hold strong opinions upon many subjects, but one thing which was essential was to decide with a single eye on education in its broadest sense. At the present moment he feared that the real educational interests were thought of by comparatively few people. He feared that party cries without much depth of meaning upon one side or the other occupied too great a place. It ought to be driven home that the Germans were no better than ourselves, and that, if better, it was because of their better education. The Scotch for several generations past had recognized the value of education, and that was the reason they occupied such an important position in the Empire. With regard to America, we should have learned very little of the events which had recently occurred without recognizing that America had changed in every outlook within the last ten years. The Americans and the Germans were educated. He believed in the legacy which has been left us, but insisted that we must cultivate scientific method, while retaining all that is broadest and finest in our traditions.

THE application of Owens College for an independent University charter will be heard by the Privy Council early this month. The Corporation of Manchester is working cordially with the college authorities, and other local corporations are reinforcing them. At a meeting of the Court of Governors (October 7), Principal Hopkinson said:

They had also communicated copies of their petition to the Local Authorities in Lancashire, Cheshire, and part of Derbyshire, as well as to the various Education Authorities in the district from which they drew their students. The reply to this had been entirely satisfactory. From no Local Authority or educational body had they received any refusal to support the policy which they had undertaken, but from a great many they had received expressions of hearty good will and of a determination to support that policy. To those who at one time regarded the steps taken by Liverpool and by the Owens College with some degree of anxiety these two things had been causes of the greatest congratulation, because every one felt that, if a new University was to be started, it must

be started with the good will of the whole district. Salford, like Manchester, had given its most hearty support to the movement, other municipalities had followed suit, and it was most satisfactory that they should set out with all this good will and with such a general determination to make the movement a success.

AN important development of the Sheffield University College (says the *British Medical Journal*) will before long, it is expected, take place. For many years it has been only too apparent that the present buildings have been inadequate and unsuitable for the requirements of such a college. This remark applies to all its branches—Science, Arts, and Medicine. A sum sufficient for the erection of an entirely new college has now been collected. An excellent site has been procured, and plans are being prepared. The Faculties of Science, Arts, and Medicine will all find accommodation in the building. The benefits accruing from the erection of the new college will be felt in all departments. On the medical side every effort will be made to obtain provision for an entirely up-to-date and properly equipped medical school.

MR. BALFOUR opened the Manchester School of Technology (October 15), which has been erected by private benefactions and public funds, at a cost of £300,000. He said true theory and true practice could never be divorced, and the ideal we had to aim at was not imitation of the processes of those that went before us, but imitation of their anxiety to take the best the world had to give in abstract knowledge and manual dexterity.

PROF. ADAMS delivered (October 6) his inaugural address—on "The Training of Teachers"—at the London School of Economics, in Clare Market, where the London County Council Day Training College is temporarily accommodated. Sir John McDougall presided, and the Vice-Chancellor and the Principal of London University, Mr. Henry Ward (Chairman of the Technical Education Board), Mrs. Bryant, Mr. Sidney Webb, and Mr. A. J. Shephard, took part in the proceedings. Sir John McDougall sketched the history of training colleges, and recapitulated the events that led to the establishment of the institution now opened. As to day training colleges, he said:

The first training college was that established by the Home and Colonial School Society in 1830; ten years later there were nine training colleges carrying on their work, and a few years ago there were no fewer than thirty-four residential and fourteen day training colleges scattered throughout the kingdom. . . . The difficulty of providing sufficient accommodation in the residential colleges to meet the demand for trained teachers in public elementary schools had in 1890, under the administration of Sir William Hart Dyke, led to the establishment of the day training college, an institution sanctioned by the Board of Education on the condition that it formed part of a University or an institution of University rank. There were, at least, two arguments in favour of the day training system—in the first place, the financial difficulty of largely increasing the accommodation provided in the residential colleges; and, secondly, the desirability, on educational grounds, of allowing the students under training, most of whom had been pupils and pupil-teachers at public elementary schools up to the time of their entering a training college, to associate with the other University students drawn from all ranks of life, who were looking forward to nearly every variety of professional and industrial occupation. Day training colleges were now conducted in connexion with nearly all the Universities and University colleges of England and Wales, and it was believed that they were doing an extremely useful work, especially in the training of teachers for the higher classes in the elementary and continuation schools. The provision of training college facilities was far from sufficient to meet the growing demand for trained teachers, and the fact that many of the colleges were of a strictly denominational character further increased the difficulty. London alone required the services of more than 20,000 trained teachers in its various schools; and in the schools directly associated with the London County Council there were about 2,000 teachers.

We give the leading points of Prof. Adams's address on another page.

THE eighth annual distribution of prizes at the City of London School for Girls was held in the great Hall of the City of London School on October 8. The Lord Mayor and the Sheriffs attended in state, and the prizes were distributed by the Lady Mayoress. The report of the Head Mistress stated that, for the first time, open scholarships have been gained for Newnham, Holloway, and Westfield Colleges. The Lord Mayor subsequently gave a short history of the school, stating that it has steadily progressed to an important position among the institutions for the education of girls.



THE Sisters of Notre Dame at Mount Pleasant were visited (October 6) by the Lord Mayor and Lady Mayoress, who inspected the normal college and showed interest in the coming bazaar, which "is to encourage and support not only higher education and secular studies, but also, and chiefly, to help in training teachers for the work of educating the poor. More than two thousand such teachers are said to have been sent out from the college to such work. The institution comprises the higher-grade elementary school, with girls' and infants' departments; a pupil-teachers' centre, attended by 100 pupil-teachers, 60 of whom lodge in the house; a training college for elementary teachers, numbering upwards of 120 students in first, second, and third years of training; a secondary high school for 180 girls in all stages; and a training college for students destined to teach in secondary schools. The Sisters teach, besides, eight of the largest elementary day schools in the city, and three or four evening schools, one of which has an attendance of over 400 girls and women.

THE National Federation of Assistant Teachers held their annual Conference at Reading (September 27), with great success. Mr. Goldstone, Sheffield, presided. He said the Education Bill was far from a perfect measure; but, as the basis of a possible solution, it was the most complete attempt since 1870 to remedy the fearful hotch-potch of English education. The best guarantee of a high level of general education was an adequate supply of fully qualified teachers, the corner stone in the educational edifice. The first necessity was that the teaching profession should be exalted to that honourable status which the importance of the calling demanded.

THE new programme of secondary education in France came into operation on October 1. It is pronounced in competent quarters, says the Paris correspondent of the *Morning Post* (October 9), to be "the greatest advance of the kind accomplished in France for a full century."

Clause 1 of the decree [May 31] declares that secondary education shall be co-ordinated to primary education in such a manner as to create an easy and natural sequence to a four years' course of primary studies. By Clause 2, the course of secondary education studies is to embrace a period of seven years, divided into "cycles" of four and three years respectively. In the first cycle the students may choose between two sections, the one rendering Latin obligatory, while Greek is optional, and the other excluding both Latin and Greek but allowing for greater development in the sciences, drawing, and French. The student is supposed to be in possession of a complete set of *connaissances*, as far as they go, at the end of the first cycle in either section, and he may earn a "certificate of secondary studies in the first degree." In the second cycle four groups of courses are offered to the students' option, viz., (1) Latin with Greek, (2) Latin with living languages, (3) Latin with a more ample study of sciences, (4) Living languages combined with the sciences, but without Latin. Pupils, however, who do not desire to graduate as Bachelors will be enabled at the close of the first cycle to follow a course of studies of which the principal features will consist of living languages and the applied sciences.

Compared with the curriculum it replaces, the new plan assigns double the time to the study of a foreign living language in the first cycle, somewhat increases in the second cycle the amount of time given to that language, and provides that no second foreign language shall be entered upon until the commencement of the second cycle.

THE *Guardian*, discussing "Our Public and Private Schools," says:

Our public schools are accused of clinging too exclusively to the old classical curriculum, of ignoring history and modern languages, and of giving scant encouragement to science. To a certain extent this may be true. The teaching of modern languages, especially at the public schools, leaves a good deal to be desired. But the supply of teachers and the methods of teaching are as yet imperfect, and the fault, if fault there is, lies as much with the Universities. Public-school teaching is much what University requirements make it. And public-school masters may be excused if they have been slow to modify the traditional basis of a liberal education by the introduction of subjects in which as yet there are no well defined standards of teaching or of examination. They have, however, modified it very considerably, as the Oxford and Cambridge Certificate Examination lists testify. Perhaps the main defect of a public-school education at present is that by the public opinion of boys and parents alike play, rather than work, is encouraged. But for the boy who will work there is, take it all round, no better education than that of an English public school.

THE Annual General Meeting of the London Branch of the British Child Study Association was held at the Sesame Club on October 10, Dr. Fletcher Beach in the chair. Dr. Kimmins was elected President, Mr. Mark Judge Hon. Treasurer, and Miss K. Stevens Hon. Secretary. Dr. Beach, in his presidential address, mentioned that the membership had increased to 226, and that the handbook and other new departures had given satisfaction; referred to the successful Conference at Hampton Wick; and congratulated the Branch upon its growing influence. (See also "Fixtures.")

WE record with much regret the death of Dr. J. H. Gladstone. He took great interest in the work of the College of Preceptors; and nowhere was he held in higher esteem for his acquirements, his character, and his unobtrusive labours. The London School Board (October 9) passed the following resolution:—

That the Board, having heard with great regret of the death of Dr. J. H. Gladstone, F.R.S., who was a member of the Board from December, 1873, to November, 1894, a period of twenty-one years, and was Vice-Chairman of the Board from December, 1888, to November, 1891, desire to place on record their respectful sympathy with the members of his family in their bereavement; and hereby request the Chairman of the Board to forward to them a copy of this resolution.

The Chairman (Mr. Lyulph Stanley) said Dr. Gladstone took great part in the introduction of science into their schools, and also did a good deal in the direction of establishing economy. He was enthusiastic in the spread of good and rational methods of teaching, and in securing better teachers than they had before. In fact, there was no department of the Board in which he did not labour. He was a man of broad views in connexion with religion, and took great interest in the religious education of children.

#### UNIVERSITIES.

For the undergraduate world the Michaelmas Term Oxford. has begun much like any other Michaelmas Term.

So far our Oxford poet's words remain unfulfilled. "All Australia" has not come "to boil its billy in the quad," and as yet "the German compound verb" does not "delight the listening ear." It is too soon to know whether any really striking new development in customs or habits is to mark the beginning of the new University year; but doubtless already the freshman is beginning to learn some of the important, though small, rules of etiquette. He knows already whether he may carry a cane; whether he must discard a cap, even though the disuse of any head-covering entail the acknowledgment of a bow by the simple method of approaching the hand to the forelock, and whether he may venture to ride a bicycle with inflated tyres, even though that should lay him open to the indecent suspicion of having made the necessary exertion involved in blowing them up.

But, for the merely stipendiary part of the University (to use an expression once employed to distinguish the residentiary from the honorary canons of a cathedral chapter)—the Heads of Houses and the Fellows—the introduction of the new year has been marked by an event over and above the annual number of college gaudes—the Bodleian Tercentenary. Wednesday and Thursday, October 8 and 9, were devoted to celebrating the foundation, three hundred years ago, of the present University Library; the older library, which Oxford owed to the munificent Humphrey, Duke of Gloucester, had been dispersed during the Reformation, though its home still forms the most venerable part of the Bodleian Rooms. As Dr. Ince, the Senior Curator of the Bodleian Library, said in his speech at Thursday's banquet, the University of Oxford, which can give no certain date for her own beginning, has often found it hard to know in what way to return the hospitality of other seats of learning who have bidden her representatives to join in their rejoicings over the anniversaries of their own foundations. It was a happy thought, therefore, to use, as an occasion of gathering together the delegates of Universities and libraries and learned institutions from all parts of the world, the tercentenary of the time when Sir Thomas Bodley "set up his staff," as he said "at the Library door in Oxon," and formed the nucleus of what is now the second library in the British Empire.

It was on the whole a great celebration of a great occasion, and the residents felt, as Sir William Anson said, that they were not putting on their smartest academical robes merely, as sometimes, to add to the enjoyment of the frivolous. They were taking

part in a festival of learning wherein the republic of letters had become a visible thing.

The proceedings began with a reception by the Vice-Chancellor in the University Galleries. All alike wore full academical or official dress, and the stream of gorgeous colours on the great staircase was truly memorable. Most splendid of all perhaps were the yellow robes of the members of the Faculty of Letters of the University of Paris, and among them in particular those of M. Croisset, Dean of the Faculty. Among the great number of eminent persons present Mr. John Morley was prominent in his doctor's scarlet gown, wearing the cross of the Order of Merit. Among the French guests was M. Gabriel Monod, the historian, who took so prominent a part in the movement for the revision of the sentence on Captain Dreyfus.

The weather on Thursday was too characteristic of Oxford to do full justice to the procession to the Sheldonian Theatre, and it was the more gracious and courteous of M. Paul Meyer to say in his speech at the dinner that he had seen Oxford in wet weather and in fine, and did not know in which he liked it best. The ceremony in the Sheldonian, which consisted of the conferring of honorary degrees, the presentation of addresses, and the delivery of a Latin discourse by the Public Orator, might perhaps have been better arranged. Neither historical nor ceremonial considerations seem to have influenced the order in which the names were called out, and it was unfortunate that delegates should often have had to scramble over the knees of others to reach the Vice-Chancellor. It is no doubt difficult to arrange these matters, but certainly the difficulty cannot be said to have been overcome. Elsewhere, I daresay, you chronicle the eminent recipients of degrees. One amusing incident occurred. Dr. von Laubmann, who was in uniform, had not provided himself with an Oxford Doctor's gown. Prof. Bywater, however, promptly borrowed one, and threw it over Dr. von Laubmann's shoulders, saying: "Cedant arma togæ."

The final ceremony was a dinner in the Hall of Christ Church, when there was another gorgeous display of robes and uniforms. The speeches were rather long, but Sir Richard Jebb made a really eloquent one, proposing "The Pious Memory of Sir Thomas Bodley," and the toast was drunk standing and in silence.

The resolutions concerning compulsory Greek are not expected to come before Congregation for some weeks. Committees are at work on both sides, and a pamphlet controversy has already begun.

The History Lists this year attained the episcopal dignity of ending the procession. The Greats List was perhaps some compensation to New College for the triumph of Balliol in the Hertford Scholarship Examination. Of the nine New College men examined, six were placed in the First Class, two in the Second, and one in the Third—a good record. Of the ten Balliol men three were placed in the First Class and seven in the second. The name of one of the First Class New College men, Mr. Ley, late scholar of Winchester and New College, appeared last month at the head of the long list of candidates for the Civil Service Examination. These things may perhaps render it unnecessary for the New College man, for example, to protest against the recalling of the fact that an eminent Fellow of the College was once an undergraduate of Balliol, on the grounds that it is unfair to rake up a man's past.

Two women only were examined in *Literæ Humaniores*—both students of Somerville College. One was placed in the First Class and one in the Second. As usual, and for obvious reasons, the number of women placed in the First and Second Class in the History School compared with the number examined was greater than that of the men.

To recall events of the vacation other than the appearance of Class Lists, University College crew, though criticized by some for entering for the Ladies', after beating King's College, Cambridge, and Radley, won the final heat with Eton by half a length, a faster race than the final heat of the Grand. In the latter competition the Canadians beat the victorious University College crew, and the Oxford Leander in the last heat were beaten by the conquerors of the Canadians—Third Trinity. Both University College and Leander appeared at Cork, where the former beat Leander, but were beaten by Berlin, who fell afterwards to Leander. Mr. Kelly, of Balliol, won the Diamond Sculls at Henley.

It is of some interest in connexion with the new Registration Order for Teachers that the "Church Education Corporation, Limited," has started a Secondary Training College for Women Teachers at Cowley Grange, over Magdalen Bridge. Lady Wimborne has been instrumental in the undertaking, and the

college is, of course, strictly denominational. It has no official status. It has been christened "Cherwell Hall."

COMPARATIVELY few changes have occurred in Cambridge. the Long Vacation, but one noticeable figure has passed away. Dr. Searle, the Master of Pembroke, died after a long and lingering illness, to the great regret of many generations of Pembroke men. The late Master was associated with the college from its less prosperous days, and to him was due in no small measure the credit of having raised Pembroke to its present position of usefulness. The appointment of Sir George Stokes to succeed Dr. Searle shows that the college wishes to honour the most illustrious of its members and to do itself honour thereby. The selection of Mr. Beck to succeed the late Dr. Latham as Master of Trinity Hall is another example of the recognition by a body of the work done in its interests by the most patriotic of its members. Whatever may be the ideals of this particular college, it is certain that, next to the late Master, Mr. Beck can be trusted to carry out the traditions of the past in a prosperous future.

The vacancy in the Secretaryship for Local Lectures has been filled by the appointment of the Rev. D. H. Cranage, who has had much experience in the actual work of the Extension system; his predecessor, Dr. Roberts, has left us for London, where he takes up work of a similar character for the metropolitan association. The Meeting of Extension students which took place this year at Cambridge during the Long Vacation was an unqualified success; our visitors are fortunate enough to see the place without the people, and carry away ideas of our single-hearted efforts, our thirst for knowledge, and our devotion to ideals, which nothing but a visit during term time can dispel.

Dr. Ward, Master of Peterhouse, is succeeded in the Vice-Chancellorship by Dr. Chase, who now becomes a distinguished pluralist, filling with distinction the offices of President of Queens', Norrisian Professor of Divinity, and Vice-Chancellor. However, the man is equal to the burden, and Dr. Chase is only given one more chance of administering an important office with his usual tact and courtesy.

The numbers in our Medical School show a large increase this year; the solid work of the past is now beginning to show its effect, and the position of Cambridge as a centre of scientific medical work is practically assured. Oxford had its chance and scouted its opportunities; Cambridge took what Oxford left and out of the waste products of University life has evolved a thriving and profitable industry. Even Universities feel the pinch of poverty, and it is quite as dignified to take parlour boarders as to ring the area bell and ask for alms.

A meeting was held in Cambridge early in the term to give an opportunity to the University and town representatives to state their views on the Government Education Bill. Sir Richard Jebb alone of the three exercised any control over a somewhat unruly audience. Sir John Gorst, well as he is known outside Cambridge, does not bulk so large in town or University circles; while Sir Richard Jebb, after winning all the distinctions that scholarship can offer him, has developed politically into a first-class fighting man, who, beginning by preaching political pamphlets, proceeded to deliver orations, and soon will become a good speaker, if not a skilled debater.

The Report on Military Education contained some pleasing references to University life. A recent article in a high-class publication contained a scathing indictment of University finance. How little the outside world knows of the inner cells of our academic hive! How can it be true that our leaders are financial idiots when they can make the callow undergraduates contribute on an average a pound a day for the privilege of being among us, while endowments of deceased benefactors provide as much again to further the great cause of education? With respect to the military education question, the University has done nothing, but will probably throw the sop which has been offered us into the gutter.

The number of freshmen is unusually large this year. One college has excited remark by limiting the number of men it will take; why should not the others in common honesty follow so good a lead? One or two colleges are strong enough to do this, and have done so, but to admit the intellectual rag-tag of the schools can do no good to any self-respecting college.

The football team has not been peculiarly fortunate so far, but it will turn out a really good one later on. Our rowing prospects are rosy for next year. The new golf links, thanks to the energy of Mr. Caldwell, the captain, are actually in play, and promise to be good before very long.

## THE REGISTRATION OF TEACHERS.

### OFFICIAL EXPLANATION.

THE Teachers' Registration Council has issued the following statement:—

The widespread confusion as to the meaning of "registration" and "recognition" seems to call for an authoritative explanation. The former term applies to *teachers*, and is the function of the Registration Council; the latter applies to schools, and is the concern of the Board of Education. But registration is the avenue to recognition; or, rather, an application for registration is the proper method of applying for recognition. In plain words, if a school desires recognition, it must send in to the Registration Council an application for registration from a teacher on the staff, either head or assistant. The name of the school is then forwarded to the Board of Education for recognition, and the matter passes out of the hands of the Registration Council until the reply of the Board of Education is received. It is obvious that in many cases considerable time must elapse before the Board can satisfy itself as to the merits of schools; hence delay, and even delay of some length, is unavoidable. It should be especially noted that it is of no avail to send in to the Registration Council an application for recognition of a school apart from an application for a teacher for registration.

Nor is it of use to forward to the Registration Council prospectuses and information about schools. The Council has no power to pass judgment on schools except for those teachers who apply under Regulation 4 (2) (ii.) of the Registration Order in Council, and, in some cases, under Regulation 5 (2).

As to the results of recognition or non-recognition, they must be fairly obvious. The former will secure a school the stamp of Government approval as a worthy secondary school.

## REWARDS AND PUNISHMENTS.

MR. R. E. CHOLMELEY, of St. Paul's School, read a paper on "Rewards and Punishments" at the City of London School (October 25) to members of the Metropolitan Branches of the Incorporated Association of Assistant Masters. The following is an outline of his argument:—

The discipline of fifty years ago is obsolete; what have we instead of it? The school, like the nursery, has shared in a general advance in civilization; children are taken into the amusements of their elders, and their souls are investigated by the serious; but "civilization has to be paid for, and you are lucky if you do not pay for it in morals." One consequence of this development is that the schoolmaster finds himself with an increased responsibility. What does he exist for? To do what parents would do if they could (or, in many cases, could do if they would)—get the idea of duty into his pupils. In this part of his business, at any rate, he has not been superseded by text-books, and it is with this part of his business that rewards and punishments are concerned. How is he to use rewards and punishments to teach duty? The answer is that he must regard them only as part of the "language of praise and blame." This involves two consequences, that the distinction between discipline and morality vanishes, and that each man must make his own system for himself, since without sincerity he cannot be effective, and borrowed discipline, like borrowed language, smacks of insincerity—or, at any rate, of affectation. Praise is more difficult than blame, for it is easier to hurt than to please; but the art of praising must be learnt, for to praise foolishly is to bring the thing praised into contempt, and encourage the *Βαυκαλοποιήσις*, the boy who boasts of his folly, even when he has not been foolish, because his teeth have been set on edge by imbecile praise. Blame is less easy than it seems, for the mere giving of pain is apt to be either too much or not enough; punishment, whether by look, word, or act, must express the real mind of him who inflicts it, and be directed to the mind of him who is punished. Sarcasm is as bad in one direction as a mere formal tariff of penalties is in the other: in the former case the master's own personality is obtruded, in the latter it is not employed. Personality should be employed only to drive home right principles: never for the acquiring of influence or making duty a matter of pleasing this or that person. The principles of school education ought to be drawn from those of family life, and the tendency to antagonism between school and home tradition ought to be repressed; true discipline can be obtained in no other way.

## CORRESPONDENCE.

[We do not hold ourselves responsible for the opinions expressed by our correspondents.—ED. E.T.]

### THE TENURE OF HEAD MASTERS.

To the Editor of the Educational Times.

SIR,—The letter which appears in this month's *Educational Times* on the subject of the tenure under the Teachers' Registration Council should draw the attention of all who are interested in the improvement of the teacher's *status* to the declaration which so many masters and mistresses have to sign on their appointment as head.

Whether or no the declaration by which a head master or mistress "acquiesces in removal," should such be resolved upon by the governors, and thus forfeits legal redress, obtains in all schemes of schools under the Central Welsh Board I am unable to say, but I do know that this obnoxious declaration is to be found in the scheme which governs the intermediate schools in the county from which this letter is written.

No right-minded master would desire inefficiency or immorality to be possible in our schools; but an inefficient or immoral teacher would, if he had a right of appeal, which at present is denied him, probably only make his case worse.

The doctrine of the dismissal of teachers when they are in the right and their dismissers in the wrong is monstrous.

The declaration which at present is found in so many schemes precludes to those who sign it a right of appeal in cases of dismissal, and so renders an unjust dismissal possible.

Which of your readers will come forward and say a good word in favour of its retention?—I am, Sir, &c.,

A HEAD MASTER OF A WELSH COUNTY SCHOOL.

September 22, 1902.

### THE USE OF THE TERM "EMPIRICAL."

To the Editor of the Educational Times.

SIR,—It is bad form to reply to reviewers as a rule, but I must plead for a word of expostulation on one point in your review (in October) of my book on *Class Teaching*:—"It is hardly fair to dismiss Sir Joshua Fitch's 'Lectures on Education' [*sic*] with a patronizing compliment as the most favourable specimen of the 'frankly empirical.'" Now, Sir Joshua was good enough in more than one way to show sympathy with my work in lecturing at the College of Preceptors: many of the Council know this, and, as I cannot rely upon their reading the original, they may believe your reviewer that I have written something like impertinence about an elder for whom all teachers of my generation have the sincerest respect.

Your reviewer makes two mistakes: firstly, like so many people who discourse on education, he is taken up with the history of education, and regards these sentences in my preface as a contribution to biography; he thus resents my supposed "dismissal" of a writer whom it serves my purpose to allude to in a sentence. Now no reader would censure me here, unless he were trying to read biography into that preface. I submit that my reference to Sir Joshua's *Lecture on Teaching* is entirely *à propos* and expresses the regard of a disciple. If it had been my intention to write a commentary upon "predecessors," surely I ought to have introduced not only Quick (whom he charges me with slighting!) but Prof. Laurie's name, and many others in foreign countries.

But your reviewer's censure is due also to his misapprehension of the term "empirical." Oddly enough, to-day's *Times* contains a leader on the study of education, and uses the same contrasted terms, "empirical" and "scientific," in my sense—neither term conveying a shadow of contempt. They express a difference of standpoint, but no censure either way. If your reviewer had taken the trouble to read Sir Joshua's own preface (page vi.), he would have found that the author expressly describes his own work in terms similar to those I adopt. But when a reviewer, like an obstinate schoolmaster, seeks for what is not to be found in his victim, and then scolds the victim, he is sure to get astray. There was plenty to blame in my poor chapters, without blaming me for what I do not profess to do.

I should not have troubled you, however, if it were not for the personal aspect of the matter.—I am, Sir, &c.,

October 14, 1902.

J. J. FINDLAY.

[We readily print Dr. Findlay's "word of expostulation." We regret, however, to scent the "red herring" on the trail. Dr. Findlay has been playing with a two-edged tool, and blames our reviewer for noting the consequences. When a disciple calls his own work scientific, and his master's "empirical," even a casual usage in the *Times* will scarcely obviate the natural implication. Moreover, Dr. Findlay ignores this material point in "the personal aspect of the matter": Is not Prof. Bain, equally with Sir Joshua Fitch, "an elder for whom all teachers"—all teachers that recognize scientific acumen and pedagogical earnestness—"have the sincerest respect"? It is for Dr. Findlay to draw the inference. One word more: No reviewer of ours "seeks for what is not to be found in his victim."—Ed. *E.T.*]

#### PRIVATE SCHOOLS AND PUBLIC COMPETITION.

To the Editor of the *Educational Times*.

SIR,—I beg, through the medium of your columns, to call the attention of the majority of justice-loving Englishmen to the misappropriation of the ratepayers' money under the guise of so-called technical education. In many towns throughout the country private enterprise is of no account whatever, and, in direct detriment to other schools in the town, they have set on foot both day and preparatory schools of a precisely similar character to those which are carried on by men who have to pay the school rates used for cutting their own throats.

Having been a teacher for nearly a quarter of a century, I feel bound, amid my other numerous and important duties, to sound a clarion note to arouse all teachers in private schools throughout the length and breadth of the land to a sense of their duty in the matter. Let them agree upon a combined policy of action for their own protection, and indirectly for the future welfare of the rising generation. I should like to ask, through you, Sir, whether there are other persons who realize the unfairness of this procedure equally with me.—I am, Sir, &c.,

THE PRINCIPAL OF A PRIVATE SCHOOL.

October 18, 1902.

#### MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.

A MEETING of the Council was held at the College, Bloomsbury Square, on October 18. Present: Mr. H. W. Eve, Dean, in the Chair; Rev. J. O. Bevan, Mr. Butler, Mr. Charles, Mr. Chettle, Miss Crookshank, Mr. Holland, Miss Jebb, Mr. Leatham, Mr. Millar Inglis, Mr. Pinches, Mr. Rushbrooke, Mr. Storr, and Mr. Walmsley.

The minutes of the last meeting were read and confirmed.

The diploma of Associate was granted to Mr. W. E. Bower, who had passed the required examination.

Mr. Eve and Dr. Wormell were appointed representatives of the College at the Cambridge Conference on the Training of Teachers, to take place on November 14 and 15.

The report of the Finance Committee was adopted.

The report of the Examination Committee was adopted.

The following persons were elected members of the College:—

Mr. E. F. Marx, M.A. Lond., Rolandseck School, Ealing.

Mr. A. Telfer, B.A. Lond., L.C.P., Wreight's School, Faversham.

Mr. J. A. Tribe, 51 Joseph Street, Gosport.

The following books had been presented to the Library since the last meeting of the Council:—

By Mr. A. E. C. DICKINSON.—Descartes's Discourse on Method and Meditations; Hamilton's Discussions on Philosophy, &c.

By G. BELL & SONS.—Bottin's Horace's Odes, Book II.; Tuckey's Examples in Algebra.

By BLACKIE & SON.—Chaytor's Selections from Buffon; Preston's Daudet's La Mule du Pape.

By the CLARENDON PRESS.—Allen's Elementary Greek Grammar; Skeat's Lay of Havelok the Dane.

By C. J. CLAY & SONS.—Holden and Shuckburgh's Xenophon's Cyropaedia, Book I.; Nicol's Cicero in Catilinam; Ropes's Erckmann-Chatelain's Histoire d'un Conscient de 1813.

By MACMILLAN & Co.—Jones's Introductory Chemistry for Intermediate Schools; Robson's Practical Exercises in Heat.

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### CURRENT EVENTS.

THE next monthly meeting of members of the Fixtures. College of Preceptors will take place on Wednesday, November 12, at 7.30 p.m., when the Rev. J. O. Bevan, M.A., will read a paper on "The Equipment of the Teacher."

ARRANGEMENTS are being made for the forthcoming Winter Meeting of Teachers at the College of Preceptors, to commence on Tuesday, the 6th of January, 1903.

A CONFERENCE on the training of teachers in secondary schools for boys will be held at Cambridge on November 14 and 15.

THE first of the Henry Sidgwick memorial lectures will be given at Newnham College, Cambridge, by Mr. Bryce on November 29. The subject will be "The Philosophic Life among the Ancients."

Two "external lectures," under the auspices of the Birmingham University Faculty of Commerce (November 6 and 13), will be delivered by Mr. Elijah Helm, Secretary to the Manchester Chamber of Commerce. Mr. Helm will expound "The Present Position of the Cotton Industry."

PROF. MACDONELL's lectures on "Public International Law" at University College, London, are delivered on Mondays at 5 p.m. They are "intended not only for lawyers, but for students of political economy, political science, and sociology." They are open to the public without fee.

DR. KIMMINS will address the London Branch of the British Child Study Association (November 14) on "Preparation for Child Study—a suggested Course of Reading."

THE next examination for cadetships at the Royal Military Academy, Woolwich, begins on November 25. There are fifty vacancies.

On the occasion of the Bodleian Tercentenary Honours. (October 9), the following honorary degrees were conferred in Convocation of Oxford University:—

D.C.L.: On the Hon. Andrew Dickson White, of Yale University, Ambassador of the United States of America at Berlin; the Right Hon. Lord Strathcona and Mount Royal, G.C.M.G., Chancellor of McGill University, Lord Rector of Aberdeen University, and High Commissioner for the Dominion of Canada; Dr. Frederick de Martens, Privy Councillor and Permanent Member of the Council of the Minister for Foreign Affairs, Professor of International Law in the University of St. Petersburg, and a member of The Hague Arbitration Tribunal; and Prof. Vinogradoff, of Moscow.

D.LITT.: On Conte Ugo Balzani, of the Accademia dei Lincei and of the Società Romana di Storia Patria, Rome; Dr. John B. Bury, Regius Professor of Greek at Trinity College, Dublin; Dr. J. H. Canfield, Librarian of Columbia University; Mr. John Willis Clark, M.A., Registrar of the University of Cambridge; Mr. Francis J. H. Jenkinson, M.A., Librarian of the University Library, Cambridge;

Geheimrat Dr. von Laubmann, Director of the Munich Library; M. Omont, Member of the Institute of France, of the Bibliothèque Nationale, Paris; Geh. - Regierungsrat Dr. E. Sachau, of the Royal Academy, Berlin; Hofrat Dr. J. Schipper, Rector of Vienna University; Dr. S. G. de Vries, of Leyden University Library; Mr. G. F. Warner, M.A., Assistant Keeper of Manuscripts at the British Museum; and Prof. A. F. West, of Princeton University.

ST. ANDREWS UNIVERSITY, on the occasion of the installation of Mr. Andrew Carnegie to the Lord Rectorship, conferred the honorary degree of LL.D. upon him, and upon his Excellency the Hon. Joseph Choate, United States Ambassador; the Right Hon. John Morley, M.P.; the Right Hon. James Bryce, D.C.L., M.P.; Mr. Alex. Graham Bell, of Washington, U.S.A., inventor of the telephone; Lord Carnegie; Mr. Thomas Shaw, K.C., M.P.; Mr. John Ross, solicitor, Dunfermline; his Excellency Mr. Andrew D. White, United States Ambassador to Germany; and Mr. Henry White, of the United States Diplomatic Service.

ALREADY the subscriptions promised for the completion of the buildings of the University of Durham College of Science in memory of Lord Armstrong amount to £31,000; and an anonymous donor has promised £10,000 additional if the total should reach £50,000 by the end of the year.

MR. ANDREW CARNEGIE, Rector of St. Andrews University, has promised £1,500 for a union for the women students attending the University.

MR. SPARKE EVANS and Mr. J. L. Evans have each given £500 to the Western College, Bristol; and Mr. T. J. Leonard, the Treasurer, promises £1,000.

THE old students of the Institution of Mining and Metallurgy propose to give two scholarships of £50 for three years to students the Royal College of Science proceeding to complete their training in mines.

THE Annual Preliminary Examination for London School Board scholarships will be held on December 2 and 3. There will be 77 scholarships and exhibitions—52 for boys and 25 for girls. Candidates must have made at least 250 attendances (150 in case of half-timers) in each of three or more years ended last day of October. The scholarships vary in annual value of from £15 to "not less than £50," tenable from three to four years. Further particulars and application forms may be obtained at the Offices of the Board, or by written application to the Clerk of the Board, School Board for London, Victoria Embankment, W.C. Application forms duly filled up must be received on or before November 6, 1902. In addition there is a "Sarah Terry" Prize, preferentially for a child the offspring of indigent parents of any class in the community.

EXAMINATIONS for scholarships at Trinity, Clare, Trinity Hall, Pembroke, Gonville and Caius, King's, Jesus, Christ's, St. John's, and Emmanuel, Cambridge, begin on December 2; at Peterhouse and Sidney on December 16.

WE understand that, in consequence of the resignation of Miss Cooper, the Committee of the Joint Registry for Women Teachers, 74 Gower Street, are about to appoint a new Registrar. Applications to be made, by letter, to the Hon. Treasurer, 1 Gordon Square, W.C., by the 15th November.

THE MARQUIS OF LONDONDERRY, K.G., President of the Board of Education, has appointed Mr. W. R. Davies his Private Secretary.

SIR WILLIAM R. ANSON, Bart., M.P., Parliamentary Secretary to the Board of Education, has appointed Mr. William Loring as his Private Secretary.

THE President of the Board of Education has reappointed as members of the Consultative Committee (from September 30) the Right Hon. Sir W. Hart Dyke, Bart., M.P.; Mr. Ernest Gray, M.P.; Mr. A. C. Humphreys-Owen, M.P.; the Hon. and Rev. E. Lyttelton; the Ven. Archdeacon Sandford; and the Rev. D. J. Waller, D.D.; and has appointed Mr. T. H. Warren, President of Magdalen College, Oxford, as a member of the Committee in place of Sir W. R. Anson, Bart., M.P., resigned.

THE following gentlemen have been appointed Junior Inspectors:—Mr. H. E. Boothroyd, demonstrator and tutor at Cambridge University; Mr. C. Boutflower, science and mathematical master at Fettes College, Edinburgh; Mr. E. H. H. Bruce, temporary Inspector under the Board; Mr. E. H. Carter, County Council lecturer; Mr. H. T. Holmes, chemistry master at Merchant Taylors' School; Mr. A. T. Kerslake, chemistry master at Bradford Grammar School; and Mr. G. McFarlane, master at Dulwich College.

AT University College, Reading, Mr. John Percival, Vice-Principal of the South-Eastern Agricultural College at Wye, has been appointed Lecturer in Agricultural Botany and Director of the Agricultural Department; Mr. J. O. Peet Lecturer in the Practice of Agriculture; Mr. C. W. Walker-Tisdale Lecturer in Dairy Farming and Dairy Bacteriology; Mr. Frederick Keeble, Lecturer in Botany at the College, Director of the Horticultural Department; and Mr. W. H. Patterson Lecturer in Horticulture and Keeper of the Gardens.

AT Cambridge, Mr. J. B. Peace, M.A. of Emmanuel, has been reappointed Demonstrator of Mechanism and Applied Mechanics for five years, and Mr. R. C. Punnett, M.A. of Gonville and Caius, has been appointed Demonstrator of Comparative Anatomy for one year.

MISS H. L. POWELL, head mistress of the Leeds High School for Girls, has been appointed Principal of the Cambridge Training College for Women Teachers, in succession to Miss Punnett, who has been appointed normal mistress to the new Day Training College under the London County Council.

MR. R. W. H. T. HUDSON, B.A. St. John's College, Cambridge, has been appointed Lecturer in Mathematics at University College, Liverpool.

MR. E. SHERWOOD SMITH, M.A., Head Master of Whitchurch Grammar School, succeeds the Rev. J. Atkins as Head Master of Newbury Grammar School.

MR. L. LOWNDS, B.Sc. (Lond.), Ph.D. (Berlin), and Mr. J. C. Crocker, B.A. (Camb.), have been appointed Demonstrators in Physics and Chemistry respectively at the South-Western Polytechnic.

MR. L. HANSEN BAY, B.Sc. (Lond.), F.C.S., chief mathematical and science master at Carlisle Grammar School, has been appointed Head Master of Deacon's School, Peterborough.



MR. WYNDHAM has been elected Lord Rector of Glasgow University by twenty-nine votes over Mr. Morley.

MR. S. O. ANDREW, M.A., has been appointed Head Master of Whitgift Grammar School.

THE Head Mastership of the King's School, Warwick, is vacant through the resignation of the Rev. R. Percival Brown, M.A.

**Literary Items.** MR. FISHER UNWIN announces for the middle of November the "Memoirs of President Paul Kruger," in two volumes, with photogravures and map. The work will no doubt throw fresh light on the recent history of the Transvaal, as well as furnish a most interesting personal record and criticism.

MR. R. BRIMLEY JOHNSON is issuing the "Hampshire Edition" of Miss Austen's works, each novel in a separate volume, "with the original feature of an experiment in illustration never before applied with any thoroughness to fiction."

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MESSRS. FREDERICK WARNE & Co. announce "The Little Folks' Picture Natural History," by Mr. Edward Step, dealing with interesting points in the forms and habits of wild creatures, in easy language, and containing over 200 illustrations, mostly in colours.

THE Walter Scott Publishing Company announce "The Music Story Series," under the editorship of Mr. Frederick J. Crowest—"an entirely fresh and novel series of literary-musical illustrated monographs." The first issue will be "The Story of Oratorio," by Annie W. Patterson, B.A., Mus. Doc.

IN the November number of the *Leisure Hour* the Rev. William Mottram, a cousin of George Eliot and a grand-nephew of Adam and Seth Bede and Dinah Morris, begins a series of papers on the originals of these characters and on certain of the influences that inspired the best work of the great novelist.

MR. FISHER UNWIN has just added to his "Library of Literary History" Prof. E. G. Browne's "Literary History of Persia from the Earliest Times until Firdausi." The work includes in its scope religious, philosophical, and scientific speculation.

MESSRS. JACK announce about a dozen volumes of "The Century Bible" in the Old Testament as preparing for early publication after the completion of the New Testament series, which will close with Dr. Salmond's commentary on St. Mark, to be issued shortly.

MRS. ALICE MEYNELL is editing for Messrs. Blackie & Son "The Red Letter Library"—"a new series of selections from the great masters of English literature," to be issued monthly. Two volumes—from Tennyson and Mrs. Browning—are promised immediately.

**General.** THE Calendar of University College, London, for 1902-3 exhibits a remarkable activity in all branches of study, with a great many fresh developments. If our wealthy citizens were to study the

volume for half an hour with understanding, the College would promptly get the million it so sorely needs.

KING'S COLLEGE, London, offers free courses for teachers, on Saturdays, in Mathematics, French, Theory of Education, Practical Physics, and Practical Physiology. In the Theological Faculty the courses have been adjusted to the B.D. degree of the University of London. The evening classes prepare for "internal students'" degrees. The ordinary and post-graduate classes are now in full swing.

THE London Chamber of Commerce (10 Eastcheap, E.C.) has organized, at a nominal fee, courses of lectures in Commercial Geography and History, Banking and Currency, Commercial and Industrial Law, and (in co-operation with the foreign Chambers of Commerce in London) classes in French, German, Spanish, and Italian.

THE Board of Education has issued the Regulations and Syllabus of the Certificate Examination for Acting Teachers, which begins on July 8, 1904.

UNIVERSITY COLLEGE, BRISTOL, is thinking of ways and means of further extension, and even mooted a project of development into a University for the West of England.

NOTTINGHAM UNIVERSITY COLLEGE has just celebrated its 21st anniversary (October 2).

THE jubilee of Sydney University was celebrated with great enthusiasm on October 1.

THE seventy-fifth anniversary of the opening of St. David's College, Lampeter, was commemorated on October 2. The Archbishop of Canterbury was present, and spoke with great spirit and geniality.

MR. CHARLES WADE HASKINS, Dean of the School of Commerce of New York University, concludes, from his summer studies of the facilities for commercial education afforded in European countries, that his own University holds the lead.

### THE TEACHING OF GEOGRAPHY.

ON Wednesday, October 15, at the Monthly Meeting of members of the College of Preceptors, Mr. H. W. EVE in the Chair, Mr. L. W. LYDE, M.A., gave a lecture on "The Teaching of Geography" with special reference to examinations.

The lecturer said he wished to speak, not as a special pleader for geography, but simply as a teacher and an examiner. And, if he ventured to offer advice which did not correspond with that sometimes given by distinguished geographers in this country, he could at least claim for it the benefit of considerable practical experience; for seven out of the last ten years he had been teaching geography week after week to at least two hundred different boys, and in the same time he had examined about fifty thousand candidates of various ages and nationalities.

He would submit the results of his experience in this way: he was disappointed, as a teacher, if he got more than 2 per cent. of failures in any of the ordinary examinations, e.g., the Oxford Locals, and he was astounded, as an examiner, by the constant absence of the *minimum* necessary for a pass.

If a typical geography paper were analyzed, it would be found that the questions might roughly be classified under four heads—(a) mechanical matters, such as maps and definitions; (b) physical, some being general, and others being confined to a particular area set for the particular examination; (c) political, especially with reference to towns; (d) commercial, especially with reference to the products of the particular area set.

As a rule, one of the "mechanical" questions, e.g., the map, was compulsory. In any case, these questions were the ones on which the duller pupils could be guaranteed against actual failure. If they did enough mapping, they ought to make certain of having all their definitions absolutely accurate, with

exact knowledge of instances. The only real trap here lay in the possibility of careless teachers allowing the pupils constantly to give the same instance, sometimes a most misleading one. For example, if pupils were habitually allowed to give "Salisbury Plain" as the instance of a *plain*, they must not be expected to realize that a plain was essentially low.

Putting these mechanical questions on one side, there were left physical, political, and commercial questions. The mass of the candidates considered physical questions to be questions which required pictorial illustration, political questions to be those which involved lists of places, and commercial questions to be those which involved lists of things. He did not propose to go into the idea at the back of all this, but simply to suggest to any teacher who found the geography lesson a worry, and who did not get satisfactory results in the geography paper, some practical lines which, within his knowledge, had given help to many teachers in similar circumstances. He frequently received communications from teachers who were anxious for advice as to methods of teaching geography. He proposed to deal with some of the questions asked—not in the order of their importance, but in the order in which they arose naturally in connexion with a lesson.

The first was: "What appliances should I have?" And the answer was that some were absolutely necessary, and the rest very useful but not indispensable. Amongst the absolutely essential for general class use were (a) a globe; (b) a very large wall "Mercator," on which currents of wind and water could be indicated; and (c) a blackboard, on which he recommended that coloured chalks should never be used *during a lesson*. Then each individual pupil should have (a) a coloured atlas, in which every place mentioned should be underlined; (b) outline maps, to be filled up in various ways; and (c) a text-book.

Amongst the things which were very useful but not essential he would reckon (a) a "museum" collected by the class, and including newspaper cuttings; (b) pictures of what the pupils were naturally unfamiliar with, but *never* to be given with a lantern in class; and (c) relief maps, exaggerated. Convey artistic truth rather than accuracy of proportion.

With such appliances, every term should be begun with a lesson or two on (a) the shape and motions of the earth; (b) the chief currents of wind and water; (c) the great phenomena of the science—*e.g.*, rivers and mountains; (d) the bare "necessaries" of human life; and (e) some standards of judgment for size, distance, height, &c. With regard to the last point, it was notorious that many people would hesitate to say whether a certain place was inside the Tropics, though they would have no doubt whether it was north of Havana or Calcutta, or south of Rio or Rockhampton. In these preliminary lessons all illustrations should preferably be taken from the particular area set, so that by the time the area itself was reached it would be already really familiar. In treating a set area a definite order of subjects should be rigidly adhered to, so that as each new area came up for treatment the class would approach it from exactly the same point of view.

The first subject was position, which included the latitude and longitude of a representative town or district, and the character of the surroundings—especially if water. The second subject was surface, with special reference to the relation of highland and lowland. And the first and second supplied all data for the third—climate, with special reference to the relation of sea and land. Along with these great "generalities," there should be constant, but rough, mapping of typical forms of the land—*i.e.*, making sure that the class should get, on the map question and the definition question, the necessary minimum of marks to prevent total failure. And, this once assured, the next point to be dealt with should be "particular" subjects—the vegetation, mineral wealth, and population of the area. The vegetation would follow naturally on the climate; and, if special attention were paid to those plants which provide necessities and those which provide luxuries for the inhabitants, the subject would be connected with previous knowledge about the distribution of "necessaries" in the world, and the personal interest of the class would be aroused. "Minerals" would bear a similar subdivision—fuel and machinery coming under "necessaries," and any other typical minerals being treated separately. The distribution of towns would follow naturally on the distribution of plant life and minerals, and special stress should be laid on those towns for the existence of which a reason could be given—especially a reason directly connected with the plants or minerals.

The lecturer concluded by remarking that the methods he had sketched out would be useful, not only in preparing for examinations, but also in developing the pupils' own power of thought.

Mr. LANGLER remarked that the whole lecture from beginning to end had been a definition of what geography really is. In his own school-days geography lessons meant simply the learning by heart of lists of names and terms. He assumed that teachers when preparing candidates for examination were guided by the questions set on previous occasions, and it was therefore in the power of the examiner to determine, to a very large extent, the character of the studies which should be pursued from time to time, and he felt convinced that, if teachers followed the lines indicated by Mr. Lyde, they would be able not only to secure success at examinations, but also to accomplish something of real educational value in the teaching of geography.

Mr. ORCHARD thought that the method advocated by Mr. Lyde was of great educational value, because it enlisted from the first the co-operation of the pupil with the teacher and involved the psychological principle of the association of ideas. Not only did this principle make the teaching of geography itself easier, but other subjects were being taught indirectly at the same time.

Miss MOLD considered that the remarks of the lecturer, although founded only on his experience in the teaching of boys, applied with equal force to the teaching of girls.

A vote of thanks to the lecturer concluded the proceedings.

## THE NEW DAY TRAINING COLLEGE.

PROF. ADAMS'S INAUGURAL LECTURE.

PROF. ADAMS delivered an address on "The Training of Teachers" at the opening of the London County Council Day Training College (October 6). He said that training of teachers is no longer a speculative subject, but one that must be faced and dealt with in some practical way. It can no longer be set aside. The question is not now "Shall teachers be trained?" but "How shall teachers be trained?"

### WHAT IS "TRAINING"?

Put in the shortest form, training may be described as the process of deliberately guiding or modifying the development of an organism. Only an organism can be trained, and all our views of training must take account of this fact. To begin with, then, training implies capacity: not necessarily a capacity that will naturally develop in the direction the trainer may select, but a capacity that renders development in that direction possible. A dog may be trained to walk on his hind legs—he has the capacity; though, if left to himself, he would probably never exercise it. The second element in the connotation of training is the presence of an external force guiding an internal. The creature trained has certain inherent powers which, if developed at all, must be developed according to the laws of their own nature. The working of these laws exemplifies the internal force. It is only by following the laws of dog nature that the trainer can get the animal to do such an undoglike thing as to walk on his hind legs. In some quarters we find emphasized a third element in the connotation of training. It is said that training is, on the whole, more concerned with physical processes than intellectual. We have tutors for the schools, but trainers for the river or field, while "to be in training" has an unequivocal reference to the body. The distinction is real to the extent that we must admit that it is recognized and acted upon in real life. But it has no psychological sanction. The mind can be trained just as the body can; only the process is both more difficult in itself and less easily demonstrable to outside observers. In direct proportion to the teacher's knowledge of the laws according to which a child's mind acts, and of the contents of the mind of the particular child acted upon, can he determine the action of that mind. The discussion of this matter belongs to the course of University Lectures on Education. Here it is enough to state the principle, and to draw the inference that the training of the teacher consists primarily in his acquiring this knowledge of child-nature and the materials upon which that nature works. The science of education must begin and end with the child.

### PAST ERRORS OF SYSTEM.

We who have been responsible for the working of the training-college system in the past have gone wrong along two main lines—(1) We have magnified methodology at the expense of true educational science. It is futile to say that there must be a right way and a wrong way of teaching everything. . . . We must recognize the need for different treatment of the same subject, and even the same part of the same subject, according to the differences in teacher, pupil, and attendant circumstances. The teacher must not be a machine, working in narrow, though carefully adjusted, grooves. (2) Our second line of weakness has lain in devoting too much time to mere teaching of subjects, and too little to the teaching of how to teach. For our pedantry and our over-elaborated methodology we must ourselves bear the blame; for the preponderance of subject-teaching circumstances are responsible. . . . At the beginning the training colleges really justified their name: they gave their chief attention to training how to teach. Unfortunately, many candidates came forward who knew neither the subjects to be taught, nor how to teach them. Naturally, these had to be taught their subjects first. The examiner then made his appearance, and all was lost. The colleges

soon developed into not very advanced secondary schools, in which a very little professional training was added to an intolerable deal of mere school study. In spite of all this, the training colleges succeeded in producing the kind of teachers the country wanted—thanks mainly to the pupil-teacher system. . . . This state of affairs has passed away since the establishment of pupil-teacher centres, the curtailment of the pupil-teacher's hours of actual teaching, and the freer scope allowed to the training colleges. Our college opens at an auspicious time. . . .

#### SECONDARY TEACHERS IN THE PAST.

The secondary teacher has always been worse off than the elementary in respect of opportunities for learning his profession. If the master of method in the training college got his pupils too late, the secondary teacher did not come under a master of method at all. He was plunged, without any preparation, right into the work of the school. He had the better preliminary culture-training, and thus could feel his way a little better than the pupil-teacher. Unfortunately his more important position while he was learning his business exposed him to keener criticism. He was placed at once in charge of a class, and held responsible for its progress. The irresponsible pupil-teacher made his serious blunders, no doubt, but he had behind him the assistant master and the head master to keep him in the right way, or, at the very least, to bear the blame of his deficiencies. The secondary man had not only to learn his profession for himself, but had himself to be responsible for the blunders by which he stumbled on to success.

#### "THE CRUX OF THE WHOLE QUESTION."

These initial blunders form the *crux* of the whole question. There are two ways in which the public can pay for the training of its teachers: it can pay in money, or it can pay in children. Given a certain large number of children each year to be injured intellectually, and to some extent morally, and the question of the training of teachers settles itself. All that is required is a sufficient number of subjects upon which raw teachers may experiment. . . . Let it be cordially admitted that there are a few—a very few—favoured men and women that require very little training. . . . These, however, are the last to deny the need of training. . . . At the other end of the profession there is a correspondingly small group—those whom no amount of training will ever turn into teachers. Between these two extremes we have the great body of average candidates for the profession, who all can, and do, in various degrees, profit by training. Further, the process of training is itself a process of sifting. The naturally gifted teachers lose nothing by being forced to make as many as possible of their initial blunders by proxy. The public are entitled to be protected from having even a few children sacrificed unnecessarily.

#### TRAINING NEED NOT INJURE THE PUPILS.

It must not be supposed that training is impossible without injury to the pupils. . . . In spite of the presence of students in training, practising schools are not noted for their inefficiency. It is possible for the carefully guided student to do quite as little harm as the ordinary teacher under ordinary circumstances. In other words, the inexperienced student makes up for his lack of technical skill by long and careful preparation, and by the concentration that the special circumstances of his case develop. The average student at his very best is equal to an experienced teacher at his average. It is assumed here that the practice lessons are so arranged as to fit in with the ordinary work of the school, though they need not necessarily form a part of it. The interests of the children are further guarded by the presence of the master of method. The student will make blunders—serious blunders—but at the end of the lesson the master of method can not only prevent the blunder having an evil effect upon the children: he can actually turn it to good account with pupils and teacher alike.

#### TRAINING OF SECONDARY TEACHERS.—THE REGISTER.

For secondary teachers training is no longer something in the air. On the 6th day of March was issued an Order in Council providing for the formation and keeping of a Register of Teachers. . . . To meet the increased demand for training that must necessarily arise from the operation of this Order, the Technical Board of the London County Council have made arrangements for the admission to this college of students who purpose becoming teachers in secondary schools. . . . A beginning will be made in January. The students will be under the direct supervision of the Principal, who will fix their course, and prescribe from time to time studies in observation, analyses of characters and temperaments, problems in school discipline, and similar matters, and discuss the results with them. . . . In addition to attending the full course of lectures by the Professor of Education and working the exercises prescribed by him, secondary students in training will be called upon to go through a course of study of the more practical parts of school and class management, and to attend various short courses on the teaching of the more important subjects of the secondary-school curriculum. In many cases these short courses will be delivered by specialists in the various subjects, and will in all cases be illustrated by examples of actual teaching in schools of typical excellence. . . . Arrangements will be made by which teachers at present engaged in their profession may obtain a course of training suited to their needs. . . . The University lectures

will not, as a rule, have special reference to the subjects of the examination for the Teachers' Diploma in London University. The professor must be left free to treat his subject in his own way. But tutorial classes will be conducted by the staff of the college so as to prepare the students for this examination, in order that the year's training may end with the official recognition that is necessary to secure a place on the Register.

#### A UNIVERSITY SCHOOL OF EDUCATION.

By Dr. J. P. GORDY,  
Professor of the History of Education in the School of Pedagogy of  
New York University.

IN connexion with the opening of the London County Council Day Training College attached to the University of London, it may be useful, as well as interesting, to note the most advanced American views on the work of such an institution. The following paper appeared in the *Journal of Pedagogy* for March, and the editor said of it that "a more lucid and forceful outline of the scope of an institution whose function it is to prepare teachers for their work has never been made."

The appointment of a faculty for the study and teaching of education by New York University is one of many indications that society is at last becoming dimly conscious of the place which the school ought to fill among the agencies of civilization. The world has been talking for a long time about the importance of education, but it has been very slow to learn that, if education is important, then the training of the teacher must be equally important. If, as Goethe said, life itself is the end of life, then education as preparation for life is the most important thing in the world; and, if education is of supreme importance, then the institution whose one function it is to prepare teachers for this work ought to occupy the foremost place among the institutions of civilization.

Why, indeed, should not the intending teacher receive special preparation for his work? Is his task so simple or so unimportant as to make the successful performance of it a matter of no consequence? A mind intent only on getting at the true relations of things, a mind which asks not what has been but what ought to be, in determining whether special preparations should be made by those who are to undertake a given work, would ask two questions only: Is the work important? and: Is it difficult?

Is then the teacher's work important? Upon the right training of the child, it has been truly said, all good causes depend. Is it difficult? No less difficult than that of so manipulating and modifying the manifold impulses that have been inherited from countless generations as to give supremacy to those that make for the well-being of man and of society. Schools for the study of veterinary surgery, and no school for the study of education; schools for the study of engineering, commerce, agriculture, pharmacy, dentistry, medicine, law, theology, and no school to show how to deal wisely with the growing mind! The time will come when such facts as these will seem among the most remarkable in the history of civilization. They are only one more example of the truth which has so often been illustrated: that which is first in the order of truth and of logic is last in the order of discovery.

Upon what plea—to take a particular case—can special preparation for the work of the physician be urged that does not apply with greater force to that of the teacher? Is it that the health of the body is important? But the body derives its entire importance from the mind. Apart from the mind, the body signifies no more than the tree that grows by the wayside. Is it that the work of the doctor is difficult? Who would venture to assert that the restoring to health of a diseased body, bringing it into a condition in which each organ performs its proper function, is more difficult than the work of the teacher—the work of so influencing the mind that it may develop to the point where each faculty can and will perform its proper function? The work of the physician consists for the most part in helping the body to resume its natural functions; the work of the teacher, on the other hand, is so dealing with the mind as to change the functions which are natural to it in its undeveloped condition, so that it may become natural for it to do that which it ought to do.

It would be equally easy, if one had the time, to show the superior claims of schools for the study of education to those of all other professional schools. With a single exception, all of them are trying to increase our command over the means of life. But schools for the study of education are primarily concerned with the enrichment of life itself. Even schools for the study of theology must be judged from the standpoint of education, using the term in its largest, truest sense. Do they tend to make life better, nobler, richer? Their value for civilization, in a word, consists in the light they throw on the needs of the human mind, on the sublime art of living. But it is the function of a school for the study of education to show how all the needs of the human mind may be most helpfully supplied, to consider the art of living from the most comprehensive point of view. The pagan Plato, the first and greatest of the philosophers of education, saw very clearly that not only religion,

but art, science, literature, government, life itself, may be utilized in the education of man.

We are then, I think, justified in concluding that schools for the study of education have at least as vital a relation to the well-being of society as any other professional schools whatever.

What can such schools do? Their work, in the last analysis, will consist of their attempts to answer three questions: What is the nature of the developing mind? What ought it to become? How, and under what circumstances, can it be best helped to grow from what it is to what it ought to be? We lay great stress on the various subdivisions of psychology, physiological, analytical, genetic, because it is from them that we hope to learn with constantly increasing accuracy what the "living, learning, playing child" is; we cross-question ethics and philosophy in the hope of learning what the ideal nature of the child is, in the hope of learning in what the true good of man and of life consists; we would go to anthropology and the history of education and of civilization not merely to gather inspiration for our work, not merely that we may become acquainted with the heroes who have lighted the torch of civilization and have passed it on with a brighter and brighter light to the present, but in order to learn what ideals beckoned them onward and inspired them to efforts which enabled them to raise themselves above the monotonous life of use and wont, and what methods they followed in the education of their fellows; and we would learn these things in order that our own ideals may be clarified and enriched, and our own knowledge of human development be made more accurate and discriminating. We would go to the great literatures of the world, to the dramas of Æschylus, Sophocles, and Euripides, to Dante's great poem, to the masterpieces of Shakespeare and Goethe, of Browning and Ruskin, to learn all that they have to tell us about education and life. We would go to the various branches of science, not merely to learn the conditions as to light, heat, and ventilation, under which the work of the school may be most successfully done, but also in order to learn how these departments of knowledge may be most effectively utilized in the interests of the developing mind. In a word, we would levy tribute on all the resources of civilization in order to learn all that they have to teach about the nature and ideal of human life, and the methods by which that ideal can be most successfully realized.

Do we claim to be trying to do all that is possible in these directions? Assuredly not. The contrast between the real and the ideal constitutes three-fourths of the tragedy—I had almost said of the comedy—of life. No one—not even Aristotle—ever saw more clearly in what the true greatness of a people consists than did Horace Mann. "The narrow strip of half-cultivated land that lies between her eastern and western borders is not Massachusetts," he once said; "but her noble and incorruptible men, her pure and exalted women, the children in all her schools whose daily lessons are the preludes and rehearsals of the great duties of life, and the prophecies of future eminence—these are the State." And no one ever saw more clearly the relation between the best that human life may be and the training of teachers. "I believe normal schools," he said, "to be a new instrumentality in the advancement of the race. I believe that without them free schools themselves would be shorn of their strength and healing power and would at length become mere charity schools and thus die out in fact and form. Neither the art of printing, nor the trial by jury, nor a free press, nor a free suffrage can long exist to any salutary purpose without schools for the training of teachers; for, if the character and qualification of teachers be allowed to degenerate, the free schools will become pauper schools and the pauper schools will produce pauper souls, and the free press will produce a false and licentious press, and ignorant voters will become venal voters, and through the medium and guise of republican forms an oligarchy of profligate and flagrant men will govern the land. . . . Coiled up in schools for the training of teachers as in a spring there is a vigor whose uncoiling may whirl the spheres."

Think of this lofty ideal, and then think of the pitiful reality which confronted Horace Mann when the first normal school that ever existed in this country opened in Lexington, Massachusetts, with three students! But his enthusiasm did not abate; he did not feel that the struggling was unavailing. He knew that in the never-ending struggle between the real and the ideal, although the real is always victorious, the ideal is unconquerable; that ideals are immortal, while the real of to-day is but the real of to-morrow; that each new real, in the course of time, must meet the fate of its predecessors and succumb to a real which is a closer approximation to the ideal.

It is this faith which inspires us to-day. And even if we should prove unfaithful to our trust, if the authorities of New York University should weary of the service they are trying here to render to society, this faith makes us believe that that work would not remain undone. For, while institutions come and institutions go, ideals go on forever. And the high ideal of the proper training of teachers is sure, in the course of time, to find a home in a larger and larger number of the great institutions of the country.

But, under such favourable circumstances as surround us, we shall not, cannot, fail. At the very heart of the largest centre of population in the United States, in a city that is doing more to dignify teaching and make it a profession than any other in the country, we have an unsurpassed opportunity for making an institution which will do all that is possible to gather into one great beam all the scattered rays of light which civilization can throw on the solution of its greatest problem—the education of man.

## REVIEWS.

### THE ETON SCHOOLMASTER.

*The Schoolmaster: a Commentary upon the Aims and Methods of an Assistant Master in a Public School.* By Arthur Christopher Benson. (Murray.)

Mr. Arthur Benson is a first-rate schoolmaster; on that point we need no further evidence than the present volume affords. But he is himself untrained, and he does not believe in the training of teachers, which seems to him "like training people to become good conversationalists." And in this view he is not singular. Dr. Bradley, Dr. Gow, Dr. James, Mr. Frederick Walker (we might extend the list indefinitely)—all of these are, or have been, excellent teachers, and all of them are profoundly sceptical as to the advantages of training. At first sight this appears a crushing argument against the College of Preceptors, which was founded for the express purpose of "affording facilities to the teacher for the acquiring of a sound knowledge of his profession"; but a little reflection will dispose of the paradox. "They that be whole need not a physician, but they that are sick." If we could ensure that none but Bradleys and Bensons entered the profession, we will not say that there would be no need of training colleges; for the best natures are bettered by nurture. But the need of training would not be apparent, as it now is, even to the ordinary member of Parliament. It is quite true that "a brisk idle man with a knack of exposition can be a scandalously effective teacher"; true also that "a man may have conducted classes satisfactorily at a training college, where the disciplinary difficulty is non-existent [Mr. Barnett and Prof. Withers would hardly agree to this]; but when he is face to face with a class of his own he may find that he has no real control." But it is not true that "the method of conducting a lesson must be a matter of idiosyncrasy." Still less true is it that "the boys who have been through a public school themselves have practically been trained as teachers as far as training can be given." It is, indeed, astounding, at the present day, to see this theory of "apostolic succession" once more trotted out—a theory which is again and again refuted in these very pages. "What is still needed is that schoolmasters should have a more definite aim—a theory of their art, and it seems a pity that so many of us schoolmasters should do our work in so fortuitous a way." This quotation, which concedes the very point to which we are contending, is not taken from Prof. Laurie or Mr. Findlay, or any "educational faddist," but from the author's preface. One other quotation which is still more to the point: "The Eton masters of the last century were virtuous and even godly men; but they let continue under their eyes a state of things in Long Chamber which was a positive disgrace to civilization. . . . I have no doubt at all that there are points to which we are blind that will rouse the wonder and wrath of good men after us." With this frank avowal can Mr. Benson seriously maintain that to have been flogged by Dr. Keate or lectured by Mr. William Johnson is all the training that a schoolmaster requires?

But, as we have already shown, Mr. Benson's practice is far better than his theory. He has the natural aptitude which, as we should be the first to allow, no training can impart, and, what is equally important, he has the gift of literary expression. As his sponsor, Roger Ascham, is read for the sake of such purple patches as the story of Lady Jane Grey reading the "Phædo," and as the "Tractate," which a colleague of Mr. Benson's pronounced "something that Milton wrote in his dotage," is still studied by other than candidates for a teaching diploma, so Mr. Benson's "Schoolmaster," by reason of the glimpses it gives of the life of, and the anecdotes about, Mr. Gladstone and Bishop Westcott, will find favour with masters to whom "The Education of Mankind" and "Apperception" are books with seven seals. And, though the cup of absinthe is cunningly mixed with honey, it is none the less a true tonic that will brace and stimulate. The chapters that have struck us most are those on the Boarding-house and on Moralities; but, instead of discussing them, which would take us too far afield, we prefer to give two or three extracts, grave and gay, as samples of Mr. Benson's happy vein.

I declare I believe that one of the most useful qualities I have found myself possess, from the point of view of teaching, is the capacity for being rapidly and easily bored myself.

A boy was sent to his tutor by the master of his school division with a complaint of serious insubordination. Little by little the story came out, and it appeared that he had put a dormouse down the master's

back, between his neck and his collar, as he sat correcting an exercise. "How was I to know that he drew the line at a dormouse?" said the boy tearfully, giving a dreadful glimpse of what had been tolerated.

Readers of "Elia" will recall a close parallel to this story in Lamb's "Reminiscences of Christ's Hospital."

One of the best disciplinarians I have ever seen put an end to what tended to be a disagreeable scene by saying to an ill-conditioned boy who had lost his temper, in a voice of unruffled suavity: "Smith, I don't think we see you at your best on this occasion."

It used to be asserted that athletics were valuable from a moral point of view, and kept physical temptation at bay. I do not think that this can be maintained, and I am sure that the personal popularity which the athlete enjoys, the almost admiration with which he is regarded, is of itself a great danger if a boy is prone to sensual faults.

We had marked other passages for quotation; but our object is to whet the appetite, not to satisfy it.

#### A GERMAN SURVEY OF ENGLISH LITERATURE.

*A History of English Literature, 600-1900.* By E. Engel.

Translated by Rev. H. Bent. (Methuen.)

This volume contains a biographical notice of the chief writers of English literature, together with extracts from their works. The notices are concise, clear, and accurate, and the extracts generally very well chosen. The writer has, however, aimed at a much more difficult object, namely, as he indicates in the introduction, to trace how a history of literature is at the same time a history of national character. We must confess that in the earlier part of the work it is difficult to see that this has been done to any striking extent, but the idea is worked out admirably by means of introductory notes to each chapter, from the seventeenth century onwards.

The first chapter, on "The English Language," is, perhaps, somewhat unnecessary in a work on literature, even for foreign students, as, in the first place, the subject must of necessity be so very briefly treated; and, secondly, it does not seem probable that changes in the forms of expression have had any very great influence on the evolution of national thought, but rather that the reverse process would more truly illustrate the influence of thought on form. The introductory sketch of the main characteristics of English literature is very valuable and suggestive, and brings out clearly its many-sided genius, its atmosphere of freedom, its national tone, and its imaginative vigour due to perpetual contact with Nature. It is observed that the poetry of the nineteenth century is less powerful in religious fervour and the passion of love than in the time of Elizabeth, and that this is probably owing to the severe check which our literature received from the Puritanism of the seventeenth century. Its adaptability and many-sidedness of poetic form are noted as owing to the fusion of various races in our population. In his account of our early literature up to Chaucer, Prof. Engel has aimed at a careful selection of the most striking works, and has illustrated many of these by a brief notice and an extract, thus avoiding the multiplicity of names and titles which only bewilder the student, without conveying any real meaning. The bibliography at the end of every chapter is useful for reference throughout the book. We are glad to note a special chapter on the Old English national ballad, as this is a feature of our literature to which too little attention is often given. The chapter on Shakespeare is carefully compiled, and, although it is difficult to bring forward much that is new on such a theme, the section on the study of Shakespeare in Germany and France gives us a somewhat fresh point of view, while the section on the Bacon "craze" is of special interest, in the light of its recent revival. The "craze" is thus succinctly stated: "Shakespeare's works reveal much knowledge and much wisdom. Bacon possessed much knowledge and much wisdom; consequently he alone can have composed Shakespeare's works."

The decline of English literature, and especially the drama, in the seventeenth century, is traced (1) to the effect of the Civil War, which caused the ruin of the literary revival; (2) to the influence of Puritanism, which produced a radical change in the national feeling; (3) to the prevailing tone of immorality, which came in with Charles II. The criticisms on poets of this period, more especially Dryden, are refreshing in their fearlessness, vigour, and impartiality. In the eighteenth century England succeeds to the leadership of the intellectual world; the Revolution of 1688 exercises an improving influence on the moral behaviour of the upper classes, and we observe in poetry the absolute supremacy of form and the disappearance of genuine deep feeling. The rise of the Free Thought movement is then traced, and its incalculable influence on France and Germany is noted. The

founding of the English Press by Defoe constitutes public opinion as a lever of civilization. The latter half of this century is marked by the great poetic revival of which the chief feature is the return to Nature. This principle is traced through the work of the historians and the rise and development of the novel, and finds its complete expression in the poems of Burns. The criticism of nineteenth-century literature is extremely interesting; but a proportionately fair estimation of the various writers is, of necessity, most difficult. Thus, a whole chapter is devoted to Byron as a poet; while the poems of Scott receive the briefest passing mention. Considering that, in our school public examinations, Scott's poems are often set as alternatives to Shakespeare's plays, while Byron's "Childe Harold" is only occasionally and fragmentarily studied, this estimate shows a vast difference from that of prevalent popular opinion. In the sketch of our modern novelists, also, Jane Austen is somewhat harshly dealt with; while the list of more recent authors is very incomplete. Where, for instance, are our writers on Scottish life, yachting, the sea, on life in Manxland, Italy, India, our English counties, or present-day social questions? It would be hard, indeed, perhaps almost impossible, to include a comprehensive survey of nineteenth-century fiction within the compass of the present handbook. We therefore gladly welcome this translation of a work which, on account of its carefully compiled information, well chosen extracts, and thoughtful criticism, forms a valuable aid towards the study of the evolution of our national literature.

#### SEMITIC HISTORY AND THEOLOGY.

"The Semitic Series."—(1) *The Early History of Syria and Palestine.* By Lewis Bayles Paton, Ph.D., Professor of Old Testament Exegesis and Criticism, Hartford Theological Seminary. (2) *The Theology and Ethics of the Hebrews.* By Archibald Duff, M.A., LL.D., B.D., Professor of Old Testament Theology, Yorkshire College, Bradford. (5s. each. Nimmo.)

(1) Prof. Paton limits Syria to the territory between the Taurus and Mount Hermon, and applies the name of Palestine to the remaining portion of the East Mediterranean coast. He presents the story of the West Semitic peoples during the period of the development of the Semitic nationalities—that is to say, from the earliest times down to the establishment of the Persian Empire. He has utilized most diligently the available historical materials, worked in the results of the most recent explorations, and set forth the essential points in a lucid and popular form. The central position of Syria and Palestine and the lines of trade routes establish a constant contact with Babylonia, Assyria, Egypt, and Arabia, so that all the discoveries in the Orient furnish assistance. The tables of Oriental kings, the bibliography, and the maps for different periods will be very welcome to students.

The earliest recorded inhabitants, Prof. Paton finds, were Semites—a race ethnologically and linguistically allied to the Hebrews—and their original home "was probably Arabia," though some other scholars still point to Central Asia, or even Africa; but he also deals with the indications of a pre-Semitic race. He narrates critically the old Babylonian supremacy (B.C. 3200-2500), the Amoritic migration (B.C. 2500-2230), the rule of the city of Babylon (B.C. 2230-1700), the Canaanitic migration (B.C. 1700-1553), the Egyptian supremacy (B.C. 1553-1392), the Hittite and the Aramaean migration (B.C. 1392-1376), the rise of the Aramaean nations (B.C. 1376-1160), the period of the Hebrew Judges (B.C. 1160-1020), the period of the early Hebrew Kings (B.C. 1020-885), the advance of Assyria (B.C. 885-745), the Assyrian supremacy (B.C. 745-625), and the new Babylonian supremacy (B.C. 625-539). "The Babylonian period closes with an almost complete disintegration of the nations that had come into existence in consequence of the Aramaean migration," and the new States that rose under the stimulus of Persia and of Greece belong to the next, the medieval, period of the history of Syria and Palestine. The mere enumeration of the stages of Prof. Paton's narrative will indicate the interest and the importance of his work. While handling the subject with the freedom of an historian, Prof. Paton is consistently wary and reverent; he exhibits a constant reluctance to rely on philological arguments, and he often defends impugned passages with skill and success (e.g., Gen. xiv., in his third chapter). The book is a most able, judiciously critical, and instructive addition to a valuable series.

(2) Prof. Duff's work will well reward a careful perusal. The earlier chapters, however, are very thin, and throughout the book the author maintains the attitude of an enthusiastic *cicerone*

rather than that of a severe critical expounder. Of course, he is well equipped for the inquiry, and he presents the evolution of the main elements and principles with great fervour and sympathetic appreciation; and that is a most important achievement. The chapters, however, must be read with a critical eye; there is a tendency to extremes in opinion without supporting proofs, or without adequate recognition of divergent views, and the attentive reader is not always compelled to assent to the train of argument. Still, neither these faults nor fancy qualities of style should be allowed to obscure the essential value of the main treatment. Prof. Duff gives "especial attention to Deuteronomy," and sets out in useful appendices an analysis of the Yahwistic and of the Elohist narrative, as well as the outlines of the original "D" documents and outline analyses of the oracles of Jeremiah.

#### THE "ENCYCLOPEDIA BRITANNICA."

*The New Volume of the "Encyclopædia Britannica."* Vol. VI. (being Vol. XXX. of the complete work). (A. & C. Black and the *Times*.)

The present volume runs from "Kabadian" (a bekdom of South Bokhara) to "Morvi" (a native Kathiawar State)—845 pages, with the usual abundance of maps, plates, portraits, diagrams, and other illustrations. The quietly persistent effort to keep up to date is evident in many of the articles: for example, Mr. John Morley's biography includes the gift of the Acton Library to him, and the "Monroe Doctrine" refers to Sir Frederick Pollock's recent article in the *Nineteenth Century and After*. Among the notices of living personages is a full and appreciative article on Lord Lister (with portrait). The large subject of "London" is amply outlined, the geography and statistics by Mr. H. B. Wheatley, the government and administration by Mr. F. F. Liddell—a great repertory of facts without comment. Mr. Macmorran, K.C., presents a very able sketch of "Local Government in England and Wales"; Lord Davey and Mr. Justice Baldwin of Connecticut deal at some length with "Law" in England and in the United States respectively; and Miss Anderson and the Hon. Carroll D. Wright treat similarly of "Labour Legislation." Territories and towns have their usual prominence: Kafiristan (by Sir G. Scott Robertson), Kashmir (by Sir T. H. Holdich), Korea (by Miss Bishop), Lagos (by Sir W. Macgregor); Liverpool (by Mr. W. F. Irvine), Madrid (by Mr. A. E. Houghton), Manchester (by Dr. W. E. A. Axon), Melbourne (by Mr. F. D. Fitzgerald); and so forth. Many scientific and social subjects are treated in concise monographs: Lifeboats, Light, Lighthouses, Liquid Gases (Prof. Dewar), Logic (Prof. Case), Machine Guns, Magnetism, Mathematical Instruments (Prof. Henrici), Measuring Instruments (Prof. Fleming), Medical Education, Martial Law, and Military Law, and so on. Among the more striking personal notices, we may mention (besides Mr. Morley) Kossuth, Leighton, De Lesseps, Liszt, Lowell, Sir John Macdonald, Cardinal Manning, Dr. Martineau, Marx, Millais, Moltke, and William Morris.

The prefatory essay, by Mr. Birrell, reviews "Modern Conditions of Literary Production." Though necessarily but a general sketch, it is incisive and suggestive, pungently critical, yet broadly tolerant. Mr. Birrell starts from the Copyright Act of 1842. It is an extraordinary change that he pictures, with very mixed features of advantage and disadvantage, the results of multiplied influences; and, "if it would be difficult to name these influences, to seek to estimate their several strengths would be clearly impossible." After all, "we may congratulate ourselves that wherever we look we see all the symptoms of life and activity in a people striving to get quit of the clogs of ignorance, and to enter upon the glorious inheritance that belongs by right to every cultivated intelligence."

#### SCOTTISH PHILOSOPHY.

*Scottish Philosophy in its National Development.* By Henry Laurie, LL.D., Professor of Mental and Moral Philosophy in the University of Melbourne. (6s. net. Maclehoze.)

"The history of Scottish philosophy begins, curiously enough, with an Irishman"—Hutcheson, whose grandfather, however, had migrated to Ulster from Ayrshire. Prof. Laurie, who has evidently come across Dr. W. R. Scott's excellent monograph on Hutcheson, does not handle the question raised by Dr. Scott as to what the "Scottish Philosophy," or the "Scottish School," precisely means. He speaks, however, of "the philosophy of

Scotland" and of "the course of philosophy in Scotland," and he follows the line of "national development," apparently without any dread of a charge of provincialism. We daresay the blood of the race was always well charged with corpuscles of speculation and argumentation; and Prof. Laurie, in his introduction, does refer to Duns Scotus and other Scottish doctors that were skilful in splitting hairs in scholastic philosophy, and admits that "the national genius was peculiarly favourable to philosophy and theology." However, there are good reasons enough for beginning with Hutcheson, and reviewing the more prominent teachers of philosophy, in the Universities or through the press, in Scotland, being Scotsmen, down to Ferrier. And, reasons or no reasons, Prof. Laurie justifies his work by his careful and able account of the individual philosophers and his correlation of their various achievements and tendencies. He keeps his eye on the "national" development, but he recognizes freely that the philosophy of Scotland "bore the impress of the methods which had been prescribed by Bacon, by Newton, and by Locke." He notes the psychological cast of Scottish speculation, but properly discerns that "the most deeply cherished aims of these thinkers were philosophical rather than psychological," and it is on this aspect of their thought that he concentrates attention, leaving aside their psychology wherever it is not inextricably intertwined with their philosophy. He claims justly, and demonstrates, that "the philosophy of Scotland is memorable for the impulse which it has given to modern thought." The volume is pleasantly and lucidly written, and the criticism is not so technical as to discourage the general reader. It is a very useful and suggestive work.

#### AN AMERICAN GUIDE TO GERMAN HISTORY.

*A Short History of Germany.* By Ernest F. Henderson. In two Volumes (pp. 518 and 472). (17s. Macmillan.)

Though Mr. Henderson's work occupies two comfortable volumes, spaciouly printed, it is still a "short" history of Germany; for he has kept the details severely in hand, and presented the main stream of facts in bold relief. The style is no part of the attraction. The value of the book lies in its presentation of events in due proportion and with the accuracy that comes of first-hand study of the documents. The author's "Select Historical Documents of the Middle Ages" was already favourably known, and now he tells us that the work was "compiled with the idea of laying a foundation for the present history." This incidental sidelight shows that the book has not been hastily put together, but is the result of prolonged and serious labour. The argument for German history, in opposition to French history, "as a guiding thread through the intricacies of general European history," looks like an afterthought. In any case, it seems unnecessary; it is not easy to see why there should be any rivalry, when both are so much needed. The work is to be cordially welcomed on its intrinsic merits, and that is enough.

The first volume takes us from the early Germans, huddled together in "refuge from beasts of prey and from the greed of man" in their lake-dwellings, down to the fall of Wallenstein and the Peace of Westphalia. Interwoven with the fortunes of the successive dynasties, and with the story of the wars of Charles V. and the Thirty Years' War, are luminous sketches of the age of chivalry, of the Hanseatic League, of the rise and progress of the Reformation, and of the Roman Catholic reaction. The second volume opens with the rise of the Prussian monarchy, passes on to the aggressions of Louis XIV. and the Spanish War of Succession, follows Frederick the Great in war and in peace, traces the downfall and the regeneration of Prussia, describes the struggle for constitutional government, and closes with the humiliation of Austria and France and the attainment of German unity. Plainly as the story is set forth, the author has an eye for dramatic effect, and he often lightens his sober page with incidental anecdotes—not always readily verifiable, yet generally helpful in impressing an incident or a situation. The series of maps illustrate the territorial changes most usefully. It would be ungrateful to carp at small details of language or of statement where the general history is lucidly and effectively presented, the life and spirit of the times is well caught and fixed, individual personages are characteristically limned, and the virtues of care, discrimination, and impartiality are fully manifested. These volumes are primarily for the library, and the student's attention should be directed to them there; but may we not hope for an early edition in a single volume at a price within a wider reach?

## GENERAL NOTICES.

## CLASSICS.

"Blackwoods' Classical Texts."—*Arrian, Anabasis, Books I. and II.*  
By H. W. Auden, M.A.

Mr. Auden has done well in venturing on the annexation of Arrian's "Anabasis of Alexander." The matter is of great historical importance, and centres in a great personality; and, if "Arrian's Greek is hardly more un-Attic than that of Xenophon," and is but a shade more difficult, it usefully extends the range of elementary study—an advantage of much more consequence than a pedantic restriction to Attic purism. The introduction furnishes a sufficient account of the historical position and of the leading personalities, and the appendices contain much useful information about Alexander and his army, Alexander in legend, Arrian's language and style, &c. The text is beautifully printed, though marred by occasional blunders: ἀρχουτος (page 2, third Greek line), αὐτῶ (page 76, line 7 from bottom), and general disorganization of the accentuation of καί (and ἐπὶ?) on pages 84-85—all which can readily be corrected. The notes are adequate and judicious. The index is not complete—perhaps is not intended to be complete; but we think it should be completed. Why is Αἴλιος given in the index, when Αἴλιος is the uniform reading of the text? The plans, portraits, and other illustrations are well chosen and good; but we miss a map of the Anabasis. There is listed, however, a "map of Alexander's Empire," which may supply the desideratum; only the binder has omitted it from our copy.

*The Elements of Greek.* By F. Kingsley Ball, Ph.D. (Price 6s. Macmillan.)

Dr. Ball has laboured hard to make the way easy for beginners, graduating the materials with fair success, and setting out the terminations in thick type. He gives exercises from the very start, and promptly submits complete sentences, fortifying the pupils with the necessary vocabulary. There is obvious reason for taking the accents from the first; but, on the whole, they carry with them a good deal of complication, and might be dealt with more easily at a later stage. "Paroxytone and Properispomenon Feminine Nouns" seems a rather formidable heading so early as page 35. There are general vocabularies and an index; also a number of serviceable illustrations. The work is competently done, and the printing and get-up are excellent.

## SCIENCE.

*Class-Book of Geology.* By Sir Archibald Geikie. Fourth Edition. (Macmillan.)

The author's position as an eminent authority on his subject and his particularly charming literary style combine to make him very popular as a text-book writer. This particular volume has had a very wide circulation, and the new edition is largely rewritten, rearranged, and extended, especially with reference to the leading facts of American geology. It would be hard to improve Parts I. and II., dealing respectively with "The Materials for the History of the Earth" and "The Structure of the Crust of the Earth." In Part II. (Rocks, &c.) we should like to see a little more on the symmetry of crystals, and an explanation of such common terms as "dome" and "pinnacoid," together with a few more illustrations of rock sections; and in the stratigraphical part it is disappointing to find the Ordovician included in the Silurian, while there is no figure of *Olenellus* and no allusion to Graptolite zones. These, however, are small matters; but the "thorough revision of the Table of the Vegetable and Animal Kingdom," supplied by Dr. F. L. Kitchin, is very faulty in many respects. *Selaginella* belongs to the Lycopodiina, not to the order Lycopodiaceæ. No proper distinction is made between Algæ and Fungi. To include Tunicates under Molluscoidea is a grave error. Pteropods are no longer considered a distinct class, but rank as specialized Gasteropods; while to suggest that *Hyolithes*, &c., perhaps belong here is a very doubtful procedure indeed. And the claim of *Amphioxus* to rank as a primitive Vertebrate is not now disputed by expert zoologists.

## MATHEMATICS.

*An Elementary Treatise on Kinematics and Dynamics.* By Prof. James Gordon Macgregor, M.A., D.Sc., LL.D., &c. (10s. 6d. Macmillan.)

A new edition of Prof. Macgregor's work will be welcomed by the many that are already acquainted with the great value and excellence of it in its original form. A notice of the appearance of the new issue is all that is needed, for in the preface the author states that very few alterations and corrections have been found requisite.

*Easy Mathematical Problem Papers.* By Charles Davison, Sc.D. (Blackie.)

It is likely that this series of more than a hundred short problem papers will prove of great value to teachers as fresh material for class purposes. Questions on arithmetic, on algebra—as far as the binomial theorem—on Euclidian geometry, and on the more elementary portions of trigonometry are included in the author's scheme. The question

papers are followed by a further collection of miscellaneous problems on the same branches.

*First Stage Mathematics.* Edited by William Briggs, LL.D., M.A., F.C.S., &c. (2s. Clive.)

This volume will be especially acceptable to students preparing in Mathematics for the South Kensington examinations (Elementary Stage). It includes all the Euclid and algebra required, and, in addition, the papers in arithmetic set at the examinations during the past twenty years. The methods of treatment present little that is fresh; and, in dealing with the propositions of Euclid, the language of the earlier writers and the older forms of proof have generally been preserved. The individuality of the book will be found in the many very helpful notes and explanations, all of which tend to give the student a clear idea of the theory and an insight into the best way of studying it methodically. Although the writer always gives precedence to the orthodox demonstrations of Euclid's propositions, he in many cases submits alternative proofs, notably in dealing with the celebrated I. 47, on which several lines of argument are indicated. The latter portion of the volume is devoted to the algebra prescribed; and following this section is a very useful appendix on synthetic division and on the factorization of symmetrical expressions in three symbols.

## MODERN LANGUAGES.

*Intermediate French Grammar.* By G. H. Clarke, M.A., and L. R. Tanqueray, B.-ès-L. (3s. 6d. Murray.)

"C'est un cours intermédiaire"—more than elementary and less than complete—"qui vise à être un répertoire des formes usitées de nos jours, un résumé de celles de l'ancien français, et à expliquer brièvement les principales difficultés syntaxiques." All this it does simply and pleasantly, "outlines of historical accidence" being dropped in by the way, and syntax being treated in friendly fashion along with accidence under each of the parts of speech. We should have liked to see a clearer realization of the difference between pronouns and adjectives. For instance, where is the logic of teaching that *chacune* and *le même* are "pronouns" in "Chacune de ces cannes" and "Je lui demande un autre verre, il me rapporte le même"? Again, it seems a gratuitous complication to say that the infinitive is used "as complement" in "La patience est l'art d'espérer" and in "Défense d'afficher." There are no exercises; but the selection of grammatical points is judicious, and the presentation is clear.

*English and Portuguese Grammar and Commercial Handbook.* By the late Prof. C. Mascarenhas, L.J.A., E.C.B. Revised by John C. Mascarenhas, F.C.S., R.P.A. (Hirschfeld.)

The matter of this book, it appears, was left in manuscript by the late Prof. Mascarenhas, and has been "carefully revised and brought up to date," and specially adapted to the commercial requirements of the day," by his son, who is Professor of Portuguese at the City of London College. Moreover, "the whole of the work is published on the authority of the Royal Portuguese Academy." For all that, it would be the better for further revision, preferably by some one with a stronger grip of English, and of grammatical and educational principles. An intelligent and industrious student would, no doubt, pick up a working knowledge of Portuguese from the book. But it seems superfluous to talk of genitive (or rather "genetive"), dative, and ablative cases, whether of nouns or of pronouns. The pronoun, we are told, is "one of the most difficult of the parts of speech in the language," and there are no fewer than eight classes. The "conjunctive" pronouns turn out to be "reflective," and the first example is "*elle me fallou, he spoke to me,*" where *me* is not "reflective" (in any ordinary sense), and need not be labelled "conjunctive" for any conceivable grammatical purpose. *Se in diz-se or se diz* ("it is said") "becomes a particle, giving the verb the passive voice." While there is a class of "relative" pronouns, the "possessive" pronouns are "of two kinds, relative and absolute." Then there are "mixed" pronouns—*m'o, t'o, &c.* (as "*eila m'o deu, he gave it to me*"). This is sheer logical chaos. What can be the use of teaching a pupil that "verbs of motion govern the dative or ablative: *vou á cidade, venho da cidade*"? Or that "passive verbs require the ablative after them, as *Os máos são abominados por Deus*"? There are numerous misprints; an unfortunate one in the noun declension (page 8), where the "accusative" and "ablative" forms are interchanged.

## HYGIENE.

(1) *Hygiene: a Manual of Personal and Public Health.* By Arthur Newsholme, M.D., F.R.C.P. Lond. (Gill.) (2) *The Hygiene of Schools and Scholars.* By H. Beale Collins, D.P.H., &c. (Ralph. Holland, & Co.) (3) *The Imperial Health Manual.* Edited by Prof. Antony Roche, M.R.C.P.I., &c. (Baillière, Tindall, & Cox.) (4) *Life and Health.* By Albert F. Blaisdell, M.D. (4s. 6d. Ginn.) (5) *The Normal School Hygiene.* By S. Slefrig, B.Sc. (3s. 6d. net. Normal Correspondence College Press.)

(1) Dr. Newsholme's volume, which has been in high favour for some twenty years, has been almost entirely rewritten; a considerable quantity of new matter (including new chapters dealing with dietetics, rade nuisances, meteorological observations, tuberculosis, disinfection, and vital statistics) has been added; and the treatment has been

adapted to the requirements of medical students, without prejudice to the interests of science students and general readers. There are many useful illustrations. The book is a thoroughly good piece of work—comprehensive, lucid, practical, well informed, and trustworthy.

(2) Dr. Collins addresses himself specially to teachers and parents. He is anxious to dissipate "the deep-seated belief that the ills which sanitary officers endeavour to remove are part of the dispensation of Providence," and to "teach the young that 90 per cent. of the illness and trouble in this world is due to man's own fault, mostly carelessness and selfishness." Basing his work on a general knowledge of the child's physique, he arranges his exposition "round the scholar's body to begin with, roughly entering on the anatomy and physiology of the different parts"; then he deals with ventilation and warming, both theoretically and in application to building, &c.; and he concludes with a chapter on school accidents. The illustrations are appropriate. A very sensible and useful book.

(3) Prof. Roche presents "the authorized English edition of the official health manual issued by the Imperial Health Department of Germany"—the "second English edition, revised from the latest German edition." The work explains the structure of the human body, together with the organic functions; examines the necessities of life for the individual man—air, water, food, clothing, the dwelling, exercise and recreation; deals with man in his social relations—settlements, commerce, rearing of children (home and school), employment and wages; and reviews the multiplied dangers to health from climate, disease, and accident, with a supplement on sick nursing and an appendix containing some of the German laws relating to health. The work is able and instructive.

(4) Dr. Blaisdell offers "a text-book on physiology for high schools, academies, and normal schools"—a shorter and simpler book than his "Practical Physiology," on which he has drawn for some of the material and many of the figures (169), the latter being exceptionally good. The treatment is lucid and judicious, and "lays marked emphasis upon such points as bear directly upon personal health." About 150 experiments are given. The book is notably well printed. It should be exceedingly useful.

(5) Mr. Slefbrig deals in minute detail (480 pages) with the hygiene of the school premises and with the hygiene, physical and mental, of the scholar. His exposition is sound and lucidly arranged, with useful summaries, questions to each chapter, and various official regulations. There are numerous illustrations. A very comprehensive and serviceable manual.

#### MISCELLANEOUS.

*More Tales of the Birds.* By W. Warde Fowler. (Macmillan.)

There are nine tales, told by a consummate story-teller, all charming in tone, in suggestion, and in literary deftness. They are primarily addressed to young people, but they will equally delight elder generations, and the moral lessons will take hold of every reader incidentally, without obtrusion or even mention. Mr. Fowler knows all about the birds, and his tales cannot but attract his readers to know and care more about them and about all other animals. The stories are conceived and expressed with remarkable literary skill, but the art is cunningly veiled and the narrative is perfectly simple and natural. There are eight excellent full-page illustrations by Frances L. Fuller. This should be a very favourite prize book; and every reader will hope that there are still more such tales to follow.

"The Great Public Schools."—*Westminster.* By Reginald Airy, B.A. (Bell.)

Mr. Airy writes with the affectionate interest befitting a former Queen's Scholar, tracing the most salient lines in the development of the school from its foundation, recording the most prominent of the great names connected with it, and interspersing not a few perennial anecdotes. The mightiest of the Westminster potentates is, of course, Busby; and there are some—and probably Mr. Airy among them—that would rank Dr. Rutherford's head mastership "not much lower than that of Busby." A capital specimen of the prologues and epilogues represented with the Latin play, and lists of deans, head masters, &c., are given in appendices. The work is well and carefully done, and the illustrations, which are mostly from admirable photographs taken by Mr. William Rice, are abundant and effective.

#### MAPS, CARTOONS, AND WALL SHEETS.

The school-children of these days know not their good fortune in comparison with elder generations. Here are Messrs. W. & A. K. Johnston's *Imperial Maps of Africa and Scotland* (21s. each), the like of which (even of the same firm's construction) have never been seen on school-room walls. They are ample, clear, detailed, accurate, up to date, and finished in the highest style of workmanship. They are fit to teach geography without a teacher. Smaller, but equally well finished, is Messrs. Johnston's special *Map of South Africa* (41 x 50 in.), showing all the electoral divisions, and marking the towns according to their importance. This, too, of itself compels the learner. Nothing better could reasonably be desired. By the way, there is a *Geographical Handbook* (price 3d.), which supplies full and lucid explanations;

and the publishers offer to send it gratis to any teacher on application—an offer that teachers will do well to avail themselves of. From the same publishers we have received also a sample of their "Everyday Life Series of Object Lesson Pictures"—*The Breakfast Table*, a simple, natural, and artistic representation (though the girl at the table might honestly have been made more attractive); a sample of their "Types of Nations"—*The Spaniard*; a sample of their "Natural History Plates"—*British Game Birds*; and samples of their "Illustrations of Trades"—*Aerated Water Manufacture, Salt Manufacture, and The Potter*. The size is 28 x 31½ in.; and the price is 3s. 6d. each. It is a fastidious teacher that would wish for anything better in design or in execution, or more likely to fix the children's interest.

Messrs. Stanford's *New Orographical Map of Europe* is a very careful and elaborate production, which should prove highly instructive. It comes to us in the form of four sheets (25 x 19 in. each), which constitute an imposing whole.

Messrs. Philip send us Set 1 of their *Series of Map-Building Sheets*—four maps containing the British Isles, printed on special blackboard paper, and attached to slip, 6s. The maps may be had separately, eye-letted, 1s. 6d. each. The size is 40 x 34 in. They are excellently adapted to their purpose.

Messrs. Bacon's *Interesting Drawing Charts* (16 x 22 in.) contain twenty-four outline drawings of mammals and birds. The lines are bold and effective, and the selection is judicious as well as varied. 5s. 6d. on strong paper; 10s. 6d. cloth.

Messrs. Chapman & Hall show *Examples of Elementary Drawing and Design for Schools* in two sets (23 x 15½ in., inside margins). Set 1 contains twelve autolithographs of plant forms; set 2, twelve autolithographs of natural forms (frog, sea-horse, shell, butterfly, &c.). In each set half the subjects are in outline, and half are tinted. "The primary object . . . is to teach elementary freehand and the elementary principles of light and shade"; and the subjects are "selected with the view of illustrating some ornamental motif or principle of design." They are admirably drawn and printed, and should prove very attractive. The author is Mr. G. Woolliscraft Rhead, R.E., Art Director, Southwark Polytechnic. 12s. net, each set.

Messrs. Nelson's "Royal Portfolio—Geographical Series"—has received a capital addition in *The Suez Canal: Troopship passing through* (coloured, 16½ x 24 in.). This picture will do more than much description to enable pupils to realize the actual conditions.

Messrs. E. J. Arnold & Son, Leeds, have just published a considerable series of "A. L." History Pictures" (40 x 35 in., in full scale of colours; from 4s. net, each). We have No. 1, *Ancient British Life*; No. 10, *Battle of Hastings (Death of Harold)*; No. 30, *Dismissal of Wolsey*; No. 40, *The Armada in the Channel* (cloth, mounted); No. 50, *The Landing of the Pilgrim Fathers*; and No. 80, *Nelson at Trafalgar—The Fatal Shot*. A descriptive slip accompanies each picture. The style is bold, and the colouring vivid; and the series represents important events or incidents in the history of the country, while illustrating national life, dress, architecture, manners and customs. The pictures are by Mr. W. S. Stacey, the distinguished cartoonist; and they have all been "selected by one or other of H.M.I.'s, and all are correct in regard to matters of detail, dress, armour, &c." They should be attractive and impressive.—Messrs. Arnold also publish *The "A. L." Genealogical History Chart* (42 x 35 in., in full scale of colours; 5s. net), by L. Williams, State School, Surat, Queensland. The coloured portraits of all the English sovereigns circle round the chart, and inside are the lines of descent in corresponding colours, with maps showing the British Isles in Saxon times and the extent of the British possessions now. Certainly a suggestive device cleverly and clearly executed.

The Society for Promoting Christian Knowledge have made twelve additions to their series of "Biblical Wall Diagrams" (31½ x 24 in., printed in colours; from 1s. each). The subjects are *Mistletoe, Water Plantain and Cuckoo Pint, Coconut Palm, Nettle, Fungus, Barley, &c.* They are all carefully and effectively presented.

The Religious Tract Society issue two fresh "Scripture Cartoons"—No. 30, *Jesus and the Little Child*, and No. 31, *The Nativity* (45 x 35 in.; from 1s. 4d. each)—fine additions to the series, and effective on the schoolroom wall.

Messrs. George Bell & Sons publish in their series of "The Fitzroy Pictures" for schools four prints (19 x 36 in.; 10s., on stout paper, or 3s. each, net), representing *The Months*, three months on each print. The pictures are designed by Mr. Heywood Sumner, and reproduced in colours by Mr. James Akerman. Design and execution are alike successful.

Messrs. Blackie offer a series of eight "French Conversational Sheets"—*French in Pictures and Talk*—several French words being prominently printed under each picture to be worked into conversation upon the scene depicted. The size is 23 x 18 in. The sheets are judiciously conceived and skilfully executed. There is also a manual for teachers' use (2s. 6d.).—Messrs. Blackie also publish *The Phonic Reading and Word-Building Sheets* (30 x 26 in., inside margins; 6s.)—seven sheets of three-letter syllables formed by varying combinations of consonants with the vowels in succession. They provide very useful matter for intelligent exercise.



## GIFT-BOOKS AND PRIZES.

## I.

## HISTORICAL TALES.

Prominent among the many Christmas books provided by Messrs. Nelson & Sons is *Stanhope* (3s. 6d.), by E. L. Haverfield, whose previous stories are very favourably known. It is "a romance of the days of Cromwell." The religious and political divisions of the time are broadly influential, and the reader passes through the Battle of Naseby; but there is also a mysterious element of private romance. The characters are ably drawn, and the spirit of the time very capably presented. The tone is very fine throughout, and the interest is well sustained.

In *Fallen Fortunes* (Nelson, 3s. 6d.), E. Everett-Green narrates "the adventures of a gentleman of quality in the days of Queen Anne," the opening scene being the field of Ramillies. Thanks to a scheming kinsman, the pastimes of London town, a startling discovery, and fickle fortune, the hero is kept in a whirl of interest, and social life is presented in many aspects. The volume is worthy of the author.

*The Last of the Cliffords* (Nelson, 5s.), by Eliza F. Pollard, takes us back to the Civil War, in which John of Linton, an adopted son of Lady Anne Clifford, bears an active part. Hampden, Prince Rupert, Fairfax, and other leaders cross the pages, which are kept lively with private as well as with public interest.

Mr. Herbert Hayens is now a prolific writer. *At the Point of the Sword* (Nelson, 5s.) is one of his new stories, packed full of adventure, much of it sufficiently astonishing, during the Peruvian war of liberation towards the end of the first quarter of last century. Bolivar himself is introduced. The hero, however, is always to the front; and there are gallant Spaniards as well as gallant Englishmen and Peruvians.

*Ralph Wynward* (Nelson, 2s. 6d.) belongs to the time of Elizabeth. Ralph runs away from a hard home, with a friend, to join Drake, but lands in worse troubles. There is much adventure in Ireland, culminating in the sack of Youghal; and there is an outcome of manliness and unselfishness.

The story of *The Adventures of Captain John Smith*, "captain of two hundred and fifty horse, and sometime President of Virginia" (Longmans, 5s net), is rewritten by E. P. Roberts from the writings of the doughty warrior and his contemporaries. It includes the romantic episode of Pocahontas, on which historians are now looking gravely askance; indeed it appears to be quite uncritical. It lacks the charm of Smith's own writing, and contents itself with a poor literary standard.

## STORIES OF ADVENTURE.

To be sure, the tales that we have just noticed, though strung on an historical thread, are brimful of adventure. The present group, chronicle "adventures" without any particular historical setting; and "adventures" must be taken in a very comprehensive sense.

Thus, *Sala's Sharpshooters* (Nelson, 3s. 6d.), by Harold Avery, who is now getting to be voluminous, does not take the reader into any historical field of battle, though suggested by the South African War. It professes to be "the historical records of a very irregular corps"—a corps formed by schoolboys, with all the available paraphernalia of war. There is an armoured train, night manoeuvres, attacks on forts, and all the rest of it; and there is a nursing staff. The corps is abundantly adventurous; and its doings will be followed with amused interest to the last page.

Then here is a very fine story of "the travels and adventures of two cherubs"—*All Astray* (Black, 3s. 6d.)—by the indefatigable Ascott R. Hope. It opens with the startling phenomenon of "running away to school"; after that, anything. But it was a prolonged and complicated effort, and the heroes took a still longer way in coming back for the holidays. Mr. Ascott R. Hope is a past master of escapades and episodes, quietly humorous, and deftly suggestive; and his healthy tone, charming ease of style, and sympathetic intelligence are as fresh as ever, while his cunning in the ways of boys seems inexhaustible.

The very title of *The Lost Squire of Inglewood* (Nelson, 2s.), by Thomas Jackson, prepares us for adventures. Accordingly we are led into adventures of a surprising character, even "in the caves of Robin Hood." One would scarcely anticipate a football match of Notts v. Aston Villa by the way. The hero belongs to "John Peel's country." Of course, he runs away from school, and finds adventures, devises stratagems, "bags" a policeman, discovers Robin Hood's treasure-chamber—and something even more important—and lives happy ever afterwards. A capital story of its kind.

If you want to go afloat, then there is *The Cruise of the "Katherina"* (Nelson, 1s.), by John A. Higginson, "late Royal Mail Steam Packet Company," who has presumably smelled salt water and kamana about the world a bit. The "Katherina" sails from Melbourne for Kamana Island, and there is a South Sea crime with incidental matters to clear up and settle. A breezy story, with a tender chord as well as manly strands running through it.

## STORIES OF ROMANCE.

Mr. Rudyard Kipling turns aside from high Imperialistic themes to tell *Just So Stories* to little children, appending to each story some verses, and furnishing quaint and curious illustrations of his own drawing (Macmillan, 6s.). He tells "How the Camel got his Hump," "How the Leopard got his Spots," "How the Alphabet was made," and so on—a dozen marvellous tales. It will be good mental gymnastics to attempt to follow these fresh efforts of Mr. Kipling's flexible imagination. A pretty, attractive, and unconventional volume.

Mr. Andrew Lang's annual is *The Book of Romance* (Longmans, 6s.), an entirely delightful book in matter and in get-up. It contains a score of the old romances—about half the volume being occupied with "Tales of the Round Table," after which there are "The Battle of Roncevalles," "The Pursuit of Diarmid," "William Short Nose," "Wayland the Smith," "Robin Hood," and "Grettir the Strong." All the romances except the last are written by Mrs. Lang. There are eight coloured plates, thirty-five full-page plates, and a number of insets; and the binding is handsome and charming. The illustrations are by Henry Ford. "Omne tulit punctum," &c.

*The Story of the Sword* (Dent), by T. S. Peppin, with ten capital illustrations by G. W. C. Hutchinson, tells in its own way the adventures of "a boy called Jack," who lived "once upon a time, long and long ago." The author has found much curious matter about this personage in "the Ancient Records," especially about the birthday gift of a sword to him by his aunt. "It is thy making and thine undoing. It is thy glory and thy shame. It is thy friend and thine enemy." So Jack, aged twelve, went forth, girded with his sword, to the Dark Wood, where lived the Red Necromancer; but the great enemy was the Black Necromancer, who lived on a hill, and with whom Jack tried conclusions at the mature age of fifteen. Charmingly told and attractively got up.

## FOR GIRLS.

We group these volumes together under this head simply because the authors say they are "for girls." But, for our own part, we fancy that girls will find much to interest them also in the historical tales and the stories of adventure and romance which are supposed to be primarily written for boys; and it is likely enough that boys will find interest in some of these books "for girls."

Now here is a big and pretty volume about *Two Little Travellers* (Nelson, 2s. 6d.), by Ray Cunningham—that is to say, Mrs. Frances Browne Arthur. They are the motherless children—boy and girl—of Captain Dene, who goes to the war in South Africa, leaving them with his two aunts. Of course they go amissing, and have strange adventures. Perhaps the Satellite Circus Company fell in with them. Let us hope they were recovered. Once you begin you will read till you find out.

*Fifine and her Friends* (Nelson, 1s. 6d.), by Sheila E. Braine, takes us over to Normandy and the Château de la Marguerite, an "owl's nest" on the cliff. Friend Robineau is a prolific creator of events, and is involved in the mystery of the gold thimble. Then there are the grown-up friends, and especially the artist, with whom Fifine explores the Wolf's Hole and the Secret Passage. And eventually is evolved and cleared up the great aristocratic mystery of the family of Fifine. A bright and interesting story.

*Three Scottish Heroines* (Nelson, 1s. 6d.), by Elizabeth C. Traice, is a series of stories founded on the facts of the lives of Grizel Hume (1684), Grizel Cochrane (1684), and Winefred Countess of Nithdale (1715). Mrs. Traice tells the stories in simple language and sympathetic tone, without violence to the history and without letting the history overbear the tale. A charming book.

*A Happy Failure* (Nelson, 1s. 6d.), by Ethel Dawson, tells how three daughters, brought up in good circumstances, but suddenly left poor by the death of their father, contrived to start a business—ran a boarding house at St. Kerrans, as servants to their mother—and what came of it. The story is well managed, and the interest is kept fresh throughout.

## VARIOUS.

*The Coronation Book of Edward VII.* (Cassell, 10s. 6d.), by W. J. Loftie, B.A., F.S.A., is a magnificent memorial of the great historical ceremony. Mr. Loftie tells all about crowns and thrones, the regalia, coronations and coronation preparations, processions, and celebrations, having special regard, of course, to the Coronation of Edward VII. There are twenty-four coloured plates, and somewhere about two hundred illustrations, many of them in colours. A most handsome and charming volume.

Messrs. Cassell have also just issued the second volume of *The Nation's Pictures* (12s. cloth, 15s. half leather), containing admirable reproductions of forty-eight notable pictures—a splendid collection, well fitted for a Christmas gift. Nor should we forget *Living London*, edited by George R. Sims, the first volume of which we mentioned two months back. It offers an extraordinary variety of interesting matter, with lavish illustration.

Mr. George Allen, too, has brought out the second volume of *The Living Rulers of Mankind* (7s. 6d.), by the Rev. H. N. Hutchinson, B.A., F.G.S., &c., with 240 illustrations. The subjects run from Japan to the

United States, and the rulers, with their families and palaces and yachts and so forth, are liberally represented. The work is well written and delightfully got up.

*The Pothunters* (Black, 3s. 6d.), by P. G. Wodehouse, recalls us to the common earth, at Aldershot, and entertains us with varieties of schoolboy sports, and a mystery of lost cups (or "pots"). It is written with acuteness and verve, but lacks refinement.

*The Other Boy* (Macmillan, 4s. 6d.), by Evelyn Sharp, is for younger readers. The other boy is projected from London into a country family, and, after varied tests, is voted "an absolute rotter: he can't do anything but *grind!*" Well, see what comes of it. The story is worked out with great spirit and a strong dash of humour, in full intelligence with boy-and-girl life.

*Our Little Patients* (Nelson, 1s.), by Ellen A. Fyfe, is a series of five stories written from the point of view of a children's hospital nurse, and presented with dramatic effect. The tone is deeply sympathetic and religious.

*In Flora's Realm* (Nelson, 3s. 6d.) is "a story of flowers, fruit, and leaves," prettily written by Edward Step, F.L.S., with 133 illustrations, several of them coloured. Flora is not the goddess, but a small inquisitive girl of twelve, "ever asking the reason of all things," and "the garden was Flora's delight." A charmingly simple and instructive book.

*Peterkin* (Macmillan, 4s. 6d.) is a delightful new story woven by the deft fingers of Mrs. Molesworth. It has its adventures, stratagems, and mysteries, but all after a quiet fashion; and, though it is a story about a child and for children, it will be read with close interest by boys and girls that we must not call children, and by grown folk as well. It is beautifully conceived, and it is worked out with the dexterity of experience and with the insight that comes of love of children.

#### FOR CHILDREN.

*The Friend of Little Children* (Nelson, 3s. 6d.) is a short life of Christ, written by M. A. Hoyer in simple language, with good illustrations by John Lawson, twenty of them full-page, and coloured plates (large quarto). An excellent companion volume is *Sunday Afternoon* (Nelson, 2s. 6d.), containing "the sweet stories of old retold"—Bible stories—with twenty full-page coloured pictures (oblong quarto). The language is simple and the telling is skilful; and the pictures are capital. Both these volumes are beautifully printed and attractively bound in picture boards.

Messrs. Nelson also provide picture books in abundant variety. There is *Mother Hubbard's Cupboard of Nursery Rhymes* (1s.); and *Red Riding Hood's Picture Book*, *Sunny Hours*, *Pet's Playtime*, *Beaks and Bills* (My Birdies' Book), and *Fur Coats* (6d. each); also *Ride a Cock Horse*, *Red Indians*, *The House that Jack Built*, *Pick-a-Back*, *Country Cousins*, and *What's O'Clock?* (3d. each). All these examples are interesting in matter and full of capital illustrations. It may concern some folk to know that Messrs. Nelson's picture books "are entirely designed and printed in Great Britain."

Messrs. Methuen offer *The Visit to London*, told in easy verses by E. V. Lucas and presented in two dozen full-page coloured pictures by F. D. Bedford. The visitors had a good time and saw a great deal. The get-up is substantial as well as pretty.

#### NEW EDITIONS AND REPRINTS.

Messrs. J. M. Dent & Co. provide two admirable reward books—*A Child's History of England* (5s. net), narrated with much insight as well as with simplicity and picturesqueness by Charles Dickens, and furnished with about a hundred illustrations (many of them full-page) by Patten Wilson; and the immortal *Adventures of Don Quixote of La Mancha* (5s. net), "specially adapted for young people," and provided with forty or fifty full-page illustrations by W. Heath Robinson. They are both capitally got up, and each contains some five hundred pages, more or less.

Messrs. Macmillan issue a timely reprint of Miss Yonge's *Unknown to History* (2s. 6d.), a favourite story of the captivity of Mary Queen of Scots, with illustrations by W. J. Hennessy; and a dainty edition of Mrs. Gaskell's charming story *Cranford* (2s.), with a preface by Mrs. Anne Thackeray Ritchie, and Hugh Thomson's illustrations.

Mr. Elliot Stock brings out a cheap edition (2s. 6d. net) of *Tom Andrews*, a vigorous story of Board-school life by Bishop Chandler, of Bloemfontein, who gained ample experience of his subject as Rector of Poplar.

#### ANNUALS.

The yearly volumes of *Chums* (Cassell) and the *Boy's Own Annual Religious Tract Society* are known to all boys as immense repertoires of the most varied matters that interest them, with countless illustrations.—*Tiny Tots* (Cassell) is steadily establishing itself as "a magazine for very little folks," nicely written, specially printed, and lavishly illustrated.—Volume XXIII. of *Work* (Cassell, 4s. 6d.) and Volume XI. of *The House* (Fisher Unwin, 3s. 6d.) should be welcome to handy boys.

## FIRST GLANCES.

### CLASSICS.

Clarendon Press Series.—*Eumenides* (Æschylus). Edited by A. Sidgwick, M.A. 3s.

[Third Edition. "The critical notes are somewhat fuller." Account of MSS., scholia, and editions of the play. Judicious and thorough.]

Dent's First Latin Book. By Harold W. Atkinson and J. W. E. Pearce. 2s. 6d. net.

[Reader (gradual; much dialogue; quantities marked in pages 1-40), exercises, explanatory grammar, vocabularies; phonetic transcript of pages 1-16. 12 excellent coloured illustrations by M. E. Durham.]

Pitt Press Series.—Xenophon's *Cyropædeia*, Book I. Edited by E. S. Shuckburgh, M.A. 2s. 6d.

["Introduction and Notes, founded on those of H. A. Holden, LL.D." "Complete vocabulary." Thorough.]

Tatham, M. T., M.A.: *Virgil's Æneid*, III. 1s. 6d. Arnold.

[Introduction (translation of Latin Life of Virgil prefixed to the commentary by Ælius Donatus; language, metres, subject of "Æneid"); notes (not "merely elementary"); index of proper names; vocabulary; map of wanderings of Æneas. Competent and careful.]

Temple Series of Classical Texts.—*Cæsar's Gallic War*, Book I. Edited by A. S. Wilkins, LL.D. 1s. net. Dent.

[Introduction (the Gauls and the Romans; Cæsar; the Roman Army); notes, brief and judicious; vocabulary. Maps (2), capital illustrations (19), frontispiece coloured. Excellent.]

### ENGLISH LANGUAGE AND LITERATURE.

Blackie's English Classics.—*Milton's English Sonnets*. Edited by E. H. Blakeney, M.A. 2d.

Longmans' British Classics.—*Macaulay's Essay on Chatham*. Edited by the Rev. H. Wesley Dennis, M.A. 1s. 6d.

[Introduction, notes, chronological chart. 11 illustrations.]

McDougall's Alexandra Readers.—(1) Primary. 9d. (2) Elementary. 10d. (3) Junior. 1s. (4) Senior. 1s. 6d.

[Lessons well graded, attractive, and instructive. Brief and judicious notes. Appendices in 4 (grammar, Latin and Greek roots, dictation exercises) out of place. Many good illustrations, often coloured. Strongly bound.]

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Page, Thomas: *Shakespeare and Milton Reader*. 1s. 4d. Moffatt & Paige.

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[Historical introduction; full documents and notes; latest changes. Laborious and useful.]

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Dent's Temple Encyclopædic Primers.—(1) *The Venetian Republic*. By Horatio Brown. (2) *Northern Hero Legends*. By Dr. Otto L. Jiriczek; translated by M. Bentinck Smith. 1s. net each.

[Admirable compends; charmingly got up.]

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Layard, G. S.: *The Gentle Art of Book-lending*. Malvern Federated Library.

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Lovell, Arthur: *Ars Vivendi*. Fourth edition, revised and enlarged. 2s. net. The Author: 5 Portman Street, W.

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Technical Instruction Committee, Essex County Council: *Report and Handbook, Session 1901*. Chelmsford: County Offices.

Williamson, William, B.A., F.R.S.L.: *A Class-Book of Easy Dictation and Spelling*. 1s. Methuen.

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**MATHEMATICS.**

**9773.** (B. PEIRCE.)—A un certain jeu, le joueur A. gagne un point chaque fois qu'il tire une boule blanche d'une urne qui contient 3 boules blanches et 2 boules noires; chaque fois qu'il tire une boule noire, il perd tous ces points, et B., qui ne fait jamais de tirage, en gagne un. Quelle est la probabilité pour A., de faire  $h$  points le premier? Cas particulier où  $h = 3$ .

*Solution by H. M. TAYLOR, M.A., F.R.S.*

Let  $a$  and  $1 - a$  be the respective chances of A. and B. gaining a point at any specified drawing. Let  $f(r)$  be the chance of B. winning the set when he has just gained his  $r$ -th point. The chance then that B. gains his  $(r+1)$ -th point equals the chance that A. does not gain  $h$  points consecutively  $= 1 - a^h$ . Hence

$$f(r) = (1 - a^h)f(r+1).$$

Now  $f(h) = 1$ ; therefore  $f(r) = (1 - a^h)^{h-r}$ . Similarly, we see that, if  $f(p, r)$  be B.'s chance of winning the set at the time when B. has gained  $r$  points and A. has gained  $p$  points, then

$$f(p, r) = (1 - a^h)^{h-r} f(r+1),$$

and A.'s chance then of winning the set is  $1 - f(p, r)$ . In the special case of the Question  $a = \frac{2}{3}$  and  $h = 3$ . Hence when no drawing has yet taken place A.'s chance of winning the set to B.'s chance is 1011933 to 941192.

**15183.** (A. F. VAN DER HEYDEN, M.A.)—If a mass  $m$  be placed at the centre of a sphere S, the potential due to  $m$ , at any point external to S, will be equal to that due to a distribution over S, equal in sum to  $m$ . Hence deduce that, if  $n$  surfaces S include any number of particles, and if N be the change in the normal force due to these particles on crossing the surface, a distribution over S of density  $N/4\pi$  will produce the same potential throughout all space external to S as the masses referred to.

*Solution by the PROPOSER.*

If a surface S include a number of particles  $m_1, m_2, \dots, m_i, \dots$ , and if N be the change in the normal force due to these masses in crossing the surface, a distribution over the surface S of density  $N/4\pi$  will produce the same potential throughout all space external to S as the masses referred to.

(1) Let S be a sphere enclosing a single particle  $m$  at its centre O. Let Q be an external point, P a point on the sphere.

$$OP = r : OQ = a : PQ = \rho.$$

Density of distribution  $= m/4\pi r^2$ .

$$\text{Potential at Q} = \iint \frac{m d\sigma}{4\pi r^2 \rho},$$

where  $\iint d\sigma$  denotes integration over the sphere. Taking OQ as axis of spherical coordinates, we get

$$\iint \frac{d\sigma}{\rho} = \int_0^\pi \int_0^{2\pi} \frac{r^2 \sin \theta d\theta d\phi}{(a^2 + r^2 - 2ar \cos \theta)^{3/2}} = 2\pi \int_0^\pi \frac{r^2 \sin \theta d\theta}{(a^2 + r^2 - 2ar \cos \theta)^{3/2}} = \frac{4\pi r^2}{a};$$

therefore potential at Q  $= m/a =$  potential due to mass  $m$ .

(2) Let the surface S be any closed surface, including any number of particles.

It follows from the preceding that we may replace any particle by a spherical distribution equal in amount to the mass of the particle. Let this be done for each point, then for each point on each sphere thus obtained, and so on, the radius of each sphere being such that its least distance from S is a small quantity  $\epsilon$ . We shall thus finally obtain a system of small spheres whose centres are at distances from the given surface S, each less than some quantity  $\epsilon'$  which may be made as small as we please by sufficiently diminishing  $\epsilon$ .

Now, let each such sphere be replaced by a particle at its centre. This gives us a surface which will ultimately coincide with the surface S.

Moreover, the potential over the surface and throughout external space will, by the preceding, remain unaltered. Accordingly, the variation N in the normal force, in crossing the surface S, will be the same as before.

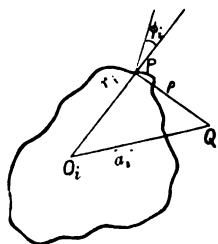
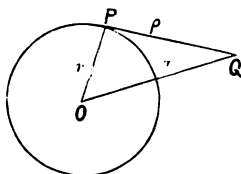
Let  $d$  be the density of the new distribution at any point. Then

$$N = 4\pi d;$$

therefore  $d = N/4\pi$ .

The analytical statement of the general question is a: follows:

$$\iint \sum \frac{m_i \cos \phi_i}{4\pi r_i^2 \rho} d\sigma = \sum \frac{m_i}{a_i}.$$



**15058.** (Professor NANBON.)—If OP, OQ are small equal arcs of a curve and its circle of curvature at O, show that the difference of the chords of these arcs is  $\frac{1}{24}\kappa^2 OP^4$ , where  $\kappa$  is the curvature and  $\kappa' = d\kappa/ds$ .

*Solutions (I.) by Professor SANJANA, M.A.; (II.) by A. M. NESBITT, M.A.*

(I.) Refer the curve to the tangent and normal at O as axes, and let the co-ordinates of P be  $x, y$ . Then

$$x = s - s^3/6\rho^2, \quad y = s^2/2\rho - (s^3/6\rho^2) (d\rho/ds) \text{ approximately}$$

(J. EDWARDS, § 357). Hence

$$(\text{chord OP})^2 = s^2 - \frac{1}{3}s^4/\rho^2 + \frac{1}{3}s^4/\rho^2 \text{ (approximately)} = s^2 - \frac{1}{3}s^4/\rho^2;$$

therefore

$$OP = s - \frac{1}{24}s^3/\rho^2.$$

Also chord

$$OQ = 2\rho \sin \frac{1}{2}\theta = \rho\theta - \frac{1}{24}\rho\theta^3 = s - \frac{1}{24}s^3/\rho^2.$$

Thus chord OQ - chord OP  $= -\frac{1}{24}s^3/\rho^2$ . But

$$\kappa = \rho^{-1}, \quad \kappa' = -\rho^{-2} d\rho/ds = -\rho^{-2} \rho/s \text{ (approximately)} = -(1/\rho s);$$

hence

$$\frac{1}{24}\kappa\kappa'OP^4 = \frac{1}{24} \frac{1}{\rho} \frac{(-1)}{\rho s} s^4 = -\frac{1}{24}s^3/\rho^2.$$

[Rest in Vol.

*Problems whose Arithmetical Solutions are indicated by a Knowledge of Algebra.*

*By W. R. WORTHINGTON, M.A.*

*Lemma.*—Let  $a$  and  $b$  be two numbers,  $a$  the greater. Given their difference  $a - b$ , and the difference between their reciprocals  $1/b - 1/a$ , to find  $a$  and  $b$ .

$$1/b - 1/a = (a - b)/ab, \quad (a - b) \div (a - b)/ab = ab,$$

$$ab + [\frac{1}{2}(a - b)]^2 = [\frac{1}{2}(a + b)]^2, \quad \frac{1}{2}(a + b) \pm \frac{1}{2}(a - b) = a \text{ and } b.$$

So that, (i.) if the difference between two numbers is divided by the difference between their reciprocals, the quotient is the product of the numbers; (ii.) if the product be increased by the square of half the difference between the numbers, the total is the square of half the sum of the numbers; (iii.) the sum and difference of the roots of the two squares are the two numbers.

Let

$$a - b = 12 \text{ and } (a - b)/ab = \frac{1}{24},$$

$$12 \div \frac{1}{24} = 2880; \quad 2880 + 6^2 = 2916 = (54)^2,$$

$$54 \pm 6 = 60 \text{ and } 48 = a \text{ and } b.$$

*Ex.*—A bicyclist, being asked at what rate he had ridden a certain distance, replied that, if he had taken 48 seconds longer over a mile the whole way, he would have lost  $2\frac{1}{2}$  miles per hour. Required his rate of riding.

A body moving at the rate of (i.)  $a$  miles per hour moves 1 mile in  $1/a$ -th of an hour, (ii.)  $b$  miles per hour moves 1 mile in  $1/b$ -th of an hour; and therefore  $1/a - 1/b$  is the fraction of an hour lost or gained in 1 mile by the substitution of one rate for the other.

In the question the difference of 48 seconds or  $\frac{4}{5}$  hour in a mile makes a difference of  $2\frac{1}{2}$  miles in an hour.

$$2\frac{1}{2} + \frac{4}{5} = \frac{13}{5} = \frac{13}{5} = \frac{13}{5} = \frac{3}{5} \times \frac{2^2}{5}.$$

*Ans.* 15 miles an hour.

**9946.** (Professor GENESE, M.A.)—Through a point within a parallelogram four circles are described containing the sides as chords. If any two of these circles through the same vertex be equal, all four are.

*Solutions (I.) by A. M. NESBITT, M.A., and J. H. TAYLOR, M.A.;*

*(II.) by C. A. LAIBANT.*

(I.) If two adjacent circles, say OAB, OBC be equal (but not coincident), we must have  $\angle OAB = \angle OCB$ . Therefore also  $\angle OAD = \angle OCD$ , and the other two circles are also equal. Draw OG equal and parallel to BC. Therefore

$$\angle OGB = \angle OCB = \angle OAB,$$

or the four points O, A, G, B are concyclic.

Hence  $\angle COD = \angle AGB =$  supplement of  $\angle AOB$ , or circle AOB = circle COD.

N.B.—If we are given circle AOB = circle COD, and  $\angle AOB + \angle COD =$  two right angles, a modification of the above proof will show  $\angle BAO = \angle BCO$ , and the four circles are equal.

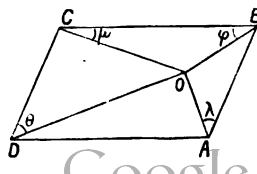
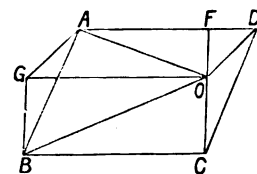
(II.) Soient  $AB = a, BC = b, OA = \alpha; OB = \beta; OC = \gamma; OD = \delta$ . Si  $R_1, R_2, R_3, R_4$  sont les rayons des quatre cercles OAB, OBC, OCD, ODA, on a, d'après les notations de la figure,

$$2R_1 = \frac{\beta}{\sin \lambda} = \frac{\alpha}{\sin(A + \phi)} = \frac{a}{\sin(A + \phi - \lambda)};$$

$$2R_2 = \frac{\gamma}{\sin \phi} = \frac{\beta}{\sin \mu} = \frac{b}{\sin(\mu + \phi)};$$

$$2R_3 = \frac{\delta}{\sin(A - \mu)} = \frac{\gamma}{\sin \theta} = \frac{a}{\sin(A + \theta - \mu)};$$

$$2R_4 = \frac{\alpha}{\sin(A + \theta)} = \frac{\delta}{\sin(A - \lambda)} = \frac{b}{\sin(\theta + \lambda)}.$$



Si  $R_1 = R_2$ , on a donc  $\lambda = \mu$  [l'hypothèse  $\lambda + \mu = \pi$  entraînerait en effet cette conséquence, que les deux cercles OAB, OBC seraient confondus en un seul, et non distincts, comme on les suppose], d'où  $R_3 = R_4$ .

En outre, 
$$\frac{\alpha}{\gamma} = \frac{\sin(A + \phi)}{\sin \phi} = \frac{\sin(A + \theta)}{\sin \theta},$$

d'où en général  $\theta = \phi$ , et par suite  $R_2 = R_3$ .

**15068.** (R. W. D. CHRISTIE.)—Solve generally the following Christmas puzzle:—Find four integers  $a, b, c, d$ , such that

(1)  $ad = bc = 1 \pmod p$ , (2)  $a^2 + b = c + d^2 = 0 \pmod p$ ,  
 (3)  $a^2c + 1 = bd^2 + 1 = 0 \pmod p$ , (4)  $bc^2 + a^2 = 0 \pmod p$ ,

where  $p =$  prime of form  $4m - 1$ , and give all the solutions.

Solution by Lt.-Col. ALLAN CUNNINGHAM, R.E.

Out of the seven congruences to be simultaneously satisfied, only three are independent, e.g.,  $ad \equiv 1, bc \equiv 1, a^2 + b \equiv 0$  will be found to involve the rest. The number of incongruous solutions in + integers, all  $< p$ , will first be found.

One obvious solution is  $a = d = 1, b = c = p - 1$ . By (2),  $b, c$  must both be 2-ic non-residues of  $p$ ; and have therefore  $\frac{1}{2}(p-1)$  values; these must be paired together so as to satisfy  $bc \equiv 1$ . One of these ways is  $b = c = p - 1$ ; excluding this, it is known that the remaining  $\frac{1}{2}(p-3)$  quantities can be paired together in  $\frac{1}{2}(p-3)$  ways, so as to satisfy  $bc \equiv 1$ , wherein  $b \neq c$ .

Next, by (2), every value of  $b$  gives two values of  $a$ ; and its conjugate  $c$  gives two values of  $d$ : these values of  $a, d$  will be found to form two conjugate pairs satisfying  $ad \equiv 1$ , as required.

Thus each of the  $\frac{1}{2}(p-3)$  conjugate pairs of  $b, c$  yields two conjugate pairs of  $a, d$ , wherein  $a \neq d$ ; this gives therefore  $\frac{1}{2}(p-3)$  solutions, to which must be added the special solution  $a = d = 1, b = c = p - 1$ ; total  $\frac{1}{2}(p-1)$  solutions in + integers, all  $< p$ , and incongruous.

An example will make this clear; take  $p = 19$ .

$$\left. \begin{array}{l} b = 2 \quad ; \quad 3 \quad ; \quad 8 \quad ; \quad 14 \quad ; \quad 18 \quad ; \\ c = 10 \quad ; \quad 13 \quad ; \quad 12 \quad ; \quad 15 \quad ; \quad 18 \quad ; \\ a = 6, 13; \quad 4, 15; \quad 7, 12; \quad 9, 10; \quad 1; \\ d = 16, 3; \quad 5, 14; \quad 11, 8; \quad 17, 2; \quad 1; \end{array} \right\} \text{total } 9.$$

The total number of solutions (asked for in Question) is, however, infinite; for, if  $(a', b', c', d')$  be a particular solution, so are  $(\pm p + a', \pm mp + b', \pm np + c', \pm rp + d')$ .

**15199.** (Professor NEUBERG.)—Trouver le lieu du centre d'une quadrique passant par quatre points fixes et dont les axes sont parallèles à des droites données.

Solutions (I.) by the PROPOSER; (II.) by the Rev. J. CULLEN.

(I.) Soient  $F = 0, G = 0, H = 0$  les équations de trois quadriques de la question. Une quadrique quelconque satisfaisant aux conditions données a pour équation  $F + \lambda G + \mu H = 0$ , où  $\lambda, \mu$  sont des coefficients indéterminés. Le centre étant donné par

$$F'_x + \lambda G'_x + \mu H'_x = 0, \quad F'_y + \lambda G'_y + \mu H'_y = 0, \quad \dots,$$

le lieu du centre est représenté par

$$\begin{vmatrix} F'_x & G'_x & H'_x \\ F'_y & G'_y & H'_y \\ F'_z & G'_z & H'_z \end{vmatrix} = 0.$$

(II.) Taking the coordinate axes to have the same direction as the given lines, then the equation of any of the quadrics is of the form

$$ax^2 + by^2 + cz^2 + 2px + 2qy + 2rz + 1 = 0 \dots\dots\dots(1).$$

The centre is given by

$$ax + p = 0, \quad by + q = 0, \quad cz + r = 0 \dots\dots\dots(2).$$

Now substituting the coordinates  $(x_1, y_1, z_1)$ , &c. of the four given points in (1), we obtain four equations, and these together with the equations (2) enable us to eliminate  $a, b, c, p, q$ , and  $r$ , the result being

$$\begin{vmatrix} x, & 0, & 0, & 1, & 0, & 0, & 0 \\ 0, & y, & 0, & 0, & 1, & 0, & 0 \\ 0, & 0, & z, & 0, & 0, & 1, & 0 \\ x_1^2, & y_1^2, & z_1^2, & 2x_1, & 2y_1, & 2z_1, & 1 \\ x_2^2, & y_2^2, & z_2^2, & 2x_2, & 2y_2, & 2z_2, & 1 \\ x_3^2, & y_3^2, & z_3^2, & 2x_3, & 2y_3, & 2z_3, & 1 \\ x_4^2, & y_4^2, & z_4^2, & 2x_4, & 2y_4, & 2z_4, & 1 \end{vmatrix} = 0,$$

which shows that the locus of the centre is a cubic surface of the form

$$Axyz + Byz + Cxz + Dxy + Gx + Fy + Hz + K = 0.$$

**14988.** (The late Professor CAYLEY, F.R.S.)—If

$$l^2 + m^2 + n^2 + \dots, \quad l'^2 + m'^2 + n'^2 + \dots$$

are each = 0, and  $s, s'$  denote positive integers, show that the integral

$$\int (lx + my + nz + \dots)^s (l'x + m'y + n'z + \dots)^{s'} dx dy dz \dots,$$

over the interior of the hyper-sphere  $x^2 + y^2 + z^2 + \dots = 1$  is = 0 or = a numerical multiple of  $(l' + mm' + nn' + \dots)^s$ , according as  $s'$  is not, or is, =  $s$ .

Solution by G. H. HARDY, B.A.

It is convenient to write  $x_1, x_2, \dots, l_1, l_2, \dots, l'_1, l'_2, \dots$  for  $x, y, \dots, l, m, \dots, l', m', \dots$ ;  $\Lambda$  for  $l_1x_1 + l_2x_2 + \dots$ ; and  $\Lambda'$  for  $l'_1x_1 + l'_2x_2 + \dots$ . And we suppose that  $n$  is the number of variables. Now

$$\int \Lambda^s \Lambda'^{s'} dv = \frac{1}{s + s' + n} \int \Lambda^{s-1} \Lambda'^{s'} dS,$$

the latter integral being extended over the surface of the unit sphere. Also

$$\Lambda^s \Lambda'^{s'} = (l_1x_1 + l_2x_2 + \dots)^{s-1} \Lambda'^{s'},$$

and, as  $x_1, x_2, \dots$  are the direction cosines of the outward normal at  $(x_1, x_2, \dots)$ ,

$$\int \Lambda^s \Lambda'^{s'} dS = \int \left( \frac{\partial}{\partial x_1} (l_1 \Lambda^{s-1} \Lambda'^{s'}) + \frac{\partial}{\partial x_2} (l_2 \Lambda^{s-1} \Lambda'^{s'}) \dots \right) dv.$$

But  $\sum \partial/\partial x_i (l_i \Lambda^{s-1} \Lambda'^{s'}) = (s-1) \Lambda^{s-2} \Lambda'^{s'} \sum l_i^2 + s' \Lambda^{s-1} \Lambda'^{s'-1} \sum l_i l'_i$ ;

so that 
$$\int \Lambda^s \Lambda'^{s'} dv = \frac{s'}{s + s' + n} \sum l_i l'_i \int \Lambda^{s-1} \Lambda'^{s'-1} dv.$$

The same reasoning shows that it is also equal to

$$\frac{s}{s + s' + n} \sum l_i l'_i \int \Lambda^{s-1} \Lambda'^{s'-1} dv;$$

it is therefore equal to 0 unless  $s = s'$ . And, if  $s = s'$ ,

$$\begin{aligned} \int \Lambda^s \Lambda'^s dv &= \frac{s}{2s + n} \sum l_i l'_i \int \Lambda^{s-1} \Lambda'^{s-1} dv = \frac{s}{2s + n} \frac{s-1}{2s + n - 2} \dots \frac{1}{n+2} (\sum l_i l'_i)^s \\ &= \frac{s(s-1) \dots 1}{(2s+n)(2s+n-2) \dots (n+2)} \frac{[\Gamma(\frac{1}{2})]^n}{\Gamma(\frac{1}{2}n+1)} (\sum l_i l'_i)^s \\ &= \frac{\pi^{1/2n}}{2^n} \frac{\Gamma(s+1)}{\Gamma(s+1+\frac{1}{2}n)} (\sum l_i l'_i)^s. \end{aligned}$$

This result may easily be verified for small values of  $n$ . If  $n = 2$ , we

obtain 
$$\int (lx + my)^s (l'x + m'y)^s dv = 0$$

or 
$$= \frac{\pi}{2^n (s+1)} (l'l' + mm')^s.$$

The volume integral is

$$\frac{1}{s + s' + 2} \int (lx + my)^s (l'x + m'y)^{s'} dS = \frac{l'^s m'^{s'}}{s + s' + 2} \int_0^{2\pi} e^{\pm i l' x \pm i m' y} d\theta$$

(since  $m = \pm il, m' = \pm il'$ ). This is 0 unless  $s = s'$  and the signs are different. In this case it is

$$\frac{2\pi (l'l')^s}{2^s (s+1)} = \frac{\pi (l'l' + mm')^s}{2^s (s+1)}$$

If the signs are the same,  $l'l' + mm' = 0$ ; so that the formula still holds.

**14881** (Corrected form). (V. DANIEL, B.Sc.)—Determine in Cartesian co-ordinates the family of plane curves related to two focal points P and Q, such that a particle projected through P shall, after rebounding from any point on one such curve, proceed in the line joining Q to that point. Coefficient of rebound =  $e$ ;  $PQ = 2a$ . Taking for origin the middle point of PQ, show that the lines  $x \pm y \sqrt{e} = a$  are common tangents at the focus Q.

Solution by the PROPOSER.

If  $\beta$  and  $\beta'$  are the angles of incidence and reflection, it follows geometrically that

$$\tan \beta = \frac{dx/dy + y/(x+a)}{1 - y/(x+a) dx/dy}, \quad \tan \beta' = \frac{dy/dx - (a-x)/y}{1 + (a-x)/y dy/dx}$$

Then 
$$e = \frac{\tan \beta}{\tan \beta'} = \frac{y^2 - x^2 + a^2 - y(x-a) dy/dx + y(x+a) dx/dy}{-y^2 + x^2 - a^2 - y(x-a) dx/dy + y(x+a) dy/dx}$$
;

therefore 
$$\frac{1-e}{1+e} \equiv \sin \alpha = \frac{x^2 - a^2 - y^2 + xy(dy/dx - dx/dy)}{ay \{dy/dx + dx/dy\}}$$
;

therefore 
$$y^2 (dy/dx)^2 (x - a \sin \alpha) + y dy/dx (x^2 - a^2 - y^2) - y^2 (x + a \sin \alpha) = 0.$$

Writing  $y^2 = Q$  and solving for  $dQ/dx$ ,

$$(x - a \sin \alpha) dQ/dx = Q + a^2 - x^2 \pm \{ Q + a^2 - x^2 + 4Q(x^2 - a^2 \sin^2 \alpha) \}^{1/2}$$
;

an equation which may be transformed thus:—

$$(x - a \sin \alpha) dQ/dx + 2(x^2 - a^2 \sin^2 \alpha) = Q + x^2 + a^2 \cos 2\alpha \pm \{ (Q + x^2 + a^2 \cos 2\alpha)^2 - 4a^2 \cos^2 \alpha (x^2 - a^2 \sin^2 \alpha) \}^{1/2}$$
;

Let 
$$Q + x^2 + a^2 \cos 2\alpha = a \cos \alpha (x^2 - a^2 \sin^2 \alpha)^{1/2} \{ \theta + \theta^{-1} \} \dots\dots\dots(1)$$

Then, if  $x - a \sin \alpha \neq 0$ , we obtain the linear equations

$$\frac{dQ}{dx} + 2(x + a \sin \alpha) = 2a \cos \alpha \left\{ \frac{x + a \sin \alpha}{x - a \sin \alpha} \right\}^{\frac{1}{2}} \theta,$$

or  $2a \cos \alpha \left\{ \frac{x + a \sin \alpha}{x - a \sin \alpha} \right\}^{\frac{1}{2}} \theta^{-1}.$

Also, differentiating (1),

$$dQ/dx + 2x = a \cos \alpha \cdot d/dx \{ (x^2 - a^2 \sin^2 \alpha)^{\frac{1}{2}} (\theta + \theta^{-1}) \};$$

therefore  $2 \tan \alpha + \frac{d}{dx} \{ (x^2 - a^2 \sin^2 \alpha)^{\frac{1}{2}} (\theta + \theta^{-1}) \} = 2 \left\{ \frac{x + a \sin \alpha}{x - a \sin \alpha} \right\}^{\frac{1}{2}} \theta,$

or  $2 \left\{ \frac{x + a \sin \alpha}{x - a \sin \alpha} \right\}^{\frac{1}{2}} \theta^{-1}.$

Writing  $2k_1$  and  $2k_2$  for the right-hand expressions gives one and the same differential equation

$$2 \tan \alpha + d/dx \{ k(x - a \sin \alpha) + k^{-1}(x + a \sin \alpha) \} = 2k;$$

i.e.,  $dx/dk - x \{ k - 2 \tan \alpha / (1 - k^2) \} = -a \sin \alpha (1 + k^2) / (k - k^{-1} - 2 \tan \alpha).$

Its solution is

$$x e^{-H} = -a \sin \alpha \int e^{-H} \frac{1 + k^{-2}}{k - k^{-1} - 2 \tan \alpha} dk + C_1 \dots \dots \dots (2),$$

where

$$H = \int \frac{dk}{k - 2 \tan \alpha / (1 - k^2)};$$

$$e^{-H} = k^{-1} \left\{ \frac{\sec \alpha - \tan \alpha - k^{-1}}{\sec \alpha + \tan \alpha + k^{-1}} \right\}^{-\sin \alpha} (\sec \alpha + \tan \alpha)^{-\sin \alpha}.$$

Writing (2) thus,  $x e^{-H} = I \cdot a \sin \alpha (a \sec \alpha + \tan \alpha)^{-\sin \alpha} + C_1$ , we have

$$I = - \int \frac{1 + k^{-2}}{k - 2 \tan \alpha - k^{-1}} \left\{ \frac{\sec \alpha - \tan \alpha - k^{-1}}{\sec \alpha + \tan \alpha + k^{-1}} \right\}^{-\sin \alpha} k^{-1} dk$$

$$= \int \frac{1 + k^{-2}}{1 - 2k^{-1} \tan \alpha - k^{-2}} \left\{ \frac{\sec \alpha - \tan \alpha - k^{-1}}{\sec \alpha + \tan \alpha + k^{-1}} \right\}^{-\sin \alpha} dk^{-1};$$

or, since  $(1 - 2 \tan \alpha k^{-1} - k^{-2}) = \sec^2 \alpha \{ 1 - (\sin \alpha + k^{-1} \cos \alpha)^2 \}$   
 $\equiv \sec^2 \alpha (1 - K^2)$ , say,

$$I = \sec \alpha \int \left( \frac{1 - K}{1 + K} \right)^{-\sin \alpha} \left\{ -1 + \frac{1 - \sin \alpha}{1 - K} + \frac{1 + \sin \alpha}{1 + K} \right\} dK.$$

Now

$$\int \left( \frac{1 - K}{1 + K} \right)^{-\sin \alpha} dK = K \left( \frac{1 - K}{1 + K} \right)^{-\sin \alpha} - \int \frac{2K \sin \alpha}{(1 + K)^2} \left( \frac{1 - K}{1 + K} \right)^{-1 - \sin \alpha} dK$$

$$= K \left( \frac{1 - K}{1 + K} \right)^{-\sin \alpha} + \int \left( \frac{1 - K}{1 + K} \right)^{-\sin \alpha} \times \left\{ \frac{1 - \sin \alpha}{1 - K} + \frac{1 + \sin \alpha}{1 + K} - \frac{2}{1 - K^2} \right\} dK.$$

Hence  $\int \left( \frac{1 - K}{1 + K} \right)^{-\sin \alpha} \left\{ -1 + \frac{1 - \sin \alpha}{1 - K} + \frac{1 + \sin \alpha}{1 + K} \right\} dK$   
 $= -K \left( \frac{1 - K}{1 + K} \right)^{-\sin \alpha} + \int 2 \left( \frac{1 - K}{1 + K} \right)^{-\sin \alpha} / (1 - K^2) dK,$

i.e.,  $I \cos \alpha = \left( \frac{1 - K}{1 + K} \right)^{-\sin \alpha} \{ \operatorname{cosec} \alpha - K \}.$

Equation (2) may now be written, after dividing by a constant,

$$x (K - \sin \alpha) + a (K \sin \alpha - 1) = C_2 \left( \frac{1 - K}{1 + K} \right)^{\sin \alpha},$$

or, reconstituting the value  $K = \sin \alpha + k^{-1} \cos \alpha$ ,

$$(x \sec \alpha + a \tan \alpha) k^{-1} = a \left\{ 1 + \lambda \left( \frac{\sec \alpha - \tan \alpha - k^{-1}}{\sec \alpha + \tan \alpha + k^{-1}} \right)^{\sin \alpha} \right\} \dots (3),$$

where  $\lambda$  is an arbitrary constant.

Equation (1), on substituting

$$\theta = k \left\{ \frac{x - a \sin \alpha}{x + a \sin \alpha} \right\}^{\frac{1}{2}},$$

becomes  $x^2 + y^2 + a^2 \cos 2\alpha = k a \cos \alpha (x - a \sin \alpha) + k^{-1} a \cos \alpha (x + a \sin \alpha)$ ,  
 or  $-y^2 \sec^2 \alpha = \{ k(x \sec \alpha - a \tan \alpha) - a \} \{ k^{-1}(x \sec \alpha + a \tan \alpha) - a \} \dots (4).$   
 Combining this with (3), we obtain an equation of similar form with (3), and the  $k$ -eliminant of these gives the family sought. [Rest in Vol.]

**15131.** (C. E. YOUNGMAN, M.A.)—Given a semicircle on diameter BC, draw an ordinate PN, and on NP produced take A such that  $BA^2 = BC(BN + NP)$ . Prove that the triangle ABC has

$$\tan^2 A = \tan B \tan C;$$

BROCARD angle  $90^\circ - A$ ; BROCARD axis parallel to BC, &c.

Solutions (I.) by R. TUCKER, M.A.; (II.) by Professor SANJANA, M.A.; (III.) by D. BIDDLE.

(I.) Let O be the centre, ON, PN =  $x, y$ ; radius =  $a$ , and AN =  $Y$ . Then, from the data,

$$y^2 = a^2 - x^2, (a + x)^2 + Y^2 = 2a(a + x + y), \text{ i.e., } Y^2 = y^2 + 2ay \dots (i, ii.)$$

Now  $\tan A = -\tan(B + C) = 2aY / (Y^2 - y^2) = Y/y \dots \dots \dots (iii.),$

and  $\tan B \tan C = Y^2 / (BN \cdot NC) = Y^2 / y^2 = \tan^2 A,$

$$\cot \omega' = \cot B + \cot C + \cot A = (2a + y) / Y = Y / y = \tan A;$$

therefore  $\omega' = 90^\circ - A.$

Again, LEMOINE point perpendicular  $= \frac{1}{2} a \tan \omega' = R \sin A \cot A = R \cos A;$

hence BROCARD line is parallel to BC. [Rest in Vol.]

QUESTIONS FOR SOLUTION.

**15223.** (Professor NANSON.)—If  $u$  be a homogeneous quadratic function of the  $n$  variables  $x$ , and  $v$  the same homogeneous quadratic function of the  $n$  variables  $y$ , eliminate the  $2n + 1$  quantities  $\theta, x, y$  from the  $2n$  equations of the types  $du/dx = \lambda x + \theta y, dv/dy = 0.$

**15224.** (Rev. Prebendary WHITWORTH.)—If

$$1/x + 1/y + 1/z = 0 \text{ and } x + y + z = 1,$$

show, by simple algebra, that for all positive integral values of  $n$ ,

$$x^n + y^n + z^n = 1 + nxyz + \frac{1}{2} [R_1^{n-5} n (xyz)^2] + \frac{1}{4} [R_2^{n-8} n (xyz)^3] + \frac{1}{8} [R_3^{n-11} n (xyz)^4] + \dots,$$

the number of terms in the series being one more than the greatest integer in  $\frac{1}{2}n, e.g.,$

$$x^3 + y^3 + z^3 = 1 + 3xyz, \quad x^7 + y^7 + z^7 = 1 + 7xyz + 7x^2y^2z^2.$$

**15225.** (R. W. D. CHRISTIE.)—Resolve  $5, 17, \text{ or } 41$  into a sum of five cubes, and give a general form for a cube equal to the sum of five integral cubes.

**15226.** (Lt.-Col. ALLAN CUNNINGHAM, R.E.)—If  $p, q, r$  be different odd primes, and if  $y, y'$  be roots ( $< p$ ) of  $y^n - 1 \equiv 0, y^{m'} + 1 \equiv 0 \pmod{p}$ , prove that

- i.  $\Sigma y \equiv -1, \Sigma y' \equiv +1 \pmod{p},$  if  $n = q;$
- ii.  $\Sigma y \equiv 0, \Sigma y' \equiv 0 \pmod{p},$  if  $n = q^2;$
- iii.  $\Sigma y \equiv +1, \Sigma y' \equiv -1 \pmod{p},$  if  $n = q^r,$

where each summation ( $\Sigma$ ) includes all the incongruous roots  $< p$ . Give an example of each case.

**15227.** (G. HEFFEL, M.A.)—If the roots of  $x^3 - px^2 + qx - r = 0$  are the sines of the angles of a triangle, then  $p^4 - 4p^2q + 8pr^2 + 4r^3 = 0.$  If they are the squares of the sines,  $p^2 - 4q + 4r = 0.$

**15228.** (Rev. T. ROACH, M.A.)—Show that the sum of the series

$$\frac{1}{2} - \frac{1}{3} + \frac{1}{4} - \frac{1}{5} + \dots = \frac{1}{15} \log 3 - \frac{1}{3} (\sqrt{3} \pi).$$

**15229.** (JAMES BLAIKIE, M.A.)—If  $u_0, u_1, u_2, \dots, u_n, \dots$  represent the "contiguous" series  $1, 1, 2, 3, 5, 8, \dots$ , where  $u_n = u_{n-1} + u_{n-2}$ , prove the following relationships:—

- (1)  $u_{2k} = u_k (u_{k-1} + u_{k+1}),$  (2)  $u_{2k+1} = u_k^2 + u_{k+1}^2,$
- (3)  $u_{rk} = u \{ u_{(k-1)k+1} + u_{k-1} u_{(r-2)k+1} + u_{k-1}^2 u_{(r-3)k+1} + \dots + u_{k-1}^{r-1} \}.$

**15230.** (D. BIDDLE.)—A spherical ball of wool is transfixed by a knitting-needle of infinitesimal thickness. Find the mean length of needle hidden by the wool, (1) when the needle enters entirely at random, (2) when the position of the needle is restricted by its passing through a point at a given distance from the centre of the ball.

**15231.** (R. C. ARCHIBALD, M.A., Ph.D.)—A circle of radius  $a$  rolls on a fixed circle of radius  $2a$ ; the planes of the rolling and fixed circles are at right angles, and any point on the rolling circle traces a space curve (C). Show that (C) can be projected into a semicubical parabola.

**15232.** (A. M. NESBITT, M.A.)—Find the equation of the cone enveloped by a plane which passes through a fixed point and makes a section of given eccentricity with the cone

$$ax^2 + by^2 + cz^2 + 2fyz + 2gzx + 2hxy = 0.$$

**15233.** (Professor COCHEZ.)—Étudier les courbes

$$(1) y = \sqrt{x^2/(x^2 - 1)}, \quad (2) y = x + 1 + (x - 1)/(x^2 - 3).$$

**15234.** (Professor NEUBERG.)—Soient A, B deux points fixes d'une cubique  $a^3 = 0.$  Les droites qui les joignent à un même point C mobile sur la courbe rencontrent celle-ci en deux nouveaux points D, E. Quelle est la classe de l'enveloppe de la droite DE?

**15235.** (R. TUCKER, M.A.)—From the points M, L in the base BC of the triangle ABC, equal perpendiculars MQ, LP are drawn to AB, AC respectively. Prove that the foci of the parabolas which PQ (and the analogous lines) envelop lie upon the circum-circle ABC.

**15236.** (Rev. J. CULLEN.)—Given a triangle ABC and a point P ( $p, q, r$ ), the isogonal conjugate being Q, show that, if AP, BP, CP, AQ, BQ, CQ meet the circum-circle in XYZ, X'Y'Z', then XX', YY', ZZ' are parallel respectively to BC, CA, AB, and form a triangle homothetic with ABC, the homothetic centre being

$$a(q^2 + r^2 + 2qr \cos A) / a^2qr = \dots = \dots$$

**15237.** (W. H. SALMON, B.A., B.Sc.)—If the circum-circles of the four triangles determined by any four straight lines meet in P, show that the isogonal conjugates of the six lines drawn from P to the points of intersection of the original four lines are parallel.

**15238.** (Professor SANJANA, M.A.)—Given of a triangle the base and the vertical angle, construct the triangle so that the ratio may be fixed of the distance of the mid-point of the base from the foot of the perpendicular drawn from the vertex, to its distance from the foot of the bisector of the vertical angle. (A purely geometrical construction is required.)

**15239.** (C. E. YOUNGMAN, M.A.)—Squares are described having for diagonals the sides  $a, b, a', b'$  of a parallelogram P; the ends of the other diagonals will fall at the corners of two new squares S, S'. Show that (1) S, S' are homothetic to the squares K, K' which can be "inscribed" in P; (2)  $K : S = K' : S' = \tan^2 ab : 1$ ; (3)  $S - S' = 2P$ ;  $S + S' = a^2 + b^2$ .

**15240.** (V. DANIEL, B.Sc.)—A variable circle, radius  $c$ , is drawn touching a fixed line PQ at the common centre O of two fixed circles, radii  $a, b$ . Show that a diagonal of the trapezium of intersection envelopes the caustic by refraction at a circle, for light parallel to PQ falling towards O (on the boundary  $a$  or on the boundary  $b$  according as the relative index of the external and internal media is  $a/b$  or  $b/a$ ). If the ordinates of the ends of a diagonal and of the corresponding point on the caustic are  $y_1, y_2, Y$ , prove by a simple analytical method  $2cY = y_1 y_2$ , POQ being the  $x$  axis. Can a geometrical proof be found? (See HEATH'S *Geometrical Optics*, 2nd ed.)

**15241.** (Professor SANJANA, M.A.)—In a plane triangle ABC, (1) if the sides  $a, b$  include an angle  $\cos^{-1} \sqrt{(ab)/[a - \sqrt{(ab) + b}]}$ , prove that  $\tan A / \tan B = -(a^2/b^2)^{1/2}$ , so that one of the remaining angles is obtuse; (2) if  $\tan C, \tan A, \tan B$  be in geometric progression, the common ratio is  $b^2/c^2$ , and  $A$  is greater than  $\frac{1}{2}\pi$ ; (3) if  $\tan \frac{1}{2}C, \tan \frac{1}{2}A, \tan \frac{1}{2}B$  be in geometrical progression, the common ratio is  $b/c$ , and  $A$  is less than  $\frac{1}{2}\pi$ . [The triangle in (1) is formed by the Earth with the Sun and a planet at its stationary point; the triangle in (2) has the line joining its BROCARD points perpendicular to BC.]

**15242.** (Communicated by A. E. MITCHELL.)—Given a circle of radius R. Another circle of radius  $r$  has its centre on the circumference of the larger circle (viz., that with radius R), and cuts off from it  $1/\mu$  of the area of the large circle. Find  $r$  in terms of R.

#### OLD QUESTIONS AS YET UNSOLVED (IN OUR COLUMNS).

**8310.** (Professor CROFTON, F.R.S.)—An event has been found to occur on an average once a year during a long period; also it has never been known to fail during two years running; find the chance of its happening or failing in any particular year.

**9448.** (B. F. FINKEL.)—A dog, on the top of a conical hill whose base is 200 feet in radius and height 100 feet, is in pursuit of a fox at the base which keeps running around the hill at the base; find how far the dog must run to catch the fox, if the dog runs 6 feet while the fox runs 5 feet, and the dog runs directly towards the fox at all times.

**9493.** (Professor SYLVESTER, F.R.S.)—If S is the sum of a geometrical series whose first term is unity, its common ratio a positive or negative integer, and number of terms N, and if  $\sigma$  is the number of prime-number divisors in S, and  $\nu$  the total number of divisors in N (unity not counting towards the value either of  $\sigma$  or  $\nu$ ), then  $\sigma$  cannot be less than  $\nu$ , except when the common ratio is  $-2$  and the number of terms even, or when the common ratio is  $+2$  and the number of terms divisible by 6.

**9572.** (Professor HAUGHTON, F.R.S.)—Find the conditions under which a plane polarised ray, reflected from a surface of glass or water, will become circularly polarised.

**10531.** (Professor MORLEY.)—Through a point on an ellipse two circles are drawn, one cutting the ellipse again at the corners of an equilateral triangle, the other at those of a maximum triangle; prove that the circles touch.

**10544.** (H. W. SEGAR.)—Given the lengths of four lines that may be drawn from a point to the angular points of a rhombus, describe the rhombus.

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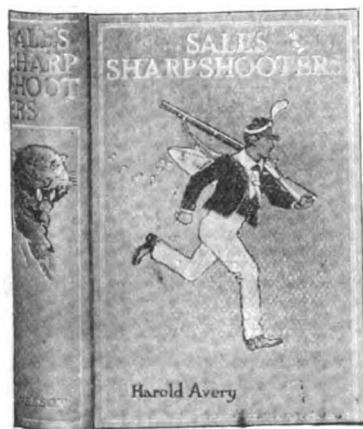
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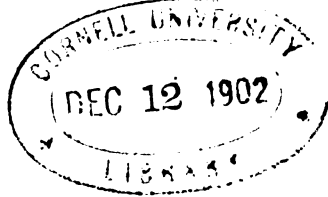
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## CONTENTS.

	Page		Page
The Cambridge Conference on the Training of Secondary Teachers .....	489	Correspondence .....	497
Notes .....	490	The College of Preceptors: A Member's Friendly Challenge—The Bodleian Oration—"Empirical" and "Scientific"—The Needs of Small Endowed Schools. ....	
The Education Bill—The Resignation of Sir George Kekewich—The Appeal of King's College for Half a Million—The Outlook for Classics in Education—The Educational Responsibilities of the Universities—Birthday Honours for Teachers—Prof. Adams's Account of the Protestant School System in the Province of Quebec—A School Strike .....	491	The College of Preceptors: The Equipment of the Teacher. Address by the Rev. J. O. Bevan .....	501
Summary of the Month .....	491	Meeting of the Council .....	505
The Universities: Oxford .....	493	Reviews .....	506
Cambridge .....	494	A Great Schoolmaster (Edward Bowen)—The Greatest of the Plantagenets—Sir Wemyss Reid's Life of William Black—Mr. Tarver's Rehabilitation of Tiberius—Social England—Grieb's German-English Dictionary—Supplementary Volume of the Encyclopaedic Dictionary. ....	
Current Events .....	494	General Notices .....	508
Fixtures—Honours—More Lord Rectors—Endowments—Scholarships—Appointments and Vacancies—Literary Items—General. ....		Gift-Books and Prizes.—II. ....	511
The Training of Secondary Teachers: Conference at Cambridge .....	496	First Glances .....	512
		Mathematics .....	513

## The Educational Times.

### The Cambridge Conference.

THE barrenness of conferences is proverbial; it is aptly expressed in the history of Rasselas and his Conference on the Choice of Life. At the end of all the talk the Princess declared her wish to found a college of learned women, the Prince desired to see all the parts of government with his own eyes, and their learned friends were contented to be driven along the stream of life without directing their course to any particular port. "Of these wishes that they had formed," however, "they well knew that none could be obtained"; so "they deliberated awhile what was to be done, and resolved when the inundation should cease to return to Abissinia." This has been the usual end of recent conferences, whether they were the means of formulating resolutions to be forwarded to those in power or whether the conditions imposed forbade resolutions altogether. After the deliberations the members returned to Abissinia—that is to say, to chaos, lethargy, and the barren waste of inefficiency. Though undoubtedly this has been the rule, there have been exceptions, and no one who attended the Conference on the Training of Teachers at Cambridge would deny that this was one of the most striking exceptions. There will be no going back to the old haze and uncertainty as to the need of training. The progress of the Conference was marked by an unmistakable clearing away of both uncertainty and indecision and the fixing of a general consensus of opinion. At the conclusion members on all sides admitted that at last they understood the problem.

The first hour of the Conference produced the usual academic arguments in favour of an impracticable ideal. A post-graduate training involving an expenditure of time and money which few aspirants for the honour of teaching could possibly afford was the favoured scheme. It seemed to be assumed that one kind of training was to be imposed on all, and any suggestion of a partial remedy was met by the question: How can you expect to recruit sufficiently the army of teachers by such a method? Gradually it became clear to all that the requirements first proposed were far too high, and also that various methods concurrently offered to teachers of different kinds of schools or of different subjects

formed the best, and indeed the only, workable method. At the close of the first sitting Sir Oliver Lodge, in a statement of what he considered he had learnt from the discussion, very accurately enunciated the points on which at that stage all seemed to be agreed:—

1. Training is necessary for teachers of all grades. It should be made compulsory by the condition of registration.
2. For the acquirement of skill in the discipline of large classes and in the teaching of the elementary subjects the primary school is the best practising school.
3. Fresh methods of training would be required as the knowledge of principles advanced.
4. The training colleges should be associated or affiliated to the Universities.
5. Training can never be a substitute for the learning of the subjects to be taught, and therefore training could not possibly shorten the University course.
6. A year as a student-teacher was a desirable preliminary.
7. The importance of pedagogy was not sufficiently recognized, but the time had arrived when it ought at least to be recognized by the Universities.
8. Pecuniary help should be given to the practising schools to secure the necessary aid and attention for the students under training.
9. There should be a wise selection of those who would most profit by training, and greater pecuniary attraction should be offered in the way of assistant masters' salaries.

The opening of the second day's debate showed that it was clear there might be three stages in the training: first, that of the student-teacher, who had decided to take to the work and had been approved by a skilled schoolmaster, and who would spend three terms or less in a school doing a little teaching and observing others teach, preferably in the school in which he had been educated; second, that of the college or University student; third, that of a probationer, at the same time on trial and under guidance. These three parts would assume different proportions in different cases, and they ought not all to be essential for registration in any individual case. The advantages of the combination were most clearly laid before the Conference by Canon Bell, of Marlborough, and Canon Glazebrook, of Clifton.

The financial difficulties of the problem were ably dealt with at the close of the sitting, and some of the greatest impediments in the way of general training were shown to be removable.

The University of Cambridge has rendered a great service to the whole community in calling and organizing a Conference which has completely cleared away all doubts as to the necessity of training and as to the possibility of arranging the conditions so as to meet the requirements of all schools.

## NOTES.

THE provisions of the Education Bill may now be taken as substantially settled. They will scarcely suffer disturbance in the House of Lords, excepting the Kenyon-Slaney amendment, which is tolerably sure to be rejected, or at least to be essentially modified. The vigorous application of the closure, and, still more, the introduction of fresh provisions under its operation, have tended to exacerbate feeling among the opponents of the measure. The discontent in the country has been strenuously manifested and fostered during the month, and the refusal to pay rates has in some places taken the initial practical form of signing rolls to that effect at local meetings. We cannot but repeat our expression of regret that the secondary portion of the Bill remains without some very desirable amendments. At the same time, it may be hoped that the new system will receive a fair trial, uncomplicated by attempts at "wrecking" or making "unworkable," or even by a morose aloofness. The actual work of education should be the first interest of good citizens.

THE resignation of Sir George Kekewich was somewhat unexpected, and the reasons assigned are by no means reassuring. Sir George is still three years short of the age limit; there is no impeachment of his physical or intellectual competence; and there has been nothing of the nature of friction between his office and the profession or the educational administrators throughout the country. He has been, and is, universally respected. He is to be succeeded, when the new Act comes into operation, by Mr. R. L. Morant, who has gone up like a rocket in the official sphere over the heads of a dozen distinguished seniors. "It is an open secret," we are authoritatively informed, "that Mr. Morant has had a very large share in the framing of the Education Bill," and so we are led to infer that no one is "more competent to give the measure a fair start and to watch its workings with a vigilant eye." Yes; but the explanation does not explain. However, Mr. Morant will, no doubt, have an unprejudiced reception by the profession.

THE important meeting in support of the appeal of King's College, London, for an endowment of half a million ought to have effective results; though past experience does not encourage immediate hopefulness. The appeal has three objects: the liberation of the college from its existing debt; the maintenance of its efficiency in laboratories and equipment for higher teaching and research; and the adequate remuneration of its professors. It should not be necessary to say that these objects, one and all, are most laudable, and even urgent. The college can point to a highly honourable record of usefulness—beyond all proportion to its resources, for, apart from scholarships and prizes, it is practically without endowment. Such a position of such an institution is anything but creditable in an intelligent and wealthy community. The college has shown a very reasonable disposition to come into line with modern ideas, and notice has just been given (November 21) that it will apply to Parliament next Session for leave to bring in a Bill for the abolition of religious tests (except in

theology) and other important practical reforms in its organization. We sincerely trust that the appeal will meet with a worthy and generous response.

THE classical question just debated—not for the last time—at Oxford is raised in a wider form by Dr. Postgate in the November number of the *Fortnightly Review*. Dr. Postgate holds it to be "necessary that the study of Latin should be kept as an integral part of all higher education, and that of Greek as an integral part of the higher literary training." He makes no quarrel over the claims of French and German; though he thinks they "do not furnish so valuable a mental training." Some of his examples of the results of examinations in classics are sufficiently appalling. However, Dr. Postgate would cut down the amount of elementary work (unusual and irregular vocables and forms); and he would call for improvement in methods (in text-books, pronunciation, and the teaching of grammar). "If the 'dead' languages and literature are not to retire into the background, they must be taught as if they were alive": that, he thinks, is "the cardinal point of all." And here are "Some Reflections on a Classical Curriculum" (Oxford: Blackwell), by a modestly anonymous writer, who tells his Oxford *confrères*: "We are framing our examinations for the specialist; and the 'hungry sheep' who do not want to be specialists, but only to have a good education, 'look up and are not fed,' or, rather, they are overfed with a diet of minute studies which they do not desire and cannot digest." All this reveals somewhat serious symptoms, and emphasizes the educational prudence of a stitch in time.

IN the current number of the *Teachers' Guild Quarterly* a cautious writer urges the Universities to take the lead in the necessary reformation of educational studies on the lines of a school curriculum "such as has been tried and found to be at once feasible and fruitful of good in other countries, and to some extent in our own."

It is they that are responsible for Latin at seven and a half and Greek at nine and a half years of age, whereas it seems almost certain that equal proficiency in both subjects at the age of eighteen can be attained by pupils embarking on them three to four years later. Their responsibility for what they exclude, by not requiring it, is still greater. In this way they starve the teaching of history and literature in schools, as to time given to it, if not as to quality of teaching, and make the thorough teaching of science and of modern languages throughout the schools difficult, if not impossible, to arrange.

It is their "academic aloofness" that is chiefly to blame. "They do not deliberately seek to cramp education; but they do not rise to the full sense of their own national importance and responsibility." The writer "pleads with them to recast entirely their conditions of matriculation."

Cannot Oxford and Cambridge insist on this: that no one shall be admitted to the benefits of their degrees, whether as a scholar or as a passman, who cannot satisfy the highest practicable standard of requirement as to education in language (dead or living), in the history and literature of his own country, in the general laws of science (we know that the syllabus for this latter examination will be difficult to draw up), and in mathematics?

The difficulties, we apprehend, lie in the standpoint of the authorities, and the writer but partially recognizes them. But we join with him in laying emphasis upon the national importance and responsibility of the Universities.

in the Birthday Honours List has been supplemented by a faint sigh from the schools. We are pleased to observe, however, that the thin end of the wedge has been pushed on behalf of teachers by the appointment of Mr. J. Macleod, H.M.I.S., to the Companionship of the Imperial Service Order. Mr. Macleod's headquarters are at Elgin, and a local paper, the *Northern Scot*, expresses more than a local gratification:

That the able and cultured recipient, who is exceedingly popular in a wide constituency, is deservedly placed in the front rank of his profession, and merits so high a distinction, will be acknowledged by all.

We add our cordial congratulation all the more freely that Mr. Macleod has long been a valued contributor to our mathematical columns.

In spring and summer of this year Prof. Adams spent some nine or ten busy weeks in examining carefully the educational system of the Protestant schools of the Province of Quebec. His report, which has just been published in a considerable pamphlet (Longmans, 1s. net), forms a valuable contribution to the comparative study of education. Apart from the city schools, Protestant education labours under "peculiarly unfavourable conditions." As to buildings, the district schools generally are "very bad" (in spite of excellent regulations), and the model schools generally "have a broken-down look"; the Academies, however, are "excellently provided," and the city schools "can stand comparison with similar buildings elsewhere." The furniture and apparatus are generally in consonance with the buildings. It is the country schools, then, that bear the brunt of condemnation. The teachers are left to raise money to pay for cleaning, glazing, and general repairs, by means of school entertainments. "In one school the chair on which the teacher sat, the desk at which she wrote, the dictionary to which she referred, the drinking-can, the wash-hand basin, and the foot-mat at the door were all the produce of a couple of school concerts."

The teacher, however, is "the *crux* of the whole question." The attitude of the School Commissioners, "evidently intelligent and progressive men in their own business," may be gathered from an argument that Prof. Adams often encountered:

We have only to advertise in the Montreal papers, and we'll get fifty candidates eager to come to us at 15 dols. a month. Why should we pay more? That wouldn't be business.

The question is, not how to get a good teacher, but how cheaply to get a teacher—a teacher. There is constant shifting of teachers; Prof. Adams found that 82 per cent. of the teachers had changed their school at the beginning of the year. In Quebec "the engagement of the teacher shall be for the term of a school year." As for salaries, "I should think," says Prof. Adams, "that teachers are worse paid in the Province of Quebec than in any other part of the world." It certainly is apt to take the stiffening out of a man's backbone when he wants to speak proudly of a people that are content with this. The regulations for the training of teachers are "excellent as far as they go"; but where is the good of regulations that are not carried out? "It is illegal to employ a teacher without a diploma"; yet, says Prof. Adams, "nearly 10 per cent. of the teachers I met in district

schools had no diploma." There are good points, however, here and there: for example, a man must have been a teacher for at least five years before being appointed an inspector.

A NEW method of impressing on educational authorities the delinquency of neglecting to provide sufficient accommodation for studious youth has been discovered and put in operation at the Technical High School, Vienna. When Prof. Czuber entered his class-room to lecture on mathematics the other day, he found not only full benches, but a multitudinous audience perched on ladders placed against the walls, the students "demonstrating" noisily "as if they were Deputies in the Reichsrath." A like demonstration was proceeding contemporaneously in another class-room. The Rector, Prof. Kraft, came upon the scene and appears to have acquitted himself judiciously: he fully sympathized with the complaint of the students, but he regretted that they should overstep the bounds of decorum. But they determined to start a strike. The method seems rather crude and inconvenient, and it cannot be recommended. Still there must be some natural element in it; it is not without notable analogies in other departments of public business, in Vienna and elsewhere.

## SUMMARY OF THE MONTH.

THE discussion of the Education Bill has been running its natural course throughout the country, the well worn arguments being repeated with more or less warmth of expression. The Albert Hall meeting was the most important; it probably had influence upon the later stages of the Bill. There are still fanatical declarations against payment of rates, and in some quarters rolls have been signed by way of pledge.

In answer to questions by Mr. Plummer, Sir William Anson (October 27) made the following statement with regard to "the position of women in the work of public education in the future":—

Under the Education Bill, women will be eligible for the boards of managers of public elementary schools. They will also be eligible for places on the Education Committee of the Local Education Authority. This is plain from the terms of the Bill. It has always been the declared intention of the Government. I may refer the hon. member to an answer given by the First Lord of the Treasury to a question in this House on the 10th of April of this year.

THE Executive Committee of the Association of School Boards (England and Wales) have embodied in resolutions their objections to the Education Bill. (1) Regretting that the principle of one Local Authority is not directly elective, they protest against the abolition of the popularly elected School Boards. (2) The areas proposed are still frequently too large for the efficient control of primary education. (3) The Local Authority should have control, in respect of elementary schools, over the secular instruction, the staffing, and the salaries of all teachers. (4) The severance of evening schools from the elementary day schools, with which they are organically connected, and the day schools age limit of fifteen, will irreparably damage the best interests of both classes of schools.

INFERENCES as to the possible composition of the Education Committees to be formed under the Education Bill (says the *Daily News*) may be drawn from a return which was issued by the Board of Education on November 15. This shows the number and composition of the Technical Committees in counties and county boroughs in England and Wales established under the Technical Instruction Acts. The general result is that, out of 129 counties and county boroughs in England and Wales, 59

have Committees which consist solely of councillors; and in 67 cases the Technical Committees consist partly of councillors and partly of outside members; while in three cases no Committee has been appointed. In most instances where the Committees consist partly of councillors and partly of outside members the councillors are in a majority, but in 13 cases the outsiders form the majority—at Chester, Gateshead, Blackburn, Burnley, Liverpool, Bath, Burton-upon-Trent, Hanley, Ipswich, Hastings, Coventry, Denbigh County, and Swansea. The co-opted members come within six categories:—(1) Members of School Boards and school managers; (2) grammar schools and other educational institutions; (3) trades and industries; (4) the teaching profession; (5) Town Councils and other local bodies; and (6) educationists and others.

DR. J. J. FINDLAY, in one of the series of timely and able articles on Education in the *Morning Post*, writes:

As far as secondary education is concerned, the nation's need at this moment is a public-spirited Board of Education. The Act of 1899, passed with so little controversy, may prove, in time to come, to have done for English children more than the Act of 1902. If Germany teaches us one thing most unmistakably, it is that the expert officers of Government hold the destinies of secondary education in their hands, and that we have a right to demand from them a national service of the highest order, backed up by generous support from the Treasury.

THE recent Educational Conference under the auspices of the Private Schools' Association proved highly successful. The President (Mr. Bartley, M.P.) said their great aim was to secure a highly efficient system of secondary education, while safeguarding the existence, the work, and the rights of efficient private schools and of those that teach in them. The Bishop of Rochester bore testimony to the excellence of the work of many of the private schools. The main subjects of discussion were Co-education (the advantage of which in the case of pupils over thirteen or fourteen was generally held not to have yet been demonstrated), the Relations of Parents and Teachers, and Examination and Inspection.

THE REV. W. C. EPPSTEIN, of Reading School, said on speech day (October 24) he must once more raise his voice against those needlessly multiplied examinations from which schoolmasters and boys alike suffered so much, and which led to a very unnecessary waste of time, the immense number of special examinations being all nearly of the same standard, but differing sufficiently to necessitate special machinery:

When we got an Education Act he hoped one of the first things would be to try and co-ordinate examinations. As to the study of Latin and Greek, it seemed to be generally thought that because a large number of public-school masters were classical men, in their own interest they tried to preserve the study of so-called "dead languages." He assured them that was not the case. Head masters of public schools were very anxious to meet the requirements of the age, and had constantly urged the Government to introduce some measure which would co-ordinate education and reduce the waste which now went on. The truth was that schoolmasters were practically obliged to fall in line with the wishes of parents, and, if they did not always go to the extremes parents would wish, it was merely because they were anxious to proceed on safe lines, and not go from one swing of the pendulum to the other without seeing their course. Reading School had been influenced by the modern spirit; for, while eight years ago there were more than half, that day they had not one quarter of the boys of the school on the "classical" side. While schools all over the country were being changed from classical to modern schools, the Universities had not yet felt the pressure severely; but they would feel it ere long.

PRINCIPAL BODINGTON's recent report on the past session's work at the Yorkshire College states:

Of the technical departments, those of agriculture and electrical, civil, and mechanical engineering show increased numbers; those of dyeing, leather industries, mining, and textile industries some decrease. But in leather industries the trifling diminution is much more than counterbalanced by a marked growth of the evening classes. Those who believe that high technical education is one of the chief factors which have contributed to the recent development of American and German industrial enterprise will regret that there is still too much disposition in our own districts to regard such education as the luxury of the few rather than as of essential importance to all young men who aspire to leadership or important positions in business life.

The work of the college in training secondary teachers, it is added, is rendered very difficult by the paucity of schools in

Leeds to which women students can gain admission for purposes of practical work while they are reading for the diploma.

At the annual meeting of the Governors of the University College of Wales, Aberystwyth, Principal Roberts presented the report of the Council, which referred to the great and urgent need of financial assistance. The new science buildings were estimated to cost £20,000, and this was only one of several developments requiring large additional funds. The number of students in the college was 440, which showed a reduction of 36 upon the corresponding period—a decrease chiefly accounted for by a smaller entry of students in the advanced short course in agriculture. Notwithstanding, the proportion of those pursuing full University courses, as compared with those of last year, was fully maintained. The work of the college in all its parts continued to be such as to deserve the enthusiastic support of the Welsh people, and he felt that the appeal for help would be met. Mr. Edgar Jones, on behalf of the Old Students' Association, presented to the college a portrait of the late Mr. T. Ellis, M.P., which was unveiled by Mr. Humphreys Owen.

THE annual report of the Swansea Training College states that the mention of training colleges in the Bill is valuable as an admission of the fact that they are institutions towards the establishment of which public funds may rightly be applied. Nevertheless, the effect of making local rates the source of these funds will probably be to keep the word of promise to the ear but break it to the hope. Since the colleges meet the needs of the nation as a whole, the nation as a whole should contribute to their establishment. This would be nothing more than the revival of an old practice. Before 1870 the State gave nearly £120,000 in grants towards the erection of training colleges. Mr. Balfour (with whom the Principal has had correspondence on the subject) thinks such grants now out of date; but, if they were legal before 1870, they are still legal and, even if they be contrary to law, they do not seem to the Council to be contrary to good policy.

A MEETING in aid of the Association for Promoting the Employment of High-School Girls in Elementary-School Work was held in Westminster Town Hall on November 12. Since the Association was formed (May, 1897) the Committee have received applications for advice and information from 267 persons. Sixty of these have since taken up the work, and are now teachers in elementary schools and pupil-teacher centres or are preparing to become such. The cause was advocated by the Bishop of Rochester (who presided), Sir Joshua Fitch, Dr. M. E. Sadler, Miss Bishop (Principal of St. Gabriel's College, Kensington), Miss Montgomerie Hunter, and Sir Charles Elliott.

MR. W. H. WILKINSON, General Secretary of the "United Foreign Circles" at Bradford, gives an interesting account of a movement in that town to facilitate the acquisition of foreign languages:

Four years ago there were in Bradford three "foreign circles" for French, German, and Spanish, each meeting one evening a week in a room hired for the purpose. A paper was read in the language, followed by discussion and conversation, French, German, or Spanish ladies or gentlemen assisting the English members. These three sections are now amalgamated into one institution with a club house of its own, and a programme of lectures and discussions once a week in each of the three foreign languages, with one evening a week in English for the benefit of foreigners studying our language. A moderate subscription (7s. 6d. and 10s. for ladies, 10s. and 12s. 6d. for gentlemen) gives admission to all or any of the lectures, with the use of the club-rooms furnished with English, French, German, Italian, and Spanish newspapers and a library of foreign books. Mr. Wilkinson claims that "Bradford youths are now undoubtedly to the front as linguists," partly owing to the facilities afforded by this institution, which might with advantage be imitated in other large commercial centres pending the long-demanded but long-delayed reforms in our secondary education. The Englishman is not necessarily a worse linguist than the German; but at present he lacks opportunity.

DR. C. W. KIMMINS addressed the London Branch of the British Child-Study Association (November 14) on "Preparation for Child Study." He said:

Child study has come to stay: in all directions one sees signs of new development; teachers and even parents are awakening to a sense of their responsibility. An important side of the society's work should be the

formation of a trained body of investigators. The first essential is sympathy, to open the child's mind; then some fair knowledge of psychology and physiology is fundamental to good work; and a careful study of the history of education, particularly a study of one or two men—their experiments, failures, successes—would be invaluable for inspiration.

Mr. H. Holman, H.M.I.S., addressing the Cheltenham Branch (November 21), argued from his recent investigations that definite exercises in exact thinking should be begun about the tenth year. No pupil should leave a secondary school or enter a University without having gone through a course of elementary logic.

WE regret to record the death of Mr. G. A. Henty, who has been, perhaps, the most prolific of writers of books for boys during the past generation. He may not have been always technically accurate with his broad brush, but he was always fresh and spirited; he had wide personal experience as military official, war correspondent, and journalist, and he knew how to carry his boy along with him. Since his first boys' book—"Out on the Pampas" (1868)—his stories number somewhere about seventy or eighty, and most of them have been published by Messrs. Blackie in handsome style. In the present issue we notice half a dozen of them—three or four representing his usual Christmas output. A tall, burly, bluff figure, he was a charming companion, and he will be much regretted beyond, as well as within, the wide circle of his boy readers. Of many anecdotes one: A soldier that won the V.C. in South Africa wrote home to his mother: "It's all through reading Mr. Henty's books, which taught me to behave like a man, and I'd like you to tell him"—which she did.

A DEPUTATION from the Society of Art Masters waited upon Lord Londonderry (November 24). Mr. Lawrence, M.P., who introduced the deputation, explained that its members were head masters of schools of art in the country who wished to point out that the actual teaching side of the subject of art education was, under present circumstances, improperly represented. Lord Londonderry replied that he understood the deputation's opinion was that, in view of the recent introduction of the block grant, which created the necessity for more complete inspection, the inspectors in schools of art, art classes, polytechnics, secondary and elementary schools must be experts in art instruction. A detailed inspection at long intervals had been arranged for. As to the deputation's suggestion that it was desirable to coordinate the instruction in drawing and art in primary schools with that given in schools of art, and that Local Authorities be encouraged in this direction, Lord Londonderry agreed that this was a very important point, but for the present it was necessarily mainly a matter for local arrangement. Respecting the deputation's desire for representation on the Teachers' Registration Council and on the Council of Advice for Art, his lordship said that the regulations governing the matter were under the consideration of the Consultative Committee, and the recommendation of the deputation to include the Royal College of Art on the same lines as the Royal College of Science should be submitted to it.

## UNIVERSITIES.

(From our Correspondents.)

To those who remember the feeling excited by the debate on vivisection or on the women's examination, the momentous question decided at Oxford on November 11 may seem to have aroused inadequate interest. In spite of constant letters and some pamphlets, the warfare of words has been far less active than at the time of the controversy on women's degrees, when 73 distinct documents heralded the debate; the poll was not strikingly large—355 out of about a possible 477; only one of the speeches evoked any general applause; and, on the whole, the atmosphere of the Theatre was one of comparative apathy. Nevertheless, these things were in a measure but the symptoms of the real seriousness of the occasion. Opinion was curiously divided: academic liberals voted *non placet*, and even Science men were ranged in opposite camps; and anticipation had not guessed how even the voting would be—*placets* 166, *non placets* 189—majority for the retention of compulsory Greek only 23.

Mr. Matheson, of New College, on behalf of the Hebdomadal Council, proposed the resolution on whose fate hung the discussion of the other five: "That candidates shall not be required to offer both Greek and Latin in the examination in stated sub-

jects in Responsions." In a very moderate speech, somewhat discursive, yet perhaps the best made, he declared that, if Oxford was to be a national University (is her aim to be national or to be cosmopolitan?), she must show herself more in sympathy with modern studies; that Responsions should offer a wider choice of subjects with a heightened standard; and that co-ordination in schools must become more common, and that, instead of all schools trying to teach everything, some should be able to specialize in one direction and some in another. Mr. Phelps, of Oriel, replied in a clever and amusing speech. He scored the real point, that it is impossible to make so great a change as this and then limit the effects to the boundaries that the framers of it may desire to set.

Probably there will be found agreement on one point among many who take a different view of Tuesday's vote, viz., that Oxford has remained true to her traditions. But as to the character and value of those traditions they will be less unanimous. Now, as ever, one may say, Oxford makes haste slowly. Tuesday's vote has not decided the question. It is pretty certain to come up again at no very distant date and in a modified form—a form that the correspondence has partly foreshadowed. Mr. Bourne, of New College, has perhaps most clearly and cogently put the case in favour of the exclusion of Greek, while Mr. Grundy, of Brasenose, has stated the case for the moderate party who, though voting against the resolution, wish for some reform. For, in spite of the *non-placet* majority of 23, it is admitted by most that in the case of men—chiefly those who have taken mathematical or science scholarships or exhibitions—who come up to Oxford prepared, after Responsions, to abandon the study of Greek altogether, it is an undesirable reflection that they are obliged, as Mr. Grundy says, to put "the coping-stone on their pre-University education by learning by heart Collis's Greek verb card and the cribs to two plays of Euripides." But for the ordinary Pass man is not some knowledge of Greek and Greek literature necessary to qualify him, not, indeed, to earn his bread and butter (for a Pass degree does not aim at that), but to become a "capable citizen who can take an educated view of the ordinary problems of life"? Pass men bear the stamp of Oxford almost as markedly as Honours men, and it may be supposed that stamp is imparted by some acquaintance with Greek thought. Is this type of man worth preserving? If so, then the suggestion made by Mr. Spooner seems to offer a solution, viz., that Congregation should now consider a resolution that "All candidates should not be required to offer both Greek and Latin in the examination in stated subjects"—that, while the scientific men and mathematicians should be exempt, Greek should still be required of the historian, the lawyer, and the passman. Anyhow, one may safely agree with the Warden of Keble that, while a good liberal education can be given without Greek, the best liberal education demands it. But let the reader take the prophecy for what it is worth—we think that Greek as compulsory for all men who come to Oxford is doomed, and that soon.

To come to the pursuits of Oxford's sons—shall we say more or less compulsory than the study of Greek? The Rugby team has done fairly well. It lost to the Old Merchant Taylors—chiefly owing to the bad play of one of the men—but it has beaten the London Scottish, Moseley, R.I.E.C., and Bristol. The three-quarters work well together; C. B. Buck and A. D. Stoop make a good pair of halves. The forwards are coming on well, and a respectable back has been found in Glover. Oriel has been beaten by Balliol in the Association Cup; the winners may be looked for among Magdalen, University, and New College. New College rather unexpectedly won the Fours, beating University in the Finals. The river is now given up to Trial Eights and College "Togger" Fours.

Dr. Parkin, the organizing agent for the trustees of the Rhodes Scholarships, has lately spent a fortnight here to consult the University and college authorities before framing for the approval of the trustees a scheme for the election of the scholars. He addressed a set of questions to all the heads of colleges concerning arrangements for the reception of scholars. The University may expect from seventy to seventy-five scholars the first year, about the same number the second, and for the third about thirty, the numbers continuing from year to year in much the same proportions. The reason why the numbers coming up the third year will be so much smaller, Dr. Parkin explained, is that, as each State in the American Union has only two scholarships allotted to it, every third year no fresh scholars will be elected. It appears likely that Mr. Rhodes's wish will be fulfilled, and the colleges will each receive some of the scholars, who thus will be spread over the University. Meanwhile his old

University seems following his wishes in other ways, for graduates continue to go out to South African appointments, to fill what the irreverent call "Lord Milner's crèche of young Oxford men."

THE "General" is doomed! Such was the cry of Cambridge. the man in the street a year ago. A Syndicate was appointed amid much pomp and circumstance to give the ill-used institution the *coup de grâce*; but, lo! the Syndics are but men, and by a majority they have decided that decay may be inevitable, but unreasoning change may be averted. In plain English the Syndicate created to consider what changes, if any, are needed in the scheme of our poll examinations have, in a singularly laconic report, told us that they consider the "General" ought to be retained, and that alternative subjects should not be allowed in that ordeal. All who in their daily work have to deal with the poll man were convinced of this long ago, but the anti-Greek party are ingenious and persevering; this time they made a flank attack and have been routed.

The election to the Council of the Senate gave rise to rather a sharp contest, noticeable for the fact that the Progressive party received some rather hard knocks. Dr. D. MacAlister lost his seat after a membership of the Council extending over many years, being displaced by Mr. J. H. Gray, of Queens', who received the votes of those who are firm on the question of Greek and are opposed to meddling with our examination system; Mr. Beck, the new Master of the Hall, displaced Mr. Chawner, of Emmanuel; Sir Robert Ball joins the Council for the first time, and will doubtless enrich the proceedings of that august body with his genial and irrepressible humour. Some day, it may be, a candidate will be put up avowedly in the interests of the common or garden undergraduate, but it is very unlikely that such a bold person would secure any considerable number of votes.

Mr. John Morley, as all the world knows, has given to the University, or rather to the University Library, the famous Acton Library, collected by our late Professor of History, and has been duly thanked by the University in a Latin epistle, drawn up according to rule by our Public Orator. When will common sense put an end to the absurdity of presenting for degrees and delivering addresses in a tongue not understood of the people, and as incomprehensible to the audience as it would be ridiculous to the Imperial Roman, were he to come among us on a May term degree day? English surely is good enough; but perhaps the difficulty would be to find a Public Orator who could do justice to the manifold subjects of the Senate House.

The new Licensing Act is likely to create some little fluttering in the Cambridge dove-cotes. The Vice-Chancellors of both Universities were asked if any exceptional legislation was desired in reference to the registration of clubs. The man of Oxford said: "Yes"; and the man of Cambridge: "No." And we are sorry. Friction between the town officials and University societies is always to be deprecated, and in this case whatever friction may arise will do so from the want of quite ordinary caution.

The police have lately developed extraordinary vigour in the prosecution of cyclists. To ride at the same rate as a Cambridge hansom driver takes a fare to the station is to court an appearance before the Bench and a ten-shilling fine. All this, too, when the traffic in our streets is perhaps worse than that of any other town in England. For years Trinity Street has been the evening resort of crawling cabs, while a cab rank at the very door of the Senate House affords a standing object lesson of how not to do it.

Arrangements for fire extinction are utterly inadequate, roads, as a rule, are badly kept, and the members of the Town Council are thoroughly pleased with themselves, and, to crown it all, our local representatives, whose duty it is to see that our sewers are clear and our dust-bins empty, call upon us magniloquently to "vote for our party" at the annual elections.

The new Vice-Chancellor is doing well. Queens' Lodge is an ideal place for entertaining, and is being used for that purpose.

The football team is getting into shape and is not as bad as journalists make out. There is abundance of good material on the river, and the unbroken run of success achieved by Third Trinity has been brought to a conclusion by R. H. Nelson winning the Colquhoun Sculls in record time. "Third" have now earned the distinction of doing everything that a college boat-club can desire; yet nobody grudges the Eton and Westminster men their numerous laurels.

A lecture-room story: A well known but absent-minded bishop was adding a final question to a critical paper set by his examining chaplain; the last question ran: "10. Translate and explain"—then followed the bishop's signature. What was it?

## CURRENT EVENTS.

THE next Winter Meeting for Teachers will be held at the College on January 6 to 10, 1903. The programme will include lectures on the principles and practice of education, and on methods of teaching the principal subjects of instruction in secondary schools.

THE Christmas Examination of Pupils will commence on December 9, and the Examination of Teachers for Diplomas on December 30.

THE Annual Meeting of the Geographical Association will be held in the Hall of the College of Preceptors in Bloomsbury Square on Friday, January 9, at 3.30 p.m. The President, Mr. Douglas Freshfield, will occupy the Chair. An address on "The Australian Commonwealth" will be delivered by the Hon. Sir John A. Cockburn, K.C.M.G., M.D., formerly Prime Minister and Minister of Education of South Australia, and Chairman of the Australasian Chamber of Commerce, London. An exhibition of the various styles of Ordnance Survey maps will be arranged through the kindness of the Southampton Geographical Society, and, in connexion with it, Mr. A. W. Andrews will show a number of lantern slides.

MISS ALICE WOODS will read a paper on "Co-education" to the London Branch of the British Child-Study Association at the Sesame Club on December 12 (8 p.m.).

A JOINT CONFERENCE of the British Child Study Association and the Froebel Society on "Home Life in relation to the School" will be held in January.

THE incorporation of the Bedford College for Women is to be celebrated by a Ball at Prince's Hall, Piccadilly, on December 10.

THE Old Boys' complimentary dinner to the Rev. C. G. Gull, to celebrate the completion of his twenty-first year as Head Master of the Grocers' Company's School, takes place at the London Tavern on December 5.

THE following members of Trinity College, Cambridge, have been elected honorary Fellows:—Mr. Balfour, Mr. Francis Galton, Sir William Harcourt, Lord Macnaghten, and Prof. F. W. Maitland.

THE Royal University of Ireland has conferred the honorary degree of D.Lit. upon M. Edouard Cadic, Chevalier de la Légion d'Honneur.

MR. J. MACLEOD, H.M.I.S., Elgin, has been appointed a Companion of the Imperial Service Order.

SIR ROBERT B. FINLAY, K.C., M.P., the Attorney-General, was elected Lord Rector of Edinburgh University by 295 votes (916 to 621) over Sir Edward Grey. Sir Robert is an M.D. of the University.

MR. C. T. RITCHIE, M.P., the Chancellor of the Exchequer, was elected Lord Rector of Aberdeen University by 28 votes (360 to 332) over Mr. Asquith.



A SIR ALFRED JONES Chair of Tropical Diseases and Parasitology has been instituted at University College, Liverpool, at a cost of £10,000. King Leopold, of Belgium, contributed £500.

UNIVERSITY COLLEGE, LONDON, makes an immediate appeal for £108,000 to place the Medical School on a proper footing. For the incorporation of the College with the University £92,000 has already been subscribed.

UNDER the will of the late Mr. John Milne, advocate, Aberdeen University obtains some £21,000 to provide scholarships for post-graduate study.

At University College, Aberystwyth, Mr. A. Brigstocke has provided three exhibitions of £10 each in agriculture; and Mr. Parry Thomas, a student of the College, and members of his family, have jointly offered £1,000 towards a gymnasium.

MR. FRED PHILIPSON STOW, of London, has subscribed £10,000 towards the foundation of a South African College.

THE Town Council of Edinburgh has promised £1,500 to the Heriot-Watt College on condition that the Government contribute a like sum.

SIR ERNEST CASSEL, K.C.M.G., and the Drapers' Company, have each contributed £100 to the Commercial Education Expenses Fund of the London Chamber of Commerce.

Scholarships. AN examination for classical scholarships and exhibitions at New College, Magdalen, and Corpus Christi Colleges, Oxford, begins on December 9.

Appointments and Vacancies. SIR WILLIAM MUIR, K.C.S.I., has resigned the Principalship of Edinburgh University, which he has held since 1885. He is eighty-three years of age.

LEE's Readership in Chemistry at Christ Church, Oxford, is vacant through the resignation of Dr. A. G. V. Harcourt, F.R.S., after forty-three years' service.

At Cambridge Dr. Rodgers has been reappointed Demonstrator of Anatomy for five years, and Mr. J. S. Gardiner, M.A., has been appointed Demonstrator in Animal Morphology for five years.

MR. H. S. CARSLAW, Fellow of Emmanuel College, Cambridge, and Lecturer in Mathematics in the University of Glasgow, has been appointed Professor of Mathematics in the University of Sydney.

MAJOR RONALD ROSS has been appointed to the new Chair of Tropical Medicine in University College, Liverpool.

MR. GREGG WILSON, M.A., Ph.D., D.Sc., of Edinburgh University, has been appointed to the Chair of Natural History in Queen's College, Belfast.

MR. DAVID PHILLIPS, B.A., has been appointed Assistant to the Professor of Moral Philosophy at St. Andrews.

MR. FRANK FLETCHER, B.A., has been appointed Assistant to the Professor of Education, University College, Liverpool.

MR. D. T. MACKINTOSH, M.A., of Edinburgh University,

Mr. J. Purves, M.A. of Edinburgh University, Mr. T. Rudmose Brown, M.A. of Aberdeen and Edinburgh Universities (son of the late Dr. Robert Brown), and Mr. D. H. Low, of Edinburgh University, have been appointed Lecturers in the English Language and Literature in the Universities of Toulouse, Lyons, Grenoble, and Dijon respectively.

COLONEL G. MALCOLM FOX, late Inspector of Army Gymnasia, Aldershot, has been appointed Inspector of Physical Training under the Board of Education.

MR. JOHN ALISON, M.A., head mathematical master, George Watson's College, Edinburgh, succeeds Prof. Adams as Rector of the United Free Training College, Glasgow.

MR. JOHN HOPKINS, M.A., Head Master of Fordoun School, has been appointed Rector of Hutton Hall Academy, Dumfries.

MR. CHARLES S. MACPHERSON, Head Master of Aberlour Public School, has been appointed Rector of Banff Academy.

MESSRS. SWAN SONNENSCHN & Co.'s forthcoming "The Schoolmaster's Year Book and Directory" will run to about 1,000 pages. Part I. will contain comprehensive information about secondary education; Part II., the names, degrees, experience, &c., of some 7,000 secondary-school masters; and Part III., some fifteen articles on important questions by expert writers, as well as reviews of books on education published during the year. Women teachers are excluded on the ground of limited space.

MR. MURRAY will publish shortly the Life of Field-Marshal Sir Donald Stewart—"mainly in his own words"—and Lord Goschen's "Life and Times of Georg Joachim Goschen," the famous Leipzig publisher and printer.

MESSRS. LONGMANS & Co. will publish immediately "The Discovery and Decipherment of the Trilingual Cuneiform Inscriptions," by A. J. Tooth, M.A., and "The Composition of the Hexateuch," by J. Estlin Carpenter, M.A.

MESSRS. A. & C. BLACK announce "Egypt, painted and described by R. Talbot Kelly," a companion volume to Mr. Mortimer Menpes's "Japan," with some seventy full-page illustrations in colour.

MESSRS. OLIPHANT ANDERSON & FERRIER have in the press Prof. Knight's "Personal Recollections" of "Some Nineteenth Century Scotsmen," and the Rev. John Willcock's "The Great Marquess" (of Argyll). The latter "is based upon the original sources, and is in no sense a mere compilation."

PROF. F. C. MONTAGUE has prepared a completely annotated edition of Macaulay's Essays for Messrs. Methuen's "Standard Library."

MR. E. LATHAM has compiled a collection of historic and memorable sayings, which will be presently published in Sonnenschein's "Quotations Series."

*Hazell's Annual* will be published on January 20, so as to include the record of the complete year. Improvements in arrangement and an unusually large number of new features are promised.

SIR PHILIP MAGNUS'S Report on the work of the Department of Technology, City and Guilds of London Institute (Murray, 9d. net; post free ls.), is an interesting and hopeful record.

THE Taylorian Lecture (Oxford) was delivered (Nov. 5) by Mr. J. Fitzmaurice Kelly. The subject was "Lope de Vega and the Spanish Drama."

ABERDEEN UNIVERSITY COURT has appointed a committee to take immediate steps for the foundation of a Chair of History.

MRS. JEVONS has presented the valuable library of the late Prof. Jevons in Economics, Logic, and Philosophy to Owens College.

MRS. TAIT has presented to the Natural Philosophy Laboratory in Edinburgh University a number of mathematical and physical works and a large collection of scientific papers from the library of her late husband, Prof. Tait, and also many of his scientific instruments.

A READERSHIP in Celtic is to be established in University College, Liverpool. The Reader-designate is, of course, Dr. Kuno Meyer, who will still retain his Professorship of German, but will be relieved of the weight of the elementary work.

ETONIANS (and others) will be interested in Mr. O. C. Williams's article on "Collegers and Oppidans" in the *National Review* for November.

THE annual concert given by the pupils of the North London Collegiate School for Girls proved a gratifying success, especially the pianoforte-playing.

MR. CHAMBERLAIN unveiled a memorial tablet at University College (London) School (November 5) to old students (12) that fell in the South African War. He is himself an "old boy."

THE stained glass windows in Margate College chapel in memory of the old boys that went to the front (over 250) were unveiled and dedicated by the Bishop of Dover.

IN the *Record* (of Technical and Secondary Education) for October, Mr. Wilfred M. Webb, F.L.S., gives an elaborate and instructive summary of "Opinion and Experience from the Nature-Study Exhibition."

## THE TRAINING OF SECONDARY TEACHERS.

### CONFERENCE AT CAMBRIDGE.

THE Cambridge Conference on Training was held on November 14 and 15, and brought together a thoroughly representative body of schoolmasters and others interested in education. The arrangements, under the skilful direction of Mr. Oscar Browning and Dr. Keynes, were most businesslike; and the Vice-Chancellor made an excellent chairman. Of the kindly hospitality shown by members of the University it is needless to speak, except in terms of grateful acknowledgment; the evening gathering in the quaint rooms of Queens' Lodge and its newly decorated hall was a treat not to be forgotten. The proceedings began with a paper by Sir Richard Jebb, containing a lucid sketch of the history of the movement for registration, a summary of the Order in Council, and some suggestive remarks on the problems raised by it. The historical review did full justice to the efforts of the College of Preceptors, the initiators, and for more than forty years the consistent supporters, of the movement, for which during a considerable part of the time they struggled almost single-handed. The general discussion on methods of training fell under four heads: University training, training at a residential professional college,

training as a student-teacher at a recognized school, and a combination of the first and third methods. Speaking generally, the needs of "Conference schools" were rather too much present in the minds of many who took part in the discussion. From one point of view, this is a healthy sign. It argues a genuine desire on the part of the leading schoolmasters and of the Universities to make training a reality. On the other hand, it showed some want of appreciation of the vastness of the problem that faces us, and of the necessity of solving it in many ways.

Mr. Arthur Sidgwick's opening paper dealt with some of the difficulties attending training at Oxford, incident to the length of residence required if it is to be entirely post-graduate. He advocated a concurrent system in the case of men who had taken Honours in Moderations, and might then be contented with a Pass in the Final Examination. Mr. Eve offered a somewhat similar suggestion in regard to Cambridge, urging that intending teachers of moderate abilities should take the First Part of their Tripos, or complete the Poll examination, at the end of their second year, and devote the third year of residence entirely to professional work, including the revision of some of the elementary subjects with a view to teaching them. Mr. Sidgwick also dealt with the possibilities of providing practising schools—a difficulty felt everywhere—but even more acutely at Oxford and Cambridge than in larger centres of population. Mr. Oscar Browning gave an interesting account of the system of the Cambridge Day Training College, which includes both primary and secondary teachers, and which in the case of the former is concurrent with the preparation for a degree. It should be mentioned that the post-graduate students of the college during the five years that part of it has been in operation include several First Class men, and that some of its *alumni* have become masters at Harrow, Charterhouse, and the City of London. In the course of the discussion which followed, Dr. Findlay spoke strongly in favour of post-graduate training as essential to the status of secondary education, and dwelt on the necessity of placing the academic study of pedagogy on a level with that of the most important University subjects. Much, he urged, had to be done before we had anything like a complete science of education. Prof. Adams, of London University, took the same line: education as a science, he said, must justify its position. He deprecated the Scotch plan of concurrent training and preparation for the degree, while admitting that the last year was usually devoted to the latter purpose. Mr. Keatinge called attention to the want of knowledge on the part of intending teachers of some of the elementary subjects; as regards geography, something was done at Oxford to meet the want. Both he and Mr. Jenkyn Thomas, of the Welsh County Schools' Association, opposed the combination of primary and secondary teachers in the same classes. Prof. Muirhead from his Birmingham experience was in favour of it, and Mr. Fletcher, of the Cambridge Training College, pointed out that secondary training must necessarily cover a good deal more ground than primary. Mr. Fletcher also appealed to the analogy of the Engineering School, which, like pedagogic training, combined theory and practice. Mr. Barber, of the Leys School, dealt with the difficulty of securing practising schools; he believed that in the long run schools willing to be used for the purpose would be able to take up a strong position towards parents who might demur to their children being made the subjects of experiment. The President of Magdalen College, Oxford, wound up the discussion with a protest against any attempt to limit the full Oxford Honour course in favour of intending teachers. The general trend of the debate was in favour of post-graduate as against concurrent training.

Next came a paper by Mr. P. A. Barnett, whose departure for Natal deprived the Conference of the pleasure of listening to him in person. In it he deprecated the foundation of residential training colleges for secondary teachers outside the direct influence of the Universities. Such colleges would, he urged, tend to become narrow and technical; and their establishment, after the efforts made to bring a considerable number of primary teachers under academic influence, would be a retrograde step. There was no discussion on the paper, but it was clear that the Conference shared Mr. Barnett's view. The question of student-teachers was opened by Mr. Lyttelton, who gave an interesting account of his own experience with three young men whom he had received in that capacity at Haileybury. He pointed out the many attractions that such a position offered to men leaving college, and remarked on the advantage to the schools of the criticism from outside involved in the occasional visits of a peripatetic master of method to the student. Dealing with the pro-

blem of finding places for enough student-teachers, he expressed the opinion that schools were too numerous, and that concentration would mean fewer and more efficient masters. A paper by Dr. Gow dealt largely with some of the influences tending to make schoolmastering less attractive than it used to be, especially the inadequacy of salaries, the small chance of material advance as men grew older, and the risk of being thrown out of the profession at an age when other men are in the full tide of work. Dr. Wormell threw out a useful suggestion as to a totally different kind of student-teachers. In schools where boys left young it was often possible for the head master to pick out promising lads at the head of the school and entrust them, under supervision, with junior work. Such boys, he thought, entered, in a year or two, on their academic studies with a good idea of the needs of their future profession. The suggestion was taken up by Prof. Armstrong on the following day. Mr. Sidgwick admitted the value of the student-teacher system as a makeshift, but urged strongly the importance of academic training, quoting a remarkable letter from a head master who testified to what he had gained from such training in the way of enlargement of view and definiteness of aim. Sir A. Rücker quoted the experience of the College of Science, where a number of demonstrators were employed, but pointed out the difficulties of making the training complete enough in an ordinary school. Mr. Arthur Acland impressed upon the Universities the necessity, if they were to direct the movement, of securing the ablest men as professors of pedagogy. As for concurrent training, he looked upon it as far inferior to post-graduate training, but felt that it was undesirable to proceed too fast, and that it might be some time before an ideal system was reached. Mr. M. E. Sadler added an inspiring speech; and Sir Oliver Lodge summed up in a lucid way what appeared to him the general outcome of the debate.

The second day's discussion was opened by Mr. Bell (Marlborough), with a fourth alternative system. He put forward "a plea for a partition of the year of training between (1) student-teachership at a recognized school and (2) a course of training at a University or a non-University training college." If the year were divided, there were strong reasons for assigning the first term of it, and no more, to student-teachership. The Warden of Bradfield (Dr. Gray) wrote to say that he thoroughly agreed with the scheme, but would make it obligatory. Mr. Glazebrook (Clifton) dwelt on the wide difference between a voluntary and a compulsory system, and thought the intellectual and spiritual side of University training more valuable than the practical side. Mr. W. Edwards (University of Wales) held that it would be a retrograde step to establish residential training colleges for secondary teachers, whether in connexion with the University or not. Mr. Moss (Shrewsbury) foresaw considerable difficulty in inducing many head masters in the first instance to take student-teachers. Prof. Armstrong was concerned for the preliminary training of teachers, and insisted on "scientific methods." Mr. Phillpotts (Bedford) dwelt on the importance of not imposing too heavy a burden on the ablest men entering the profession, the attractions of which for such men were hardly what they had been. He gave details as to the best way of utilizing the services of a visiting master of method for student-teachers working at a school. Mr. Lyttelton (Haileybury), Prof. Woodward (Victoria University), Mr. P. E. Matheson and Mr. M. W. Keatinge (Oxford), Mr. H. G. Fordham (County Councils Association), and others followed.

On financial and other economic questions there were three papers—by Mr. H. Hobhouse, M.P., on Local Education Authorities; by Mr. Swallow (Chigwell), on Governing Bodies and Head Masters of Schools; and by Mr. J. L. Holland (St. Olave's), on Candidates for Masterships. Mr. Hobhouse suggested various modes of dealing temporarily with the serious financial difficulties, and thought it would be difficult to organize satisfactorily a local system of training teachers of any grade unless the Government offered substantial inducements to Local Authorities to take up a task that ought by rights to have been borne by central rather than by local funds. Mr. Swallow effectively represented the difficulties of head masters unless the training college system were accepted. Mr. Holland dealt pointedly with the steadily increasing demand for competent assistant masters, and the steadily diminishing supply. "There never was a time when the teaching profession was less attractive than now." Mr. Storr (Teachers' Guild) declared without hesitation that he would sooner forgo training altogether than give up the last year of a University course or convert a class man to a pass man. Mr. J. B. Blomfield (Private Schools'

Association) having spoken, and Sir Oliver Lodge having summarized the points of agreement, Dr. R. P. Scott expressed the hope that a permanent committee would be formed to carry on the movement to a more successful issue.

Sir John Gorst proposed the appropriate votes of thanks, remarking that, if the Universities intended to remain at the head of a movement of this kind, they must be progressive. The Vice-Chancellor made a cordial reply.

## CORRESPONDENCE.

[We do not hold ourselves responsible for the opinions expressed by our correspondents.—Ed. E.T.]

### THE COLLEGE OF PRECEPTORS: A MEMBER'S FRIENDLY CHALLENGE.

To the Editor of the "Educational Times."

SIR.—I trust that the importance of a plea for more energy and strenuousness amongst our members will gain it a welcome in the columns of the journal of the College of Preceptors.

Those who have either read the recent reports or attended the general meetings of our Corporation must have observed of late that more time has been taken in its deliberations, that there has been an increased attendance of members, and that our "government" has been freely criticized as to its record and programme. A corporation that allows its rulers to become an almost autocratic oligarchy, through its own lethargy and *laissez-faire*, is on the sure road to decay, the signs thereof being made manifest in the growth of kindred associations around it, which tend to choke its progress, obscure its objects, and arrest its right development. The keynote of Nature is struggle, with a survival of the fittest, and therefore I think that with advantage there are many members amongst us who should test themselves with these questions, now that education in all its bearings is at last brought into the region of practical politics:

1. Have I endeavoured to attend regularly at General Meetings? If not, why not?

2. Have I either thanked or criticized our Council for what has been done, or left undone, to further the best interests of the Corporation?

3. Have I attempted to strengthen and uphold the hands of our "Cabinet" where possible?

4. Have I ever read a report of the doings of the College of Preceptors in the London daily papers? If not, why not?

The next General Meeting of Members is held in January, 1903, and I write thus early that opinion may be brought to a focus on these points that I have mentioned.

One last suggestion, often repeated, and many times, doubtless, debated: Has not the time now arrived for the fusion of the many bodies I have hinted at above into one strong secondary organization, with its headquarters in our own fine premises? I would that any whose sympathy I may have enlisted would communicate to me their views.—I am, Sir, &c.,

C. BAYLEY GUTTERIDGE, M.A., F.R.G.S., &c.

Alley's School, Dulwich, November 1, 1902.

### THE BODLEIAN ORATION.

To the Editor of the "Educational Times."

SIR.—It is nothing less than a stultification of Oxford scholarship and an insult to the tercentenary visitors that the Latin oration should have been delivered with the ridiculous so-called "English" pronunciation. Such childish jargon must have been quite unintelligible, not only to the foreign delegates, but also to the Americans, Scots, Irish, and even those English auditors who had been accustomed to a more rational and enlightened method.

Whatever may be the arguments for bolstering up a senseless and misleading pronunciation in the class-room, and for students who are too stupid to acquire a correct one, there can be no two rational opinions as to the absurdity of it in a public and international harangue, in which it is important not only that a recognized standard vocalization shall be followed, but that the language shall be given its natural euphony and sonority, and not be degraded to a simpering and affected gibberish. . . .

The continued propagation of this puerile pedantry in Oxford, almost alone among the Universities of the world, is the more to be deplored as the scientific system of transliterating Oriental

names is making such rapid progress. . . . It is a libel on average English people to take for granted that they are unwilling or unable to pronounce foreign words correctly, if given the chance. . . . English children taught French on the colloquial system speak it as if to the manner born, and I have heard Latin recited in English and American schools, especially by girls, in such a way that even an Italian professor could hardly find fault. Only last night I heard a young woman, apparently of the servant class, singing the Litany at a Catholic Church with scarcely a mistake, save occasionally such as "dokyumentum" for "documentum." It is the professors, not the people, who are to blame.—I am, &c.,

EVACUSTES A. PHIPSON.

151 Strand, London, October 18, 1902.

[We have omitted Mr. Phipson's numerous illustrations of pronunciation.—ED.]

### "EMPIRICAL" AND "SCIENTIFIC."

To the Editor of the "Educational Times."

SIR,—I am sure you do not mean to be unfair, but you compel me to protest again—(1) "When a disciple calls his own work scientific" you say. But *my words* are: "The combination of scientific method and practical experience was lacking at that time, and it would be very presumptuous in the present writer if he were to hope that he has adequately achieved such a combination here." (2) I proved that I have spoken with the utmost regard of Sir J. Fitch's work; so you turn to my criticism of Bain and argue that, because I hold Bain cheap, therefore I may be presumed, in spite of my words, to despise Fitch! My book places the two apart—most decisively. But, in any case, there is no personal aspect as far as Bain is concerned. He had ceased to be personally known in English circles before men of my age left the University. I have the strongest distrust of his book, and my view is widely shared. Sir J. Fitch, on the other hand, is intimately known, especially in the College of Preceptors' circle, and I regret that you will not gracefully admit that your reviewer has gone astray. I wrote and revised every line of that Preface with the utmost care, and I confidently appeal from your reviewer to pages xii. to xiv. in that Preface.

I shall be lecturing at the College in January, and shall then be able to restate the principles which underlie my distrust of Bain's exposition.—Yours, &c.,

J. J. FINDLAY.

[We certainly have not the remotest intention "to be unfair," but we do think it is not profitable to argue with an antagonist that will not apprehend our plain meaning, and we decline to be drawn away from the original point, which seems to remain unchanged—except that Dr. Findlay has explicitly acknowledged "the utmost regard" for Sir J. Fitch's work. "No personal aspect as far as Bain is concerned": is it possible?—ED.]

### THE NEEDS OF SMALL ENDOWED SCHOOLS.

To the Editor of the "Educational Times."

SIR,—I was very much pleased to learn from the *Times*' report of the Training of Teachers Conference at Cambridge that Mr. Humphreys-Owen, M.P., emphasized "the inadequacy of the provision which was at present made for the salaries both of the head and of the assistant masters." When the endowment is small and fees are low, how can the salaries be adequate? The question arises whether, in many cases, the fees should not be raised.

But there is another thing which is much needed in most, if not all, schools under schemes of the Charity Commission, and that is reasonable security of tenure. What the tenure of heads is your readers have learned in some degree from two letters which have recently appeared in your columns. What assistant masters think of theirs can be gathered from what the representatives of the Association of Assistant Masters urged before the Royal Commission on Secondary Education, when they stated that: "The system of dismissal at pleasure is felt by the assistant masters as the keenest disability under which they suffer. Their salaries are low, but they feel much more keenly this system of dismissal at pleasure."

Parliament has already unanimously conceded to teachers in primary schools the principle of a right of appeal in case of dismissal. You have already inserted an article in favour of a right of appeal for assistants in case of dismissal. Surely the time cannot now be far distant when both heads and assistants in secondary schools will enjoy reasonable security of tenure.—I am, Sir, &c.,

THOMAS ALLEN.

Woodbury, Malvern Link, November 19, 1902.

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### THE EQUIPMENT OF THE TEACHER.

On Wednesday, Nov. 12, at the monthly meeting of members of the College of Preceptors, Mr. JAMES WILSON, M.A., in the Chair, the Rev. J. O. Bevan gave a lecture on "The Equipment of the Teacher." He said:

#### INTRODUCTION.

The world is becoming increasingly conscious of its need of instruction. In olden times, few and far between, heaven-born geniuses like Socrates appeared, like fiery comets, and pursued their rapid and flaming path. Such teachers are like unto Melchisedec—without father, without mother, but, let us hope, not altogether without descendants. Men are sought for nowadays whose ancestry is assured and whose preparation has been conducted along well defined lines. They must be caught, certified, and branded in the orthodox manner. We need them not in twos or threes, but in battalions, for the nations are crying out in their impatience, and never before were so many teachers wanted. The rate of increase ought to be in geometrical progression, and all grades of society must be laid under contribution.

The dignity of the office is unquestionable, for it unites the functions and sympathies of parent, minister, and friend. The calls upon the strength and resources of the educator, the instructor—the one who draws forth what is already there in essence; the one who builds up, fact by fact, axiom by axiom—are correspondingly large. In truth, the perfect teacher would be the perfect man or woman.

There is a rapidly increasing competition for labourers in the world's school and workshop; inasmuch as fields of industry unknown to our fathers are opening out, in respect of engineering, electrical appliances, chemistry, and the like. Again, the vast increase of the Empire, in its distant outliers—our colonies and dependencies—causes a ceaseless drain of men from the centre to the circumference, to subdue, to civilize, and thus to prepare the way for the successive swarms yet to come.

The proportion of women teachers shows a tendency to increase, especially in the United States of America. In the elementary schools of their cities and large towns more than 95 per cent. of the teaching is done by women. This is due to the absorption of men in the various fields of activity above enumerated, to the special moral fitness of women for the work, to their emancipation, and to the growing facilities for their higher education. If co-education come into greater favour, this tendency to call for the service of women will become more marked.

#### THE PHYSICAL EQUIPMENT.

Perfect teaching is consistent only with perfect health. When one considers the demands made by preliminary study, the sedentary nature of the occupation, the confinement in an atmosphere invariably more or less vitiated, the strain upon the nervous system and upon the organs of sight, hearing, and speech, one cannot but allow that the teacher should be exceptionally gifted in respect of physical health, and, resulting from that, of mental equipoise. Under the old dispensation, it was forbidden that any person deformed or physically unsound should enter the priesthood. If the Jewish Lawgiver were our Director-general of Education, he would lay down the same rule with reference to the teacher. It is undesirable that young children—the most imitative of creatures—should have before their eyes, in a conspicuous position, any person afflicted with malformation, whose movements were constantly abnormal. How frequently has a squint or a stammer been acquired from nurse or teacher, and perpetuated in those under her charge! Bearing in mind, too, the pathological discoveries of the present day concerning the active and morbidic microbe, any individual suffering from tuberculosis should be precluded from coming into close contact with the young. Indeed, the same prohibition as to entrance into the school-room should apply to the scholar. Children and all persons suffering from tuberculous complaints should—in the perfect State—be subjected to isolation and a rigorous open-air treatment.\* Thus should we stamp out one of our greatest scourges in two or three generations.

#### THE SPIRITUAL EQUIPMENT.

The teaching function is more like the ministerial, the apostolic, than any other, inasmuch as it presupposes a call—a call to a distinct mission. One hardly imagines an individual entering upon the work of teaching with a view to leading an easy life or amassing a fortune. It is known to be exacting in no ordinary degree, to demand the exercise of unlimited patience and skill; whilst, of itself, it leads to no reward such

\* Since these words were written a recommendation in the same sense has been made at the International Congress on Tuberculosis, recently held at Berlin.

as falls to the lot of the successful merchant, soldier, or politician. There is no Distinguished Service Order for successful teachers; no Victoria Cross for him who builds up many lives at the hazard of his own. Further, a large proportion of those who volunteer into its ranks must be conscious that they will be called upon to pass many weary years in a subordinate position—subject not only to the waywardness of their scholars, but also, perhaps, to a lack of appreciation on the part of their superior officer. Moreover, the emoluments cannot be said to be excessive, for butlers, cooks, and ladies' maids would scorn to change places if salaries only were concerned. No, the budding teacher must look upon his work as a mission, and be led to devote himself upon the altar of duty from the highest motive; *i.e.*, that he might be enabled to exercise the mother-feeling of humanity—the creative and formative principle—whereby one is enabled to take dead matter, to breathe into its nostrils the breath of life, so that the thing of dust may become a living soul.

#### THE MORAL EQUIPMENT.

The possession of certain fundamental qualities we assume—such as truthfulness, honesty, conscientious endeavour to act one's part aright; but, in a special degree, teachers need humility, sympathy, tenderness, patience, perseverance, self-control, and clearness of thought and expression. One lays stress, too, on the possession of chivalrous justice—a disinclination to take undue advantage of differences in age, position, and acquirement. A very naughty boy once said to the writer: "Every teacher is at heart a bully." Of course, he was but a naughty boy; but one is led to feel that in the case of teachers there is often a tendency to be unduly severe—to visit upon our pupils our own whims, bad temper, or disappointment; to fail to make allowances for the immaturity of youth, the lack of complete understanding of the position, the passing ailment or fretfulness, the loss of memory through a kind of stage-fright, and so on; that there is also, too often, a disposition to show off one's superior sagacity, information, or wit: to chaff one's scholars, to make them ridiculous in the eyes of their fellows, whose good or bad opinion is as much to them as the good or bad opinion of our contemporaries is to ourselves. One might, then, be more mindful than custom leads one to be of the sensitiveness of youth, especially at the blushing stage; of the fact that our scholars cannot meet us on equal terms of strength, raillery, irony, or invective. In the schoolroom, as elsewhere, more evils are wrought by want of thought than by want of heart. These considerations should make us tolerant equally of mistakes and weaknesses, and, indeed, if we run these mistakes to earth, we shall frequently find that they are really marvels of ingenuity.

#### STUDY OF CHILD NATURE.

It is stated that the elements of the body are completely changed in every cycle of seven years, but it is frequently forgotten that a similar law operates in regard to the elements of the mind. Yet, in both cases, are we scarcely conscious of the change. Thus there often yawns a great gulf even between the young teacher and the child he sets himself to instruct. In what degree formal training would lead to the bridging of this chasm it is difficult to say. It is said above "the young teacher," for frequently it is only when one advances in years that one becomes a child again. It may be that this is partly owing to our becoming parents ourselves, and being thus brought into personal and sympathetic relation to young children. Otherwise, it may be due to the growth of tolerance and larger forgiveness which come with lengthening years, and partly also to the greater difference in time between us and our scholars, so that we can the more easily afford to unbend.

It may well be contended that our primal requisite, as teachers, is to *know ourselves*—our strength, our knowledge, and our limitations in respect of both and in our expression of them. The second great requisite is an acquaintance with the child—its faculties of body and mind, and, indeed, with its whole nature. We should know the leading facts concerning the structure of the body—*i.e.*, the body as an animated machine, governed by the laws of mechanics, measure, and avoidupois; the bony framework, the shape of the constituent parts, their composition, manner of growth, and interlocking movements; the muscles, their attachment, mode of action, variation in size, waste, replenishment; the nervous system, its response to impulses from within and from without, its automatic and its conscious exercise; the digestive system, assimilation, nutrition, the character and variation of the teeth; the senses, their limits of activity and preservation in perfect and painless use. Further, in relation to those under our charge, we should study the laws of growth; the mysteries of direct and reflex action, the telegraphy of the senses; the avenues of knowledge in respect of sight, hearing, tactile movements; the signs and symptoms of simple ailments and infectious disorders; the dangers to be looked for and overcome in regard to possible accident; the laws of brain growth, signs of brain disturbance, fatigue, torpor, excitement, hysteria, chorea. In thought, we should follow our charges even to their cots at night. The other day I met with a little maid of four who was discovered by her mother, night after night, excitedly talking to her dolls about her lessons and worrying them, under the impression that they were her schoolmates. Such a case should immediately be dealt with, and shunted off to more natural fields of activity.

The general question of hygiene should occupy our attention, including as it does the all-important subjects relating to construction of school-house, site, materials, space, heating, lighting, ventilation, furniture,

playground, sanitary matters, avoidance of dirt, damp, bad smells, provision of a plentiful supply of pure water, &c.\* The eye of the teacher should be everywhere, taking in appearance, demeanour, posture of scholars, evidence of damp clothing, wet boots, signs of physical or mental over-exertion, of scarcity of food or malnutrition. We should follow our charges even into the playground—the mimic world of sport and battle; provide, where necessary, stimulus for play; instruct as to the true limits of emulation; see that fair dealing is practised by the seniors towards the juniors, thus setting bullying at a discount, and engaging gradually in everything the responsibility of the older scholars. This is only one illustration of the necessity under which the teacher lies to induce co-operation between himself and his scholars, so that the impulsive mind and heart of the young may be enlisted on the side of justice and mercy, as embodied in him who presides over the fortunes of the little world of school.

Many teachers are also lodging-house—or should we say boarding-house?—keepers. These stand very closely *in loco parentis*, and should be experts in respect of such things as food, clothing, and medicaments, knowing how to provide a generous and varied diet to meet the peremptory demands of growing youth, whilst at the same time refraining from pandering to any unwholesome appetite, which would certainly eventuate in physical evil, or even in a tendency to private vice and moral depravity. The latter caution is necessary in view of the increasing tendency to self-indulgence amongst the young.

Some heads of schools regard parents as necessary evils, as fools, or as their natural enemies; but, after all, parents have a certain interest in their children, and may fittingly be humoured so far as to have explained the reasons for any course of conduct, and to have their wishes consulted so far as the general curriculum and the common good may allow. It must be confessed that many persons who have assumed the functions of parenthood are inordinately weak and foolish, and, worse still, that they are lamentably ignorant of the functions of education in the truest and highest sense. In these cases it may be necessary that a head master—assuming, indeed (what is not axiomatic) that he is a true educationist—should take a strong line in some given instance, and express himself with vigour. Even so, if he be wise, he will allow it to be seen that his desire is not so much to gain his own way as to advance the highest welfare of the child committed to his keeping.

#### THE MENTAL EQUIPMENT.

The foundation of learning, on the part of an intending teacher, should be ample in length and breadth. Depth will come in due time; for that can be realized only after long seasons of reflection and experience. The teacher should know something of everything and everything of his particular something—*viz.*, the science and art of teaching. It is impossible in this paper to give enlarged specific instruction as to authors and books. One can but lay down general principles and mention a few of the more important works. Some persons present have, doubtless, followed the course of study prescribed by the College to those who aim at obtaining their diplomas, or have submitted themselves to other examining bodies. They will, therefore, have possessed themselves of the information derived from the standard works recommended for perusal. It will be possible for diligent students who wish to keep themselves abreast of the age to consult the new books which are added to our library from month to month. There may be strongly recommended a persistent use of the Pedagogical Library secured for the Teachers' Guild by the operation of the Quick Memorial Fund. All of these works are of value; many are unique.

One may not disregard the wisdom of the ancients of Greece and Rome—Plato, Socrates, Aristotle, Cicero; of the rising stars of the Renaissance—Ascham, Colet, Comenius, Jacotot; of the Restoration period—Locke; of the reformers—Pestalozzi, Froebel; of the Romancists—Rousseau; of those nearer our own time—Herbart, Coombe, Arnold, Thrng, Quick, Payne, and Spencer. There is much of practical and present-day good to be gathered from the perusal of the courses of lectures delivered yearly, and for many years past, at this College; and the practice of attending these lectures—an inexpensive luxury to members—cannot fail to inform the mind and deepen the *esprit de corps* of the diligent student.

#### COURSE OF STUDY.

The classes of technical subjects necessary for the student are: (a) history of education, the lives of educators; (b) physical and mental science; (c) school management; (d) practical teaching; (e) definitions of terms and things, logic.

(a) *History of Education and the Lives of Educators.*—Some of the greatest men who have figured on the world's stage have been teachers; therefore we may congratulate ourselves that we come of a noble ancestry. The student will learn to devote himself, with an impartial mind, to the writings of professed educationists; but frequently these are pragmatical and dogmatical; so that, as a corrective, he may visit, in thought, countries and times far distant from his own. What an attractive picture is presented in certain Sanscrit works of Indian teachers of the olden time—men of simple life and manners, who, for



sheer love of wisdom and of their fellows, taught all who came, gentle and simple, without fee or reward, living in a hut with an earthen floor, and subsisting on the free-will offerings of rice furnished by the faithful! Alas! they knew not the blessings of civilization in the twentieth century, represented by the butcher and the baker, the tax-gatherer and the inspector. Then, again, how pleasant to join the groups in the Academy and the Grove, and listen to the sententious wisdom of the Alexandrian, the Epicurean, and the Stoic. Turning over many pages of the world's history, we may say that it is useful, with all necessary caution, to win through the ecstatic periods even of a Rousseau. Again, it is good to meet with men like unto Carlyle and Ruskin of the generation just past, not schoolmasters in the ordinary sense, yet having a message to deliver, often paradoxical and exaggerated, yet all the more likely, perhaps, to strike the ear and impress the imagination. Those who have listened to Mr. Churton Collins's lecture on "Ruskin as an Educational Reformer" will realize what is meant.

(b) *Physical and Mental Science.*—In the present day a certain substratum of physical science is indispensable to every man, much more to an instructor of youth. To the teacher, likewise, a knowledge of mental science is *mine qua non*. This science is not complete, even on its physical side, and most text-books are unsatisfactory, because a student of psychology expects so much—so much, indeed, that no author can tell him. In the study of this department of learning one caution is necessary. For purposes of description and comparison authors are compelled to divide and subdivide the matters of which they treat, and to regard the human subject as if the various faculties relating to the intellect, the emotions, and the will were perfectly differentiated and separated, as it were, into water-tight compartments; but, when expression is given by an individual to any thought, feeling, or manifestation, the organism acts together. Intellect, emotion, and will all run into one mould, and life, so potent and elusive, with true vital energy, transforms and fuses all Nature's elements to furnish a result which one part could not produce alone. Even so the electric spark acts upon a mixture of gases to produce a resultant—water—different in all its reactions from each of its constituent parts.

(c) *School Management*; (d) *Practical Teaching.*—Concerning school management and practical teaching, little need here be said. There are extant admirable text-books; but guidance under a head master, both experienced and sympathetic, is absolutely necessary to beginners in the craft. In this connexion it is lamentable to think how little help and encouragement is vouchsafed by those in authority to the junior teachers in their schools.

(e) *Logic.*—There is little doubt that the study of formal logic should be undertaken by the student, especially by women, not only in early years in the guise of Euclid, but as a distinct preparation for "getting up" lessons, and for the presentation of fact and argument to a class.

If this course of study be undertaken, it may be possible to lead up to a science of education, a science that many, even now, and with some reason, count as non-existent. What has been said resolves itself into a plea that a teacher should know his subject, should know himself, should know the child; the last-named element, in the past, being almost wholly neglected. Especially in respect of knowledge of the child, when the laws of brain growth, order of development, capacity for assimilation have been carefully laid down, it will be found possible to determine the kind and order of studies, so as in due sequence and degree to provide for the stimulation of the memory, the training of the powers of observation, the exercising of mechanical aptitude in relation to such subjects as arithmetic and rhythmic exercises, generally and finally, the habit of reflection and reasoning which involve the comparative and logical faculty and abstract elements of the mind.

#### TEXT-BOOKS.

In what has been said, the requirements have been laid down, and it has not been found possible to say anything about the methods to be adopted. It is impossible, however, to leave out of account the question of text-books. In a discussion on this part of our subject, we are met by an initial difficulty, viz., the lack of easy access to a good and comprehensive bibliography of works dealing with education, in the various departments relating to history, theory, and practice. In the present day it is not enough that such a compilation should refer to works published in this country; it must include those which see the light in the United States and Canada, France, and Germany. Monroe's list of works relating to educational science (published in the United States) brings us down to the end of 1899, but it needs a concerted effort on the part of educationalists and of such a body as the Education Section of the British Association to keep abreast of the times. One has reason to hope that such an effort will be made.

[At this point the lecturer gave a list of books corresponding to the various headings of his subject.]

#### A PLEA FOR ORIGINALITY.

Teachers are the most conservative of beings. There avails for proof a review of the curriculum and traditions of our public schools for a couple of hundred years, even up to the present time. It is astonishing that such teaching as was given should have eventuated in the results undoubtedly furnished. It serves to show that the school, in the largest sense of the word, means more than the class-room; and, moreover, that the human mind, as the human body, possesses a wonderful faculty

for accommodating itself to successive doses of slow poison and of eliminating the virus from the system.\*

The present age, with its new life, its new creative and motive power, its new requirements, furnishes a suitable opportunity for teachers to pause in their work, and investigate the principles which should underlie that work: the subjects which are essential alike to the discipline of the character, to the enlargement of the mind or the cultivation of the memory, and to measure the relative importance to be attached to Nature-study, the dead and living languages, humanities and science, literature, music, and the arts. Again, they should aim at distinguishing between the different methods of teaching languages (whether living or dead), of teaching science, Euclid, and elementary mathematics; at settling how far our work should be directly instructional and informative, how far educational, how far utilitarian. Indeed, such investigations should be *periodically* undertaken: for, even when at a certain age or epoch innovations or improvements are introduced, it comes to pass (by lapse of time and the natural perversity of man) that the best elements of the change are lost, and only the worst and least effective stereotyped: so that (even as an hypothesis such as the Darwinian requires to be re-stated from time to time, as new facts are introduced and new interpretations of old facts admitted) Froebelian or Herbartian methods likewise need to be overhauled as time goes on, and all other educational theories to be reconsidered in the dry light of the twentieth century. All the above-mentioned problems should be present to the mind of the young teacher. Stress is laid upon the adjective here, for of the grey-headed teacher it may well be said that the leopard cannot change his spots nor the Ethiopian his skin.

It is important that every dominant principle of education should be established on a foundation based on the strongest and most permanent elements in our own nature, and on our living powers of activity and expression. Therefore, over and above our ordinary routine work, room should always be found for a certain amount of experimentation. The ultimate influence of much that goes by the name of education tends to the repression of originality; indeed, this has worked itself out so as to constitute the most depressing feature of our daily life in respect of art, architecture, social life, and conversation. Therefore, we plead the more earnestly for the discovery and fostering of originality in the schoolroom during the period of quickest and most spontaneous growth. The traditional treatment of subjects in public schools tends to discourage, even to paralyze, any efforts of the earnest teacher in this direction. To balance obvious disadvantages in their lot, private teachers have the great advantage that they are untrammelled and unfettered; so that, if they are disposed to avail themselves of this freedom, they can try new schemes and new methods. We may naturally call upon them, therefore, to use their liberty for the good of their scholars and of the community at large, for it cannot fail to conduce to the general advancement that old truths should be presented from time to time in a new way, or new truths in a way which is well tried and old. In respect of the introduction of the young into the marvels of the world of which they form a part, it is interesting to follow the system of Nature study now in vogue in the leading centres of the United States of America.

#### THE TRAINING OF TEACHERS.

That teachers should be trained is axiomatic, but many questions arise when the subject is presented with any degree of completeness. What is meant by training? On what preliminary qualifications, moral and intellectual, must that training be superposed? How far does one's ordinary experience and recollection of school and college life tend to furnish a part or a whole of such training? If there must be formal training, how far should it be severely technical? At what age should it begin? How long should it continue? Could it be carried on concurrently with ordinary education? What literary, humanistic, psychological qualifications are presupposed? At what institution is this specific training available? Can one combine teaching with preparation for teaching? What is the probable cost? How can such cost be met in the case of poor students? How far may aid be looked for from Imperial or local taxation? What advantages may training be expected to secure in after life in respect of one's status, remuneration, efficiency, and success? It must be allowed that with every advantage at disposal it is sometimes impossible to develop the true teacher out of the raw material available. Sometimes there are obstacles in respect of physical defects or of mental sluggishness, inducing difficulties in learning or in reproducing what has been learned. Further, it is rarely that one individual is good at everything. At one time there is lack of clearness and accuracy in arithmetic or the higher mathematics; at another, a want of facility in mastering the intricacies of grammar or the involutions of a foreign tongue. Even so, defects in one class of subject may co-exist with extraordinary ability in others.

At the time that a decision is to be taken with reference to the choice of a profession, there should be much searching of heart on the part of the person most concerned. In respect of teaching, above all other occupations, the question of motive is all-important. Should teaching be taken up by reason of the excitement it furnishes? No, rather let

\* Said a head master to a pupil: "Why, your younger brother could have done this exercise better than you have done it!" "But, sir," rejoined the pupil, "he has not been here so long!" "The moral of this story lies in the application thereof." Digitized by Google

the individual join the Army, or cast himself in a white-winged ship on the bosom of the restless sea. Could a teacher hope, by one supreme effort, to sway the minds of thousands of his fellow-creatures by clamorous or persuasive eloquence? Nay, his rôle is far too cabined and confined. Rather should he mount the pulpit of the popular divine or the rostrum of the political partisan. Should a teacher hope to become wealthy beyond the dreams of avarice? Not so; if he seek for sordid gold, let him betake himself to distant Klondyke or to the packing-sheds of Porkopolis. But, on the other hand, if he be moved by sympathy for the tender, wayward, fractious, coy, winning, troublesome, disappointing child; if he be content to lay the foundations—broad and deep—of an edifice of which he will never see the coping-stone; to begin a work, the end of which is beyond the limits of the finite; to teach the stammering tongue to lisp the rudiments of which the full expression will be heard but in the far distant future: if, in this and other ways, he be content to cast his bread upon the waters; to sow the seed, and never to behold the harvest; to labour, but to labour apparently in vain; if he be forward to be and to do all this, and more, for a reward oftentimes in inverse proportion to his merits; then let him go on, with patience, energy, and hope as his faithful attendants; otherwise, let him pause on the threshold and incontinently turn back, to put his hand to some vocation wherein there is less responsibility and a larger earthly fruition and reward.

Different persons, moved by the like good intentions, will yet assimilate training in different ways. In this, as in other walks, a little learning is a dangerous thing, *i.e.*, if it be regarded by the individual as perfect and complete: for then it puffs up with the idea that the first step is equal to the last; it brings about invidious comparisons, whereby one becomes disinclined to learn from others and to garner for oneself the harvest of daily experience in the school-room and the larger world outside; it leads to self-consciousness, so that one teaches but to please oneself or to gratify one's own vanity rather than to ground in progressive knowledge the young and immature minds submitted to one's dominion.

There is no doubt that training, as at present carried on, frequently begets vanity and narrowness of vision. This is evidenced alike in elementary and secondary teachers. Even at the best, training must lead to interference with one's own originality—to the inception of a large amount of theory; for it brings us into close contact with the opinions of men living at other times and under other conditions, thus rendering our assimilation of such theories difficult and sometimes even pernicious. In this relation the *dictum* may still be hazarded that "an ounce of practice is worth a pound of theory." It cannot be denied that, in the field of secondary labour, a large proportion of head masters look upon the artificially trained teacher with a certain amount of suspicion—a few, even with disgust. This may be due to the fact that the trained teacher is prone to give himself airs, and, in no uncertain way, to insinuate that what he does not know about the science and practice of teaching is not worth knowing. He hardly cares to conceal the fact that he looks upon the head as an old fogey, born before the golden epoch when training became the whole duty of man. Teachers of this stamp know just so much as to induce them to imagine they know everything. With the addition of a little more knowledge they would come to the right conclusion, a conclusion reached by all truly wise—*viz.*, that they really know nothing as they ought to know. In respect to these it is not surprising that the head is a trifle sceptical of their superiority, and that he is sometimes goaded into the declaration that he prefers to train his own teachers. In spite of all this we assert emphatically that a special apprenticeship should be served by intending teachers, that it would render the *tyro* incalculable service to undergo a two years' course in a training institution, under masters in the art, in generous emulation with students whose aims and aspirations were as lofty as his own, where a well stocked and well selected pedagogical library would place him *au courant* with past masters of the science, and where demonstration schools were available for persistent exhibition of the art of his profession. Every one must make mistakes in entering upon the practice of a profession. Under the circumstances described, mistakes would not be of such a serious character as in the case of the untrained, as they would stand a good chance of being rectified in their very inception before serious class teaching commenced.

As an element in the organization of secondary education, the training of teachers seems scarcely to receive the attention it merits. This is rendered the more noticeable when one compares the existing state of things with that prevailing in respect of elementary education. Doubtless, the original training colleges were founded by voluntary agencies; but, of late years, they have been largely subsidized by Government, and the number has been recently increased by the establishment of day training colleges in certain School Board centres; where it is sought that they should be, in part, supported out of the rates. All these establishments have relation to one class of teachers only, *viz.*, those intended for work in public elementary schools. Some of these students afterwards take up work in private and grammar schools, but the number is so small that it may be left out of account. The enlargement of the curriculum and the improvement of the work in those schools have resulted in additional demands being made upon the training colleges, and in the desire of many elementary teachers to matriculate in the University of London or to obtain diplomas from the College of Preceptors. Further, what is worthy of special mention, an Association

has been formed to raise a fund available for sending eligible ex-pupil-teachers to Oxford or Cambridge, that they might thereby have the advantage of a full residential course. As educationalists, we must rejoice at the improved education thus given to the children of the people, and at the more elaborate preparation demanded from their instructors. But, when we consider the numerous and important agencies at work in this direction and the large sums expended by the State, by public bodies, and by voluntary agencies in the work of preparation, we are led to look at the contrasted position in secondary education. On one side, the State does everything, or almost everything; in the other case, nothing. From the present relations between so-called elementary and secondary education, and from what we may conceive as likely to happen in the immediate future, if the present forces in the lower stratum continue to act, the gravity of the position becomes more apparent.

We may anticipate that a time will soon arrive when, under the pressure of the Registration Scheme, training will become *sine qua non*. When that occurs, the Universities will be required to take it up in earnest, and difficulties as to the provision of Chairs of Education and demonstration schools will arise. Furthermore, the cost, in time and money, involved in a post-graduate course will press heavily on expectant secondary teachers. It may be contended that the public grants to elementary teachers are balanced by the endowments appertaining to grammar schools and Universities; but these endowments can be utilized only in respect of general culture, leaving nothing available for specific training in the science and art of education. With reference to a certain number of grammar schools and a larger proportion of private schools, intending teachers are mostly poor and dependent upon their own exertions. Although they may be able to afford, with extraneous help, to work for a London degree, yet they cannot afford to spend a further term of two years or so in an educational centre whilst submitting themselves to the discipline of a regular pedagogic course. Does not this condition of affairs represent a real and growing danger to secondary education? We are not making invidious comparisons between the two kinds of education or classes of educators; neither are we intending that a sixpence less should be spent on the education of elementary teachers. The following facts, however, should be kept before the mind. The importance to the State of a sound education for the middle class is incontestable. The middle class, in respect of the sacrifices for education made by its members, deserves well of the country. These educate their own children, and not only so, but they contribute largely besides towards the education of the children of the artisan class. If it be a matter of necessity that the children of the labouring classes be well instructed, it is still more a matter of necessity that the children of our tradesfolk, merchants, manufacturers, and professional men be likewise well instructed. These elements of society, in this particular, have been left entirely to themselves up to the present; and it has become a question whether the State holds the balance evenly as between the two classes.

What can be done to redress the balance? Existing voluntary agencies can be sustained. Amongst these the College of Preceptors bears an honourable record. As a writer in an educational paper reminds us, "the training of teachers was in the forefront of its earliest scheme, and Prof. Payne was the first, and very well known, occupant of its Chair of Education." Lectures on pedagogy have been consecutively given during a long series of years. Diplomas, which would be all the better in the lower stage for a little screwing up, have been granted. Endeavours have been made to engage the students in practical training. Lectures are open to women and men alike. Here is all that is wanted for active work amongst a large class; but the difficulties are great, and some step is necessary to render all this provision effectual. A new departure may surely now be looked for when a teaching University for London, with affiliated colleges, is constituted, and when the long-expected Board of Education has come into effective operation; but is it even now premature to approach the Legislature—in conjunction, it may be, with other secondary training colleges—for a grant which would advance the good work and provide substantial help for those student-teachers who would then find it possible to set aside two years for profitable study?

In the meantime one could not do better than bring into prominence the part of the Report of the Royal Commission dealing with training, and impress its conclusions upon the profession, the public, and Parliament. Voluntary effort has done something, especially for women teachers. The Universities are waking up; but all that has gone before is only a beginning, and, with the best intentions, these bodies can do but little without substantial help. Under existing circumstances, especially in face of public calls now being made, it is of little use to look for aid to private individuals. We turn our eyes, then, to the country at large and to Parliament. Of late Parliament has dealt with the devolution of large sums of money; but, whilst some has gone to the provision of technical education, and more to elementary, the secondary side has been neglected. We have a right to ask that the State shall foster what has been satisfactorily originated.

One may be allowed to appeal to private teachers for the support of this plea; for the question affects them more than those engaged in endowed or high schools, since a large proportion have not been in a position to obtain degrees and diplomas. Some persons may look for a solution of the difficulty by suggesting that teachers for all classes of schools should be trained together. There would be no objection to this being done under certain conditions; but these conditions would be

rendered more favourable if those interested in secondary education would do what the case demands—secure for teachers in that class of school the recognition and help which are their right. Then, in due course, would come a united profession, the abolition of invidious distinctions, and a complete interchange of duty and of work.\*

#### REGISTRATION.

If it be true, as the proverb asserts, *salus populi suprema lex*, it follows that those who have to deal with the bodies of men should be tested before they are let loose on society. So much has been admitted and acted upon, but more grudging and longer delayed has been the recognition of the principle that those who deal with the mind and budding faculties of the race should be inquired of as to their fitness and capacity before they are permitted to undertake a task which realizes alike the responsibilities of the family and the State, and is fraught with tremendous issues for the future of the Empire.

Possibly the Consultative Committee may ultimately be moved to advise the Board of Education to make certain modifications in the Order which will get rid of the anomalies now presented and ensure a fair representation of all grades of teachers when the three or four years' limit has expired.

[The lecturer proceeded, at some length, to deal with the provisions of the Registration Order.]

#### CONCLUSION.

No one will deny that a critical period has been reached in the history of education in this country. Ecclesiastics and politicians of every denomination are dealing with the question, complicated as it is in their minds with various issues. The general public is invited to a consideration of the problem, but usually only to that part considered vital by a particular clique or party. The whole of our system—elementary, technical, and secondary—is, in effect, to be tested by new criteria, and, to a great extent, thrown into the melting-pot.

It may safely be asserted that the form this new adjustment will take depends, to a considerable extent, upon the views expressed by bodies of teachers like those gathered together this evening; and it may be affirmed as truly that the administration of the novel systems that are now being shaped will mainly devolve upon teachers, and teachers alone, when the fires of controversy have died down and the public have sunk again into apathy.

Never was there an epoch when such a weighty responsibility rested upon the teachers that are and that are to be: but, after all, "responsibility" is only another word for "opportunity." That we may seize occasion by the forelock and cope with this opportunity, we must be fired with enthusiasm and possessed with a noble and lofty conception of duty and self-sacrifice. Not only so, but our zeal must be according to knowledge—a knowledge to be gradually chastened and enlarged by growing experience. Furthermore, the *Zeitgeist* of the present day demands that our methods should display scientific aptitude—i.e., be based upon definite means made to work to a definite end.

Our country needs, and dumbly demands, our most active and intelligent service. It is we who must be saviours of society; for no thoughtful person can look around without discerning the perils of the times and the need of great, inspired teachers. Owing to causes patent to all, the lower strata of the population in our large towns are deteriorating at a rapid rate. A self-satisfied spirit has possessed itself of the middle class; the blight which often attends riches and idleness lies upon those who largely constitute our ruling and administrative element. Pleasure and self-indulgence have seized upon all ranks without exception. Old sanctions are passing away; new ones have not yet found their application. The education now given in our elementary and secondary schools alike leads, to a great extent, to learned ignorance and superficiality and presumption.† Mediocrity is writ large upon our statesmen, our writers, our architects—yea, upon society in general. The results are evidenced in many a sad episode in the late war and in the slackening in the race of industrial effort and commercial life.

To know the evil is to be in a position to apply the remedy; but it needs the physician to watch over the patient as well as to diagnose the disease. It is our mission to act the part of the healer and guide. The summons "Wake up!" comes to us in an especial sense, as it comes to all England to-day. It appeals to us individually; it appeals to us as a society. It has long been thought by some that this College is too much inclined to rest on its laurels and to slacken its pace just when it should have sought to take a step forward. It is understood that a Committee has recently been appointed to consider whether our influence cannot be legitimately extended. It is to be hoped that its labours will be fruitful of results.

My task is now ended, and the important part of the proceedings, viz., the discussion, is about to commence. In this debate, many points will undoubtedly be touched upon, but it is to be hoped that in

\* *Vide* remarks of Prof. Withers at the Educational Science Section of the British Association at Belfast in September last. We may anticipate interesting, and perhaps important, results from the Cambridge Conference on Training to be held two days after the reading of this paper.

† *Vide* the presidential address of Prof. Dewar and the sectional addresses of Profs. Perry and Armstrong at the British Association at Belfast.

its course something may be said upon the possibility of this College being involved, in a very real sense, in the training of teachers for secondary schools. A direct effort has already been made in this direction, but it failed, inasmuch as the raw material was not forthcoming. The reason for this was twofold: (a) the indifference of so many of the profession to the advantages secured by training; and (b) the lack of funds to provide for the expenses incurred by students during the period covered by the curriculum. How can these obstacles be lessened or removed?

Further, it may be interesting to have the opinion of those present in reference to the course of study prescribed by the College for the diploma examinations, and to the possibilities of so modifying and enlarging the requirements for the Associateship as to cause its acceptance as a qualifying examination by the Registration Council.

It may be that, in this paper, I have failed to touch on certain essential points relating to the subject. In that case, it is important to have them noted. Furthermore, the grave importance of the matter before us demands a close scrutiny and criticism of all that has been here advanced.

The CHAIRMAN said that he feared it was only too true that the equipment of the teacher in all grades of our schools left much to be desired. The lecturer had quite rightly insisted on the adequate equipment of the teacher in respect to the three departments of education—physical, intellectual, and moral—but he thought that his requirements in respect to the first were too severe. A teacher of defective physique might satisfactorily preside over the physical training of his pupils. The suitable exercises were fairly well agreed on, and, as to whether they answered their purpose or not, the test of fruitfulness could easily be applied. It was in respect to intellectual training that the most serious complaints had been recently made. There was at the meeting of the British Association at Belfast quite a chorus of disapproval of the results of our teaching. Prof. Dewar dwelt on the serious industrial loss this country suffered from the fact that "we did not possess the diffused education without which the ideas of men of genius cannot fructify beyond the limited scope of individuals." The discovery of the aniline dyes by our chemists and the migration of the great industry which grew out of that discovery to Germany gave point to his assertion. Prof. Armstrong complained that the cultivation of that imaginative faculty which was so essential in scientific research was quite neglected in our schools. Prof. Perry said that "the average boy leaves an English school with no power to think for himself, with a hatred for books, with less than none of the knowledge which might help him to understand what he sees, and he has learned what is called mathematics in such a fashion that he hates the sight of an algebraical expression all his life after." Our school classical teaching, it would seem, was just as unsatisfactory as that of mathematics and science. Prof. Postgate (Cambridge) in the current number of the *Fortnightly Review* stated that for many years he had to do the chief part of the teaching in Greek and Latin grammar at his college (Trinity), and the sum of his experience was this: "The average classical student does not know grammar when he comes up, he does not know that he is ignorant, and he does not want to learn." He also said in the same article that "our whole teaching of Greek and Latin is too formal, too verbal, too unreal." The unsatisfactory state of our education, which justified such criticisms, was, it must be confessed, humiliating. Prof. Postgate suggested a remedy which had a wider application than to classics. "We must," he said, "limit our aims, and thoroughly reform our methods." There could be little doubt that too much was attempted, and that wrong methods of teaching were too common in our schools. In the domain of moral education there was general agreement that those spiritual powers and capacities whose cultivation made for right conduct and high character in after life should receive due attention. The late Prof. Huxley and Mr. Herbert Spencer were as emphatic on this point as any spiritual guides could be. Unfortunately there was no harmony as to what the substance of such teaching should be.

Mr. ORCHARD said there were three things that were essential in the equipment of the teacher: he must know his subject, he must know himself, and he must be able to exercise a healthy control over his pupils. He ought also to cultivate clearness of thought and expression. In order that teaching might be of value there must be co-operation between the teacher and his pupils. To secure this a teacher must strive to interest the pupils by a clear presentation of the subject, and also to enlist their sympathy and affection.

A vote of thanks to the lecturer concluded the proceedings.

#### MEETING OF THE COUNCIL OF THE COLLEGE OF PRECEPTORS.

A MEETING of the Council was held at the College, Bloomsbury Square, on November 15. Present: The Rev. T. W. Sharpe, President, in the Chair; Mr. Armitage Smith, Mr. Barlet, Mr. Baumann, Rev. J. O. Bevan, Mr. Butler, Mr. Charles, Mr. Chettle, Miss Crookshank, Miss Day, Mr. Eve, Mr. Ladell, Mr. Pinches, Mr. Rule, Rev. Dr. Scott, Rev. J. Stewart, Rev. J. E. Symms, and Rev. J. Twentyman.

The minutes of the last meeting were read and confirmed.

The Secretary reported an increase in the number of candidates

entered for the Certificate and Lower Forms Examinations as compared with the entries for the corresponding examinations in 1901.

The report of the Education Committee was adopted.

The report of the Examination Committee was adopted. The report recommended that greater liberty of choice of obligatory subjects should be allowed in all classes of the Certificate Examinations, and that alterations should be made in the requirements for passing in Euclid and Latin in the First Class, and in the method of conducting the oral examination in French and German.

The report of the Joint Committee for considering the ways in which the usefulness and influence of the College might be extended was adopted.

The following persons were elected members of the College:—

- Mr. J. Bailey, A.C.P., Bren Holly, Clytha Park, Newport, Mon.  
Miss R. Gould, A.C.P., 28 Irene Road, Parson's Green, Fulham.  
Mr. C. Heath, A.C.P., Penygroes, Carnarvonshire.  
Mr. E. P. Horsey, L.C.P., Waltham College, Waltham Cross.  
Mr. W. W. Norris, A.C.P., Tetbury Collegiate School, Tetbury.

The following books had been presented to the Library since the last meeting of the Council:—

- By G. BELL & SONS.—Baker and Bourne's Elementary Geometry.  
By BLACKIE & SON.—Blackie's Complete History Reader, No. V.; The Picture Shakespeare (Hamlet); Atkins's Skeleton French Grammar; Barbé's Poems for Recitation; Brownrigg's Xenophon's Anabasis, Book I.; Cotterill's Selections from the Nibelungenlied; Etheridge's Heine's Die Harzreise; Grierson's Practical Book-keeping for Commercial Classes; Harrison's Practical Experiments in Elementary Science; Mardon's Geography of Egypt and the Anglo-Egyptian Sudan; Schoedelin's *Merimée's Colomba*.  
By C. J. CLAY & SONS.—Flather's Scott's Lord of the Isles; Gardner's Kingsley's The Heroes; Ropes's Sandeau's Mademoiselle de la Seiglière; Shuckburgh's Sophocles' Antigone.  
By W. B. CLIVE.—Matriculation Directory, No. XXXIII.; Briggs's Matriculation Advanced Algebra and Geometry; Deakin's New Matriculation Algebra; Fearnside's Matriculation Modern History; Low and Briggs's Matriculation English Course; Stewart and Don's Matriculation Physics.  
By GINN & CO.—The Youth's Companion Series (Strange Lands near Home, Under Sunny Skies, and Toward the Rising Sun); Gardiner, Kittredge, and Arnold's Elements of English Composition; Pinney's Spanish and English Conversation, Second Book; Robinson's History of Western Europe (Part I., The Middle Ages); Tarbell's Essentials of English Composition.  
By MACMILLAN & CO.—Russell's Latin Elegiacs and Prosody Rhymes for Beginners.  
By G. PHILIP & SON.—Philips' Sixpenny Atlas of Comparative Geography, London School Board Atlas, and Visual Memory Atlas; The Dale Readers, Book I.; Dale's Further Notes on the Teaching of English Reading.  
By RIVINGTONS.—Analytical Grammar as applied to the Latin Language.  
Calendars of University College, London; The Royal College of Surgeons of England; City of London College; University College, Nottingham; Durham College of Science; Trinity College, London.  
List of Members, Examination Papers, &c., of the Society of Accountants and Auditors.

## REVIEWS.

### A GREAT SCHOOLMASTER.

*Edward Bowen: A Memoir.* By the Rev. the Hon. W. E. Bowen. (12s. 6d. net. Longmans.)

The life of a schoolmaster, especially if passed at a single school, is necessarily uneventful. It becomes the main task of the biographer to show us the man at his work, and to trace as far as may be the influence of that work on his pupils. This task Mr. Bowen, a nephew of the subject of the memoir, has fulfilled with a loving and skilful hand, and that with but a scanty store of written material at his command, for Edward Bowen was not much of a letter-writer. The details of his life are simple. After a brilliant career at Cambridge he went for a term as a master to Marlborough. He was then invited to Harrow, where he remained for forty years. During the early years of his mastership he was a frequent contributor to the *Saturday Review*, then in its prime, and to the *National Review*. Unfortunately it has been found impossible to identify more than three or four of his contributions. From two of the longer essays, those on Bishop Colenso and on Dr. Davidson's "Introduction to the Study of the Old Testament," both written at the age of about twenty-six, his biographer has given extracts. They are thoughtful and outspoken, and show remarkable familiarity with German Biblical criticism. As time went on his intense devotion to his school-work left him but little time for literary occupations, and his subsequent productions are limited to a few essays, mostly written for the U.U. (a small club of schoolmasters), one or two school-books, and the famous songs happily reprinted in the volume before us. "Forty Years On," with Mr. Farmer's music, is in the repertory of most schools, whether for boys or for girls, and there are other poems in the collection—notably the memorial verses on Mr. Grimston and Lord Bessborough—which stamp the writer as a real poet. In 1869 he was selected to be the first head of the Modern Side at Harrow. Dr. Butler gave him a free hand, and he was able to work up to his ideal without the embarrassment of having to study too much external ex-

aminations or to provide for all the dullards of the school. Both are difficulties only too familiar to modern-side masters. Perhaps it was his quickened interest in teaching modern languages and modern history that about this time stimulated his love of travel. Many of his holidays were spent in visiting the chief battle-fields of the Continent. Four volumes of annotated selections from Thiers bear witness to his zeal and thoroughness in the study of military history. Though it may seem paradoxical, his fondness for that study was only equalled by his detestation of war. Perhaps his most remarkable journeys were on the track of the German Army into France after Würth, and a visit to Paris at the time of the Commune. Twice in the course of his career there was a chance of a wider field of activity opening to him. In 1880 he unsuccessfully contested Hertford in the Liberal interest, and in 1885 he allowed his name to be considered by the Governing Body of Harrow as a possible successor to Dr. Butler; had they elected him, it would probably have been an advantage to Harrow, and certainly a great gain to the profession. Their choice showed that no amount of professional experience or success could outweigh the curious prejudice in favour of clerical head masters.

But it is time to show briefly what manner of man Edward Bowen was. When he went to Harrow there was a barrier between masters and boys, which he at once set himself to break down. His views are embodied in some humorous verses, in which Mercury harangues the Council of the Gods, and says, amid general consternation:

But suppose we turn human; the deified tell us  
That men are not monsters, but excellent fellows.

His ideas of the true relations of masters and boys come out again in his latest published essay, "Arnoldides Chiffers," a satire on the well meaning, but rather narrow, type of school-masters who would fain mould all boys after their own ideal. "The mass of our forms," he says, "would rather learn than not, and, if a master drives, instead of leading, he will gain what is hardly worth having"; and, again, "to overcome is less glorious than to lead." His favourite mottoes were "Play the game" and

Be to their faults a little blind,  
Be to their virtues very kind.

It was this unaffected sympathy and tolerance, this utter absence of priggishness, combined with an unselfishness almost without parallel, that gave him his incomparable influence in guiding, almost unconsciously, the little society he governed. But this was not all: no one knew better how to say the word in season; no one was a more trusted counsellor at the critical moment of a boy's life; few felt so entirely with, and for, their boys. The same applied to his teaching. The boys knew how hard he worked for them, and felt bound, in their turn, to "play the game." "I don't know how it is," they would say; "but, if Mr. Bowen takes a lesson, he makes you work twice as hard as other masters; but you like it twice as much, and you learn far more." A colleague describes him as an "enchanter." Another point is that he was always trying to make boys not only accurate, but well informed and alive to what was going on in the world. He would begin a Latin or a French lesson with one or two questions on current events or on some historical incident the anniversary of which fell on the particular day. The real work was none the less thoroughly done. The testing of preparation was soon over, and the bulk of the time was given to vigorous teaching.

Rewards and punishments were often of a humorous character: a six-sided pencil, purchased from Palm (the grandson of Napoleon's victim) required one special kind of merit; to count the trees along a certain road, or to face the noddings of a mechanical goose, was an occasional penalty. The part he took in games is well known, and his essay on the way a master should treat them and on their place in school life is well worth perusal. In his habits he was extremely simple; in the management of his house he combined most liberal treatment with great strictness and the discouragement of luxury. One of his institutions was an astronomy class, held in his plainly furnished drawing-room, which every boy in the house passed through in his turn. On some points he was at variance with the views now popular in the educational world; he had little belief in the training of teachers, holding that personal character was what, above all, made a good master; he deprecated the certificate examinations instituted by the Universities; and he was opposed to inspection. On the other hand, he anticipated by many years the present movement against excess of grammar, he spoke up

for the educational value of modern languages, and he advocated the addition of judiciously selected tests of physical vigour to the Army examinations. His remarks on these and other points, and his admirable memorandum on the work of the Harrow Modern Side, ought to find a permanent place in pedagogic literature. The book is a worthy memorial of a man who, for his attainments, his power of teaching and influencing boys, and the nobility of his character, has rarely, if ever, been equalled in the profession. It ought to have an index.

#### THE GREATEST OF THE PLANTAGENETS.

"Heroes of the Nations."—*Edward Plantagenet (Edward I.): The English Justinian, or The Making of the Common Law.* By Edward Jenks, M.A. (Oxon. et Cantab.). (Putnam.)

There will be no disposition to question the title of our first Edward to a place among the "Heroes of the Nations." Nor can his biographer omit the legislative record of those "three glorious years 1283-85," which "have only twice been rivalled for honourable activity in the annals of English statesmanship." But, with every willingness to concede to Edward the utmost credit for such legislation, one cannot but express surprise that even "a mere lawyer" should give such prominence to an extravagant popular misnomer. Mr. Jenks's own (rather irrelevant) enumeration of the contents, and narrative of the influence, of Justinian's "Corpus Iuris" will prompt the uninstructed reader to cast about for some explanation of the comparison. However, we will not quarrel about a secondary title of the catchpenny variety. Mr. Jenks expounds the great legal events of the King's reign in a brief chapter—"the brightest chapter in Edward's career"—by no means disproportionately. But what can be said in patience about the first five chapters occupying 121 pages out of 360 (index included)—just one-third of the small book? The first deals with "The Middle Ages in Europe"; the second with "The Emergence of Modern Europe, 850-1250"; the third with "England in the Thirteenth Century"; and the fourth and fifth with "The Reign of Henry III." Edward, our hero, is not born till the last line of page 73, and only about one in ten of those 121 pages expressly mentions him or directly refers to him. Of course, something must be allowed for the preparation of the scene, but a score of pointed pages of summary might well have accomplished that. Mr. Jenks is to be congratulated on finding an editor indulgent enough to allow him to empty his mediæval note-book so freely and conveniently. We are not finding fault with the matter, which is fairly good of its kind; we simply say that it is in the wrong place.

Yet Edward had an exceptionally busy and arduous reign of more than a generation, which has therefore to be compressed unnecessarily. From the outbreak of the War of the Barons to his death he had a great deal of fighting to do, and did it with conspicuous military ability; and his home and foreign policy, varied and exacting, also drew forth his strong intellectual qualities. He was every inch a king. As Mr. Jenks admits, his Scottish policy was "the one great mistake in his career"; but we think that the implications of this condemnation detract from Edward's greatness considerably more than Mr. Jenks allows. We are willing to accept Mr. Jenks's assurance that his "book is written absolutely from first-hand sources"; but then such sources often conflict, and we occasionally doubt his historical judgment. There is, indeed, authority (of a kind) that "the younger Bruce had served under Antony Bek at Falkirk," but a position that Mr. Jenks finds "curious" is somewhat clarified when one sees that the allegation is mistaken. We are not aware of the existence of any trustworthy authority for the statement that "Wallace was back again in Scotland" in 1301, or that Wallace was captured "at Hexham." Of course, it is "beyond question that Edward paid money rewards for the capture of Wallace," but the suggestion that "these may have been given only to his own subjects for their exertions" overlooks the evidence of express rewards to renegade Scots. That Bruce agreed with the Bishop of St. Andrews at Cambuskenneth "to strike a bold stroke for Scottish freedom" is a mere inference—and, we are satisfied, a mistaken one—put forward as a fact. Nor are we aware of any evidence that various other leading men "joined the league," or that the "leaguers" murdered Comyn. The raid by Thomas and Alexander Bruce was not "on England," but on Galloway, though they happened to be executed at Carlisle. These and other points indicate an insufficient grasp of the Scottish branch of the subject. The illustrations are numerous and good, though a few of them are not particularly relevant to Edward I.

#### LIFE OF WILLIAM BLACK.

*William Black, Novelist: a Biography.* By Wemyss Reid. (10s. 6d. Cassell; Sampson Low, Marston, & Co.)

The career of a busy novelist is apt to be rather barren of external events. Black had the good fortune to get disengaged from other work at an early age, and his methodical diligence was divided between his annual Highland holiday for yachting and fishing and his regular months of composition, with an exceptional run to Egypt, to America, to the Mediterranean, or through some part of England or Ireland. There was little or nothing, indeed, in such expeditions more exciting than a twenty minutes' play with a lively salmon or a brief struggle with a keen nor'easter in a rough sea. The materials of the trip were always practised in the next novel; so that his life and work are readily harmonized. Occasional letters throw sidelights on the passing scenes, and the biographer has obtained most useful assistance from other friends of Black who knew him intimately at various periods. Sir Wemyss Reid has woven the facts together with practised skill, though not without some unnecessary repetitions and now and again a looseness of expression that recalls his journalistic days. The best service he has rendered is his careful and sympathetic presentment of the real Black—a very different personage from the Black of the casual observer.

The systematic industry of Black, if it rendered impossible a varied record of personal incidents, ensured a long list of literary products. The quality varies, of course; but several of the novels took, and keep, high rank—"A Daughter of Heth," "A Princess of Thule," "Madcap Violet," "Sunrise," "MacLeod of Dare"; while "The Penance of John Logan" is regarded by Mr. Swinburne as holding the first place in short English fiction. The repetition of incidents, and even of characters, with variations, can easily be converted from a fault to a pleasure by a little judgment applied to the system of reading. The whole Black library is thoroughly sound in sentiment, pure, manly, and chivalrous—like himself. Indeed, it is himself; for he lived in his imaginative world far more than in the actual world. He conquered new fields for fiction; he described scenery with the eye of an artist, and to the admiration of Ruskin; but his special fame rests on the fine qualities of feeling that permeate, with the glow and elevation of poetry, both his characterization and his prose. There has been no nobler portraiture of women in English literature since Shakespeare, no more genial prose since Goldsmith. By the way, Sir Wemyss Reid has not mentioned, we think, Black's monograph on Goldsmith for the "Men of Letters" series. He gives several interesting indications, positive and negative, as to the originals of some of Black's characters; but he is also careful to insist on Black's habit of large variation and idealization. One is also glad to meet in these pages many of Black's personal friends, most of them well known in their own lines of life. Perhaps the deepest interest of all attaches to William Barry, the prototype of Willie Fitzgerald in "Shandon Bells," to whom Black was chivalrously devoted in his last illness. There is no fear that Black will get antiquated so long as human affection and noble ideals and the love of Nature sway the hearts of man and woman: his work is founded on a basis of perennial interest, and it was accomplished with all the strength and care of a most earnest workman, guided by no inconsiderable strain of genius. The present volume will be found a charming and instructive companion to the novels.

#### A REHABILITATION OF TIBERIUS.

*Tiberius the Tyrant.* By J. C. Tarver. (15s. net. Constable.)

Mr. Tarver has had a good few predecessors in the difficult task of endeavouring to clean and remount the historical picture of Tiberius, but his work makes it clear that he has first-hand knowledge of the materials and a perfectly independent method. His style is not always controlled by the scholastic canons, but it has the fortunate quality of fluent readability. Even the introductory chapters, dealing with constitutional arrangements and developments, run in a clear and pleasant stream, unbroken by technical boulders. The fact is that the author is full of his subject, and has realized in his own mind the men, women, and events that he discusses. The work is an original criticism, fully informed, very reasonably conducted, incisive, and effective; and, if at points Mr. Tarver's zeal has carried him rather far, yet his argument must always be reckoned with by his successors. The book will be right welcome to the general reader as well as to the scholar.

The introduction puts the reader in position for the critical narrative. It deals summarily but pointedly with the expansion

of Rome, and particularly with the rise, character, and influence of the Equestrian Order; obviates likely misconceptions of the term "the Roman People"; explains the characteristics of the Senate—"no mere house of representatives," but "a dynasty believing itself to rule by divine right"; and draws distinctions necessary to a just idea of the institution of slavery in the particular place and time. There would probably have been no need for the main inquiry at all if Tiberius had possessed a spark or two of the genius of Julius Cæsar, or some measure of the tact of Augustus. He was too matter-of-fact and downright to establish the Empire without drawing upon himself the hatred of many in high places under him, in that age of persistent intrigue. "Tacitus and Suetonius alike seem to have collected their information from three chief sources—private memoirs, popular rumours (in which are to be included pasquinades and the topical songs of actors), and the official record of the transactions of the Senate." Mr. Tarver properly repudiates the authority of the first two sources, and finds that the evidence of the last, "whenever Tacitus gives it us, is invariably such as to compel us to believe that Tiberius was a wise and moderate ruler." Unquestionably, he was an able general; he was devoted to intellectual pursuits; he was not ambitious. Was he licentious, especially in his latter years? "Men do not, of forethought and design, practise virtue for seventy years in order that they may indulge in vice at a time of life when they are oftenest incapable of taking exercise except in a bath-chair." The theory of monstrosity is overdone. The main root of the prevalence of the misrepresentation is "the fascination of the style of Tacitus." Of course, the vindication of the public life of Tiberius and the grosser charges affecting his private life still leave open a variety of no inconsiderable possibilities to his disadvantage. But even in this case Mr. Tarver has materially strengthened the probabilities in his favour. The details must be sought in the volume; the study of them will be amply rewarding.

#### ENGLISH HISTORY FROM THE SOCIAL SIDE.

*Social England.* Edited by H. D. Traill, D.C.L., and J. S. Mann, M.A. Vols. I., II., and III. (12s., 14s., and 14s. net. Cassell.)

The first three volumes of the reissue of this elaborate and handsome work, in a generously illustrated edition, revised, re-arranged, extended, and largely re-written, bring the history down to the death of Elizabeth, the breaks between the volumes occurring at the accession of Edward I. and the accession of Henry VIII. The work, it is expected, will be completed in about six volumes. As the title implies, the writers, who are acknowledged experts in their several departments, treat the life of the nation as the evolution of a social organism, describing the operation of the internal forces and of the external influences affecting its development. The social events cannot, of course, be intelligibly separated by a rigid line from the political, legal, administrative, and international events; but the approximation in fact effected may be regarded as a very judicious compromise. The position of the editors may be recalled in Dr. Traill's words:

It is open to us, and it has been the object aimed at in these pages, to abstract from the political, and to isolate the social facts of our history, wherever this can be done; to deal as concisely as the demands of clearness will permit with matters of war and conquest, of treaty and alliance, of constitutional conflict and dynastic struggle; but to treat at length and in detail of the various stages of our English civilization, whether as marked by recognizable epochs in moral and intellectual advance, or as indirectly traceable through those accretions of wealth which, by increasing comfort and enlarging leisure, do so much to promote the intellectual development, and, within certain limits, the moral improvement, of peoples. It is possible, and it is here intended, to dwell mainly on such matters as the growth and economic movements of the population, the progressive expansion of industry and commerce, the gradual spread of education and enlightenment, the advance of arts and sciences, the steady diffusion, in short, of all the refining influences of every description which make for the "humane life."

The successful accomplishment of this broad purpose has been amply recognized. Mr. Mann, in his several "Prefatory Notes" to these volumes, intimates the lines of improvement that have been followed, indicating the earnest practical efforts that have been made to perfect the original design. The divergences between different contributors have been reduced as far as possible, but even these are historically instructive, and by no means blemishes. The illustrations, which are abundant and excellent, are really directed "to elucidate and emphasize the information given in the text." In a word, we have nothing

to compare with this elaborate work as "a record of progress of the people in religion, laws, learning, arts, industry, commerce, science, literature, and manners, from the earliest times to the present day." The print, the reproductions of the illustrations, and the general get up are examples of technical excellence.

#### GRIEB'S GERMAN-ENGLISH DICTIONARY.

*Christoph Fr. Grieb's Englisch-Deutsches und Deutsch-Englisches Wörterbuch.* Zehnte Auflage. Von Prof. Dr. Arnold Schröer. Zwei Bände. Zweiter Band: Deutsch-Englisch. (Pp. xxii.+1,194, three columns each; 12s. Frowde.)

It is but a few months since we welcomed the first volume of Prof. Schröer's thoroughly revised edition (the tenth) of Grieb's well known Dictionary. Here now is the second volume—perhaps, on the whole, the more important of the two for English students. Prof. Schröer shall state in his own words his chief objects:

To arrange the meanings of the words historically or genetically as far as possible; to employ, wherever it seemed safe to do so, the etymology as the proper basis of this historical arrangement; to introduce a just proportion in respect of rare and obsolescent terms of the language of everyday life and that of poetry, as likewise of science, commerce, and technology, and to state the modern German pronunciation or pronunciations.

The task was thus a sufficiently complicated and arduous undertaking. Prof. Schröer liberally acknowledges the assistance of several Englishmen, which may account, in part at least, for the remarkable abundance of English idioms and the no less remarkable absence of Germanisms.

More efficiently in the present volume than in the first, we think, Prof. Schröer has cleared away "that needless ballast which dictionaries accumulate through indiscriminate preservation of effete matter." The meanings are marshalled with great care, compounds are explained in vast numbers, and phrases and idioms are very freely given. From a wide and varied series of tests, we cannot but conclude that the volume will successfully meet any reasonable demand upon it, and will prove exceedingly serviceable to English students of German. The chaos of pronunciation must have caused very great trouble to the editor. "There is as yet no standard of pronunciation," he says: "nor is it likely that we shall attain to anything like the standard in English for some generations to come." It would be ungracious to quarrel with him on this head; he has, on the whole, handled his nettle with judgment on principles that he fully explains. We commend the work without finical reservations.

#### THE ENCYCLOPÆDIC DICTIONARY—SUPPLEMENT.

*The Encyclopædic Dictionary—Supplementary Volume.* (7s. 6d. Cassell.)

The original work is well known and appreciated; but since its publication, fourteen years ago, new words for new ideas and new objects have been coming into use in shoals, and, no doubt, a good many old words had been, for one reason or another, omitted. Mr. Henry Scherren has prepared this supplementary volume with extraordinary diligence. It fills 768 pages, three columns each. Current books, reviews, and journals have been ransacked; and the scientific spoils are legion. The original plan has been followed as far as practicable. There are many illustrations. The volume will be found exceedingly useful.

## GENERAL NOTICES.

### CLASSICS.

*The Antigone of Sophocles.* With a Commentary, abridged from the large edition of Prof. Sir Richard C. Jebb, Litt.D., by E. S. Shuckburgh, M.A. (4s. Cambridge University Press.)

Mr. Shuckburgh has had a difficult task, and he naturally fears that some may think he has "erased what could not be spared," while others may think he has "left more than can be well digested even by sixth-form boys." We are of the latter party; but the fault, if any, leans to virtue's side. The introduction deals very fully with the play. The metrical analysis will be helpful; and there are good indices. An edition of the first class of workmanship, and beautifully printed and got up.

"Blackwoods' Classical Texts."—(1) *Livy, Book XXVIII.* By G. Middleton, M.A., and A. Souter, M.A. (1s. 6d.) (2) *Cicero, Pro Lege Manilia and Pro Archia.* By K. P. Wilson, M.A. (2s. 6d.)

(1) This edition "aims almost exclusively at explaining the Latinity of the book for junior students." The notes are full, careful, and

effective; and the brief introduction will be useful. There are several illustrations, the frontispiece being coloured. We should gladly exchange one of them for a map of the field of operations.

(2) Mr. Wilson gives a full and lucid introduction, and directs his notes very largely and advantageously to explanation of the matter of the text. The legal notes, though, perhaps, broadly sufficient, sometimes lack technical qualifications; and some of the grammatical notes seem superfluous. We are surprised at "a basilicum" (page 91). But the work is virile and sensible, and will prove very useful. There are some excellent illustrations.

\*\* In our notice of Mr. Anden's "Arrian's Anabasis" in this series last month we missed a map of the route, and supposed the binder had omitted it. We were mistaken; on the contrary, he had fixed it so skilfully to the inside of the end cover that our reviewer took it for part of the cover. And an admirable map it is. We regret the oversight.

#### MATHEMATICS.

*Academic Algebra.* By Prof. W. W. Beman and Prof. D. E. Smith. (Ginn.)

This work may be confidently expected to become popular. It is well planned and well written. It is intended to give students a thorough elementary training up to entrance to college. Examples and problems occupy a leading place in the scheme. A great deal of the theory is purposely left to be developed at greater length by the individual teacher, but all that is included in the text is clearly shown to have its origin in *common sense*, and is set forth in the simplest manner possible. An excellent insight is afforded into the proper methods of classifying and attacking the examples and problems that occur in practice, and a special feature is the systematic indication of the readiest modes of checking the accuracy of solutions. Much valuable information is included in the volume: for example, the student is led to understand how there gradually arose the need for the extension of known quantities so as to include not merely positive integers, but, in their turn, fractions, negative quantities, surds, and, finally, imaginaries; and in the case of each new type considered a graphical demonstration is introduced, to prove that it fulfils the function for which it may be said to have been created.

*Elementary Geometry.* By W. C. Fletcher, M.A. (Arnold.)

Within its limited range, this is a good little book, but the author is quite correct in stating that it discusses only the *irreducible minimum* which can be considered as constituting any knowledge at all of geometry. The volume is merely intended to supplement good teaching; but is it possible to insure that wherever the book is used such teaching will be available, and, if not, how are the many gaps to be filled and how is the student to derive full benefit from the pages of his text, and thus become possessed of the desired *minimum*? Mr. Fletcher is very happy in some of his methods: e.g., in his practical demonstration of the second corollary of Euclid I. 32, in his treatment of the propositions on parallels, and in his section on "Locii."

*The First Principles of Ratio and Proportion.* By H. W. Croome Smith, B.A. Lond. (Macmillan.)

At present this little treatise is issued in pamphlet form only. It is specially interesting in its earlier pages, which develop the theory of ratio and proportion in a manner essentially satisfactory, and more over suitable as a substitute for the Fifth Book of Euclid. The line of argument employed in demonstrating the principal theorems is based on a preliminary investigation of the properties of *directly varying magnitudes*.

*Arithmetic made Easy.* By Mabel A. Marsh. (Murray.)

A serviceable little book, with many valuable hints. It aims at making the study of arithmetic useful not only for its own sake, but also as a means of mental discipline. Through the medium of concrete examples and by untiring appeal to the senses the mind is to be led to a clear conception of the properties of abstract number.

#### SCIENCE.

"Twentieth Century Text-Books."—(1) *The Elementary Principles of Chemistry.* By A. V. E. Young, Professor of Chemistry in North-Western University. (2) *Elements of Physics.* By C. Hanford Henderson, Ph.D., and John F. Woodhull, Ph.D., Professor of Physical Science, Teachers' College, Columbia University. (5s. net each. Hirschfeld.)

The series is projected on a comprehensive scale: it will include some fifty volumes, embodying the latest advances in knowledge of the various subjects, and it is shaped so as "to give greater vitality to our secondary course and better correlation with the subsequent College education." In the present volumes the exposition is full, clear, and interesting; problems are added to various chapters, but the serious business of practical work is specially provided for in an appended course of experimental illustrations, occupying over 100 pages in each volume; and a stimulating human interest is supplied by a number of good portraits of the more eminent men in the different branches, inserted in connexion with their more special contributions to science. In the Chemistry volume a history of the development

of the science is incidentally outlined, with a concise account of the more important practical applications in smaller type. So in the Physics volume we have the phonograph, the telephone, and the electric motor, as well as the venerable pulley and siphon; and the illustrations are abundant. These examples of the series make a strong bid for the attention of teachers on this side of the water.

"Bell's Science Series."—*Injurious and Useful Insects.* By L. C. Miall, F.R.S., Professor of Biology in the Yorkshire College.

"An introduction to the study of Economic Entomology"—a well packed volume of some 263 pages, thoroughly practical, addressed to "the wants, not only of those who are concerned with insect-ravages, but also of those who seek to inquire into the works of Nature." First comes a short course of work giving the student a useful acquaintance with insect structure and some knowledge of technical processes; next a series of types, easier and more difficult, for detailed examination—beetles, moths, bees, flies, aphids, &c.; then, a descriptive account of the larger orders, with short notices of remarkable forms; and, finally, remarks on the destruction or mitigation of insect-pests, with special reference to American experience. An admirable book, simple and popular, with an outlook on large issues, scientific and practical, and no budding entomologist with a soul above "collecting and naming" will overlook it. In the particular branch of Nature study, it will prove an extremely helpful ally.

#### ENGLISH.

*Tales from the Faerie Queene.* Told by Clara L. Thomson. Illustrated by Helen Stratton. (Speight.)

These charmingly told tales of the Red Cross Knight and Sir Guyon are based on the first two books of Spenser's poem. They were originally told "to children between nine and thirteen years of age" by way of literature lessons. We can well believe they were received with "great interest and enthusiasm," and we hope they will be read by children through the length and breadth of the land—but not as task-work. Miss Thomson has the idea of "a reading book"—a "means of revising alone what the pupils had learnt in class." Certainly let them read the book "alone." The tales keep close to Spenser's narrative, and the frequent quotations from the original are skilfully utilized to draw the pupils to the poem itself. The style and the tone are excellent. There are about 30 illustrations and decorated pages, thanks to the deft pencil of Miss Stratton. These will form a great attraction. The print and get-up are very creditable to the Norland Press.

*One-Hour Exercises in English Grammar.* By R. Harris, M.A. (Relfe.)

Mr. Harris gives fifty-two sets of papers, "intended primarily for use in the lower and middle forms of schools where it is the custom to devote one hour a week to written home-work in English grammar," but also, of course, "convenient for oral work." Examples for analysis figure prominently throughout. In the earlier exercises they seem rather difficult—for lower forms, at least, and in comparison with later exercises. They are all intended to be set out "in tabular form," and Mr. Harris suggests the use of "special exercise-books, or special sheets, with headings printed and lines ready drawn." This saves time, no doubt; but the tabular form needs sharp watching, for it tempts to slackness in details. The demand for an elaborate grammatical terminology is implied; but, as things stand, Mr. Harris cannot help that. Evidently much care has been taken to put the questions in such a way as to require the pupils to think. Generally, they will be found very helpful. Probably, however, the most useful of them are such as invite the pupil to correct or justify given sentences, stating his reasons. Mr. Harris asks: "Would you say that *he* was a *personal* or a *demonstrative* pronoun?" There is a casuistical look about the question, and perhaps the virtue of the answer lies in the reasons annexed. When the laddie was asked whether he would prefer a halfpenny or a bawbee, he promptly answered: "Both." In any case, why "was"?

*The Royal Princess Readers.* V. (Nelson.)

There is plenty of variety in this series, both as to illustrations and letterpress. We have stories from English history, from classical myth, and from modern novelists, and there is plenty of good poetry. The present volume is well printed on good paper, and is certainly attractive as a school book.

#### MODERN LANGUAGES.

*Andersen in German.* Edited by Walter Rippmann. (Dent.)

Prof. Rippmann gives seven of Andersen's stories, adding brief "Aufgaben" (under three heads—Fragen, Wortschatz, Grammatik-sches)—which will serve as samples, and an exhaustive "Wörterverzeichnis," which occupies just half the volume. All explanations are in German. From another author's preface we learn that "the condonation of a single English word is equivalent, in the view of the new method, to a moral lapse." Prof. Rippmann is not chargeable with any such equivalent. But, then, does not the pupil require a dictionary? And, given a dictionary, does not much of the "Wörterverzeichnis" become superfluous? The book is beautifully got up, with seventeen fine illustrations by T., C., and W. Robinson.

*French Commercial Correspondence.* By Charles Glauser, Ph.D., Officier d'Académie, Professeur à l'Académie de Commerce de Vienne. Arranged and adapted by W. Mansfield Poole, M.A., Instructor in French to the Channel Squadron. (4s. 6d. Murray.)

The present volume concludes Poole and Becker's course of Commercial French, and "is intended for use in the highest forms of commercial schools and for students at commercial institutes and colleges of University rank." It is written in French (excepting only the English of small groups of terms and phrases), and it is meant to be taught in French. Each section gives an account of the operation to be dealt with in it, explains the technical terms, &c., sets out models, and closes with "exercices" and "devoirs." Besides the examples of commercial documents in the body of the book, a number of common official forms are reproduced at the end. A comprehensive, substantial, and business-like volume, thoroughly well conceived and executed.

*Commercial German.* By Gustav Hein, Lecturer in German (Honours) to the University of Aberdeen, and Michel Becker, Professor of Modern Languages in the Ecole Alsacienne, Paris. In Two Parts. Part I. (with a Map of Germany). (3s. 6d. Murray.)

Messrs. Hein and Becker give 100 passages in German dealing with what we may call the materials and machinery of commerce, followed by plenty of "Fragen," and interspersed with grammatical "Aufgaben." All this is excellent; and the appendix of weights and measures, &c., is essentially useful, and so is the vocabulary. But why interject an outline grammar (pages 149-226)? The outline is very good indeed, but the pupil, it seems to us, ought to know so much grammar before starting on these reading lessons. The lessons "are suited to general use for the teaching of German in secondary schools," no doubt; but are not the authors trying to ride two horses at once? However this may be, the workmanship is thoroughly sound, and the book ought to be widely used.

#### HISTORY.

(1) *Mediæval and Modern History.* Part I.—*The Middle Ages.* By Philip van Ness Myers, formerly Professor of History and Political Economy in the University of Cincinnati. (5s. Ginn.) (2) *An Introduction to the History of Western Europe.* Part I.—*The Middle Ages.* By James Harvey Robinson, Professor of History in Columbia University. (4s. 6d. Ginn.)

(1) Prof. Myers presents the first half of his work, "Mediæval and Modern History" (published sixteen years ago), in a carefully revised form, the general perspective not being essentially modified, though the emphasis has been slightly shifted here and there. He subordinates political, dynastic, and military affairs to religious, moral, intellectual, and social interests. "Unity has been impressed upon the narrative," he says, "by keeping prominent the great ideals of the mediæval time, especially the ideals of the Papacy and the Empire, and by laying upon the Renaissance, which is viewed as essentially an intellectual movement and as the unconscious goal of mediæval endeavour and life, an emphasis corresponding to that laid upon the Reformation and the political revolution in modern history." Very useful bibliographical notes are appended to the chapters. There are twelve excellent coloured maps and three sketch maps. A very careful, able, and serviceable volume.

(2) Prof. Robinson has paid especial regard to the problem of proportion, regarding it as the fundamental one. Hence he has omitted many secondary personages and episodes, and many anecdotes, that usually figure in manuals of the period, and devoted the space saved to more useful purposes—to a fuller treatment of institutions (and, above all, the Church), to a larger presentation of the life and work of indubitably first-rate men, and to a broader view of the life of the times, including the economic, intellectual, and artistic aspects, as well as the political movements. Comprehensive bibliographies, with a selection of illustrative material, are promised in a companion manual, "Readings in European History," now in preparation. There are eighteen admirable maps (six of them double-page and coloured) and other effective illustrations. An extremely capable and useful work.

*History of England.* Part II., 1485-1689. By George Carter, M.A. (Relfe.)

The object is to help "those who are preparing any part of the period as a 'special period.'" We can recommend it for that purpose. The subject-matter is full and clearly arranged. An appendix contains many short biographies, well written. Pupils that have mastered the book will have no inconsiderable knowledge of the political history of the period.

#### EDUCATION.

*Pastors and Teachers.* By the Right Rev. E. A. Knox, D.D., Bishop of Coventry. (Longmans.)

Bishop Knox's "Six Lectures on Pastoral Theology" at Cambridge are introduced in handsome terms of appreciation by Bishop Gore. Dr. Knox deals with the Church Catechism and the history of catechisms (the text of half a dozen of them forming a large appendix), and earnestly impresses the need of preparation for the duty of catechizing. A special lecture is devoted to the Sunday school. Dr. Knox recognizes that "the monopoly of education" has passed from the Church to the State. "Education, so far as the State undertakes

it, is, and must be, secular. But, thank God, education has not been secularized." But the Church must train her teachers; and it is for the Universities—particularly the theological faculties—to find "instructors in the art of teaching, instructors who could help to bring the methods of religious and secular instruction into line with each other." The lectures are wisely outspoken at points. Bishop Gore says they "demand very much of the Church and the clergy." How, then, shall the demands of other professions be measured?

"The Great Educators."—*Pestalozzi, and the Foundation of the Modern Elementary School.* By A. Pinloche, Professor in the Lycée Charlemagne and the Ecole Polytechnique, Paris. (Heinemann.)

From the eighteen volumes of Pestalozzi's collected works, and the multifarious mass of commentary on the man and his method, Prof. Pinloche has constructed a systematic and tolerably full account of the wayward genius that "immortalized himself by creating, at the price of his repose and happiness, what was till then almost unknown, the education of the lower classes." Part I. sketches Pestalozzi's life; Part II. carefully outlines his method; and Part III. very briefly indicates his influence in other countries, particularly Germany. The work has been very diligently compiled, and is most lucid and readable. It should be welcome to all teachers.

#### SCRIPTURE.

*The Book of Exodus.* Edited, with Introduction and Notes, by the Rev. H. F. Stewart, M.A. (Rivingtons.)

The book is designed for the use of junior pupils, but it would appear to be better adapted for more advanced students. In the introduction the editor clearly accepts as final the latest theories of the "higher criticism." Any one that has followed the course of Biblical criticism during the last quarter of a century can scarcely fail to observe that such finality has by no means been reached. However, without entering upon such thorny questions as these, we not a little doubt the wisdom of confusing the minds of children with theories, however plausible, concerning the untrustworthiness of the Biblical tradition and the legendary character of the heroes of Jewish history. The introduction and notes contain much valuable matter, and, under the guidance of a capable and discreet teacher, will be found useful.

The Cambridge Bible for Schools and Colleges.—*Psalms, Books IV. and V.* By A. F. Kirkpatrick, D.D. (Cambridge University Press.)

Psalms xc. to cl. are treated in this volume, preceded by the full introduction, dealing with the authorship of the Psalms, the forms of Hebrew poetry, the Messianic hope, the Psalter in the Christian Church, and other general topics relating to the subject, all of great interest. It is not only by students that this volume will be appreciated, but by numbers of people to whom the Psalms are not only a devotional exercise, but a literary treasure. Dr. Kirkpatrick's scholarly notes deal with the subject from both points of view, and the ethical difference between the Old and New dispensations is also fully and luminously treated.

#### MISCELLANEOUS.

*A Concise Dictionary of Egyptian Archaeology.* By M. Brodrick and A. Anderson Morton. With 80 Illustrations and many Cartouches. (Methuen.)

The interest and importance of the recent discoveries in Egypt and the promise of a progressive unveiling of a long buried civilization of far reaching influence commend this "handbook for students and travellers" to favourable consideration. As it stands, it appeals mainly to travellers. For students a systematic treatment would be much more useful: the alphabetic arrangement tends to scrappiness and isolation. The matter is judiciously selected and competently presented, so that the book will be very serviceable in its present form, and we trust it will meet such a reception as to encourage the authors to expand it. The illustrations are indispensable and excellent, and the volume is nicely got up.

Cassell's 'Eyes and No Eyes' Series.—Book V.: *Trees and Shrubs*; Book VI.: *Insect Life.*

Two more of Arabella B. Buckley's delightful little primers in natural history, to be heartily recommended to teachers of young children. The practical exercises at the end of each chapter will be found especially useful. The illustrations—some of them tastefully coloured—are good and clear.

*Dick Knap and his Master.* By George Kitching. (Simpkin, Marshall, & Co.)

Dick is a rather belated arrival; but then he is a country lad, and only a bird-tenter. Mr. Kitching is careless of classical refinements, and unkind critics may have hard names for his verse; but he embodies in his tripping and reckless measures much shrewd observation and kindly feeling, often effectively expressed.

*Letts's Diaries* (Cassell) are always handy and serviceable. We have several samples for 1903:—Office Diary (No. 11, 4s.), strongly bound) Rough Diaries (No. 32, 1s. 6d.; No. 33, 1s. 4d. or 2s.; No. 35, 1s. or 1s. 6d.); Scribbling Diary (No 47, 1s. or 1s. 6d.); medical and clerical diaries, with special professional memoranda and arrangements; and dainty pocket diaries in various forms. Accident insurance coupons (£1,000) are attached.—*Pitman's Year-Book and Diary* (twelfth year, 1s.) contains useful information about shorthand and typewriting.



## GIFT-BOOKS AND PRIZES.

## II.

## HISTORICAL TALES.

Mr. G. A. Henty, whose death has just been announced, closes a long and honourable record with three bright volumes of adventure more or less mixed up with history. *With Kitchener in the Soudan* (Blackie, 6s.) is "a story of Atbara and Omdurman," recording (with maps) the reconquest of the Soudan.—*With the British Legion* (Blackie, 6s.) is "a story of the Carlist wars"—a chequered history of the legion raised by Sir de Lacy Evans to support the cause of Queen Christina and the infant Queen Isabella—one of Mr. Henty's best.—*In the Hands of the Cave-Dwellers* (Blackie, 1s. 6d.) is a shorter tale, the scene laid in Mexico, with stirring adventures among the Indians.

*A Hero of the Highlands*, by E. Everett-Green (Nelson, 5s.), is "the romance of a rebellion, as related by one who looked on"—the story of the Forty-Five, with Bonny Prince Charlie, Flora Macdonald, plenty of Jacobite enthusiasm, and—Culloden. It is written with much spirit.—*The Story of a Scout*, by John Finnemore (Pearson), takes us back to the Peninsular War. It has rapid and vivid sketches.—*For the Red Rose*, by Eliza Pollard (Blackie, 2s. 6d.), is concerned with the lively adventures of a little girl found in the forest by a gypsy after the sacking of a castle by the Yorkists and adopted by the tribe. Margaret of Anjou and her son also figure in the story.

Captain F. S. Brereton wields the pen (as well as the scalpel) with vigour. He now presents two capital stories of adventure in connexion with recent warfare—*Under the Spangled Banner*, which has for its background the Spanish-American War, and *One of the Fighting Scouts*, which is a tale of guerrilla warfare in South Africa (Blackie, 5s. each).—Dr. Gordon Stables, ever indefatigable, packs a great deal of adventure and not a little fun, along with much information, into his new volume, *In the Great White Land*—the Antarctic regions (Blackie, 3s. 6d.). It should go without saying that all these books are well illustrated.

*The Siege of York*, by Beatrice Marshall (Seeley), is a fine "story of the days of Thomas Lord Fairfax," with excellent illustrations—a worthy addition to Mrs. Marshall's historical gallery.

## STORIES OF ADVENTURE.

*The Diamond Seekers*, by Ernest Glanville (Blackie, 6s.), is "a tale of adventure by veld and river." The hero goes to Cape Colony to learn farming, but, hearing of a mysterious diamond mine, he goes in search of it. The incidents are abundant and stirring, and the author seems to know his ground at first hand. Capital illustrations by William Rainey, R.I.

*The Treasure of the Incas*, by G. A. Henty (Blackie, 5s.), involves the crossing of the Cordilleras and an arduous search, followed by re-crossing and further search. There are lively encounters with Indians and with brigands. Whether the treasure—"part of the wealth of Atahualpa"—was discovered in the Castle of the Demons or not the reader may be trusted to find out. Eight illustrations by Wal Paget and a map.

*The Secret of the Everglades*, by Bessie Marchant (Blackie, 2s. 6d.), takes us to Florida, to the ancient fastnesses of the Seminoles and the clear waters of the Okeechobee. There is a family tragedy, and search expeditions, and the secret is kept up to the end. The material troubles lead to moral development. The story is well written and well illustrated.

*Grit will Tell*, by R. Stead (Blackie, 2s. 6d.), is occupied with the adventures of a boy on a barge (on the Leeds and Liverpool Canal), in a brickyard (with a strike), at sea, on travel in Belgium (with a bear hunt), and in a battle of the Franco-German War. The story is forcibly written. Four illustrations.

## FOR CHILDREN.

Mr. G. E. Farrow takes his young friends *In Search of the Wallypug* (Pearson, 5s.)—the famous Wallypug of Why. The preposterous dodo, with ever-blooming conceit, is also very much to the fore; and many new characters, fairy and gnome, furred and feathered, play amusing parts. Mr. Alan Wright furnishes numerous appropriate illustrations, and the get-up is brilliant. A charming addition to a whimsical series of prolific imaginative power.

*Kids of Many Colours*, by Grace Duffie Boylan and Ike Morgan (Pearson, 6s.), is a wonderful collection of pictures, with descriptive verses, lullabies, and mother songs. Children of all nations, from China to Hawaii, and from Lapland to the Philippines, are represented in brilliant colours. An attractive book, certainly—though printed in Chicago (last year).

Messrs. Blackie & Son offer *Six and Twenty Boys and Girls* (3s. 6d.) in various moods and situations, and *Games and Gambols* (2s. 6d.), animals masquerading as children—with clever pictures in colour and amusing descriptive verses.

Mr. S. Hamer presents this year *The Ten Travellers, and other Tales in Prose and Verse* (Cassell), with four coloured plates and forty or fifty good illustrations by Harry B. Neilson.

*The New Pupil*, by Raymond Jacobens (Macmillan, 4s. 6d.), is a story of Fraulein Friederich's old-fashioned "home school." Why "Frau-

lein"? Pollie is refreshingly unconventional—"a funny kind of girl"—"always impulsive and up to pranks."

*Comrades All*, by Florence Coombe (Blackie, 2s.), chronicles a variety of children's adventures—the raven, the bicycle, the flying-machine, &c.—with a philanthropic episode. The construction is somewhat loose, and the boys' vernacular is not severely toned down; but the book has elements of promise.

In *A Little Cockney*, by S. G. (Nelson, 1s. 6d.), a town child tells her experiences of a visit to the country and the seaside—a simple and pleasant narrative.

Of the "Little Blue Books for Children" (Methuen, 2s. 6d. each) we have three specimens—*The Peeles at the "Capital"* (and a meddlesome little girl), by Roger Ashton; *The Treasure of Princegate Priory* (with adventures in the recovery of it), by Thomas Cobb; and *A School Year* (with brisk scenes of schoolgirl life), by Netta Syrett. Good stories all, and prettily got up.

## VARIOUS.

There could be no finer gift-book for a youngster—or for an adult either—than William J. Long's *School of the Woods* (Ginn, 7s. 6d.). Mr. Long tells of the animals he has watched in the woods; the sketches "are all life studies, and include also some of the unusual life secrets of animals and birds." He emphasizes "the large place which early education holds in the life of every creature" and the vital importance of obedience in forest education. A most delightful and instructive book, full of observation and instinct with humane feeling, quaintly and lavishly illustrated, and handsomely got up.

*The Boy's Book of Battles*, by Herbert Cadett (Pearson), is briskly written and well got up; but the tone does not commend it, and the historical grasp is feeble.

*The Romance of Modern Invention*, by Archibald Williams (Pearson), contains simple and lucid descriptions of wireless telegraphy, liquid air, dirigible torpedoes, airships, modern artillery, and so forth; with twenty-five illustrations—a very interesting and attractive volume.

*The Fairclough Family*, by Mrs. Henry Clarke (Blackie, 3s. 6d.), turns on a secret that operates on certain young people for a time in a trying way, but is duly unfolded. The story is skilfully contrived and well told.

*Robinetta, or The Light of his Eyes*, by L. F. Tiddeman (Nelson, 2s. 6d.), is a story of a spirited little girl of Walworth, fresh and interesting.

*The Adventures of Downy V. Green, Rhodes Scholar at Oxford*, by George Calderon (Smith, Elder, & Co.), gives a very clever sketch of the hero's first term at the University. Downy is a grandson of the celebrated Verdant, whose "adventures" at Oxford are well known. New times, new manners. The book will provide "a real boss time"—"a gallows old time"—"jags of fun"—"oodles of it." Some readers may be "a bit pixilated" from lack of a glossary of the Amurkan (or Ameracan) tongue; but does it matter? The author's illustrations are capital.

*The Golden World*, by Reed Moorhouse (Dent, 2s. 6d. net), is a pretty "book of verses for children," chiefly about fairies and birds, and not without an unobtrusive moral.

We may include here the first two volumes of the "Red Letter Library"—*Poems by Alfred Lord Tennyson*, and *Poems by Elizabeth Barrett Browning* (Blackie, 1s. 6d. net, cloth; 2s. 6d. net, leather), with brief introductions by Alice Meynell. They are beautifully printed and most tastefully got up—delightful little books.

## NEW EDITIONS AND REPRINTS.

It is just possible that we may make a slip under this head, for want of sufficient indications. For our own part, we should say that the books reissued are quite as good as if they were new; and they will be new to many.

*A Mystery of St. Rule's*, by Ethel F. Huddle (Blackie, 6s.), a mysterious and charming story of St. Andrews, which appears in a finely illustrated edition, rivals any of the new stories. *The Girls of Banshee Castle*, by Rosa Mulholland (Lady Gilbert) (Blackie, 3s. 6d.), is bathed in the glamour of Irish folk-lore. *A Girl's Loyalty*, by Frances Armstrong (Blackie, 3s. 6d.), is in excellent tone and good style. *The Lion of St. Mark and Through the Fray*, by G. A. Henty (Blackie, 3s. 6d. each), are old favourites, as fresh as ever. *The Boys of Wynport College*, by Frederick Harrison (Blackie, 3s.), and *The Golden Galleon*, by Robert Leighton (Blackie, 3s.), will again meet a glad welcome. All these volumes are beautifully illustrated and handsomely bound.

The series of "historical stories collected out of English romantic literature in illustration of the reigns of English monarchs from the Conquest to Victoria"—*The King's Story Book*, *The Queen's Story Book*, and *The Prince's Story Book*—has just been completed by the issue of *The Princess's Story Book* (Constable, 3s. 6d. each). They are all edited, with an introduction, by George Laurence Gomme, and are well illustrated and prettily got up. Date of issue is irrelevant: these books will be as fresh and attractive a generation hence as they are to-day.

Messrs. Macmillan reissue, in their delightful and handy series of "Illustrated Pocket Classics" (2s. net each), Miss Austen's *Pride and Prejudice*, *Sense and Sensibility*, *Emma*, *Mansfield Park*, *Northanger*

*Abbey*, and *Persuasion*—her whole works—with interesting introductions by Austin Dobson; Miss Mitford's *Our Village*, with a charming introduction by Mrs. Anne Thackeray Ritchie; and Goldsmith's *Vicar of Wakefield*, with introduction by Austin Dobson (on Goldsmith's illustrators). All these volumes, except the first, are illustrated by Hugh Thomson. The first is illustrated by Charles E. Brock.

If one's purpose of liberality must be restricted to a modest expense, and is content with close type and paper covers, what can one do better than invest the coin in the "People's Edition" of A. J. Church's delightful *The Story of the Iliad*, or *The Story of the Odyssey*, just issued by Messrs. Seeley? Both volumes have a number of illustrations after Flaxman. An amazing sixpennyworth!

## ANNUALS.

The yearly volume of *Cassell's Saturday Journal* (7s. 6d.)—in a very full sense a magazine of useful and entertaining literature—makes a handsome and portly collection of good things to read, with abundance of illustrations, several of them full-page and coloured.—The Christmas volume of *Little Folks* (Cassell, 3s. 6d.)—always welcome—has two serials and a great variety of stories and articles for children, with pictures on almost every page, six full-page coloured plates, and numerous illustrations printed in colour.—The *Girl's Own Annual* (Religious Tract Society, 8s.), with its long stories, short tales, general papers, and profusion of illustrations, will make a delightful gift-book.—The *Sunday at Home* (Religious Tract Society, 7s. 6d.) is a treasury of excellent reading, with abundant and good illustration.—The *Leisure Hour* (56 Paternoster Row, E.C.) is full of well considered and instructive matter presented in popular form and effectively illustrated.—The *Children's Treasury* (Nelson, 1s.) is rich in attractive pictures and suitable stories.

## FIRST GLANCES.

## CLASSICS.

Allen, the late J. B., M.A.: *An Elementary Greek Grammar*. 3s. Clarendon Press.

[Revised by Mr. D. B. Monro. Lucid and compact.]

Analytical Grammar as applied to the Latin Language. By Two Graduates of Oxford. 2s. 6d. Rivingtons.

["Why should not relations (between thoughts) and symbols (of those relations) be brought before the student in one view?"]

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Alexander, Prof. T., C.E., &c., and Prof. A. W. Thomson, D.Sc.: *Elementary Applied Mechanics*. 21s. Macmillan.

Arnold's Mathematical Series.—Mensuration. By R. W. Edwards, M.A. 3s. 6d.

[Third edition, revised and improved.]

British Association Discussion on the Teaching of Mathematics (Glasgow, 1901). Edited by Prof. Perry. 2s. net. Macmillan.

[Second Edition. Now includes a communication made to the Committee by 22 masters of public schools, and also the Report of the Committee, drawn up by the Chairman (Prof. Forsyth).]

## MODERN LANGUAGES.

Alfa Etimologia e Sinfasi Inglese. Per M. G. Howard. L.2.30. Author (Villa di Donato, Portici, Napoli).

[Much useful matter, greatly confused.]

Black, Cour Élémentaire.—(1) Contes et Préceptes (L. Charleville); (2) Rires et Larmes (A. Vessiot)—both edited by F. B. Kirkman, B.A. (3) Berthe aux Grands Pieds. Adapted from Adenet's poem, and retold in modern French by Mrs. J. G. Frazer. 6d. each.

[Appropriate; well edited; good illustrations.]

Black, Cour Moyen et Supérieur.—(1) Mélanges (Voltaire). Edited by F. B. Kirkman, B.A. (2) La Farce de Maître Patelin. Edited by M. Ninet. (3) Chicot chez Henri de Navarre (Dumas). Edited by A. R. Florian, M.A. 6d. each.

[Excellent editions, capitally illustrated.]

Blackie's Little French Classics.—(1) Selections from Buffon. (2) La Mule du Pape (Daudet). 4d. each.

[Excellent additions to a very useful series.]

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[Good selection. But is it right to explain "fraget" for "fragt" by saying that "an e is often inserted for the sake of the rime or rhythm"? And is it not missing the point to say that for "verhehle" ("Der Taucher," 59) "the indicative 'verhehlt' would be more usual"?]

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[*Tartuffe*, *Don Juan*, *L'Amour Médecin*. French and English on opposite pages. Delightful; handy; translation too often loses by conciseness.]

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## MISCELLANEOUS.

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Balfour, Right Hon. A. J.: *Speech on the Education Bill at Manchester*. 3d. Eyre & Spottiswoode.

[Reprinted from the *Times* (October 15).]

Books for the Bairns.—(1) *The Sleeping Beauty* (No. XLVI.); (2) *Cinderella* (No. LXIX.); (3) *Dick Whittington* (No. LXXXI.) 1d. each. Mowbray House, Norfolk Street.

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[Excellent work, beautifully got up.]

De Brath, S., and F. Beatty: *Over-Pressure*. 1s. 6d. Phillip.

[Cheap edition. Much sensible matter.]

Encyclopædic Dictionary. Part I. 6d. net. Cassell.

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**MATHEMATICS.**

The Integration of  $\int \frac{d\theta}{\sec \theta + \operatorname{cosec} \theta}$ .

By GEORGE SCOTT, M.A.

$$\int \frac{d\theta}{\sec \theta + \operatorname{cosec} \theta} = \int \frac{\sin \theta \cos \theta d\theta}{\sin \theta + \cos \theta}$$

Now  $2 \sin \theta \cos \theta = (\sin \theta + \cos \theta)^2 - 1$ .

Therefore 
$$\int \frac{d\theta}{\sec \theta + \operatorname{cosec} \theta} = \frac{1}{2} \int \frac{d\theta \{ (\sin \theta + \cos \theta)^2 - 1 \}}{\sin \theta + \cos \theta}$$

$$= \frac{\sin \theta - \cos \theta}{2} - \frac{1}{2} \int \frac{d\theta}{\sin \theta + \cos \theta}$$

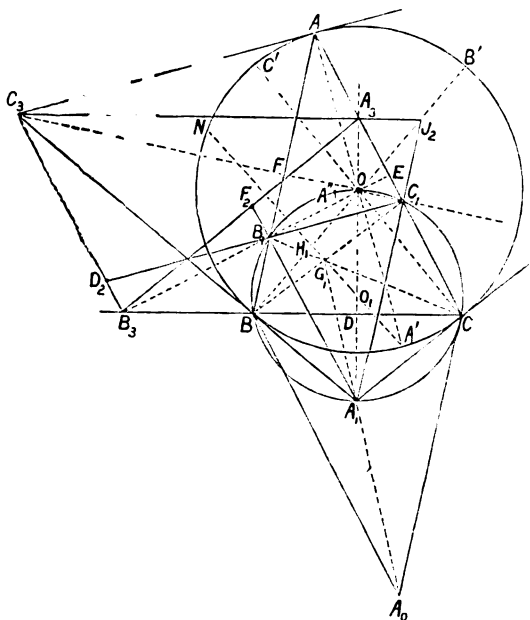
$$= \frac{\sin \theta - \cos \theta}{2} - \frac{1}{2\sqrt{2}} \int \frac{d\theta}{\sin(\frac{1}{2}\pi + \theta)}$$

$$= \frac{\sin \theta - \cos \theta}{2} - \frac{1}{2\sqrt{2}} \log \tan(\frac{1}{4}\pi + \frac{1}{2}\theta).$$

**14885.** (Professor SANJANA, M.A.)—Let  $K_1$  be the pole of the side BC of a triangle ABC with regard to the circum-circle, and O the circum-centre; let D, E, F be the mid-points of BC, CA, AB respectively; and  $K_1A_1, K_1B_1, K_1C_1$  perpendiculars to OD, OE, OF respectively. Then the six points  $K_1 \equiv A_1, B_1, C_1, B, C, O$  lie on a circle. So also the similar points  $K_2 \equiv B_2, C_2, A_2, C, A, O$  and  $K_3 \equiv C_3, A_3, B_3, A, B, O$  lie on circles. [These circles have been called the ex-Brocardal circles of the triangle.] The triangles  $A_1B_1C_1, A_2B_2C_2, A_3B_3C_3$  are each inversely similar to ABC, and in perspective with it; they are also in perspective two by two, and their axes of perspective meet in a point. [These triangles have been called ex-Brocardal triangles.] The ex-Brocardal triangles form a system of similar figures whose circle of similitude is the circum-circle ABC; whose invariable points are  $A', B', C'$  on the circum-circle diametrically opposite to A, B, C, and whose invariable circles are the ex-Brocardal circles (so that every three collinear corresponding points of the figures lie severally on these circles).

Note by C. E. YOUNGMAN, M.A.

These and other properties are proved in the solutions of Questions 14819, &c. (New Series, Vol. 1., p. 68, q.v.). A few more may be mentioned.



Since  $A_1, B_1, C_1, A_2, B_2, C_2, A_3, B_3, C_3$  have two by two the same centre of perspective, the three axes will concur. Let  $J_1F_2D_3$  be one of them; then angle  $B_3D_2B_1 = B = B_3F_2B_1$ ; therefore  $B_3D_2, F_2I_1$  are concyclic, and  $B_3D_2F_1$  is a right angle. Hence  $J_1J_2J_3$  is orthologic with ABC.

To follow up the analogy between  $A_1B_1C_1$  and the first BROCARD triangle, consider the three similar figures  $A_1BC, B_1AC, C_1BA$  on the sides of ABC. The double points are  $A'', B, C$  ( $A''$  is the projection of O on  $AA_1$  and lies on the circle  $OBCA_1$ );  $A_1, B_1, C_1$  are the invariables; and the director-point is A, which is therefore, in any triangle  $a_1b_1c_1$  of homologous points, not the centroid (as in the case of the BROCARD tri-

angle), but an ex-centroid, i.e., vertex of parallelogram  $Ab_1a_1c_1$ . Any triangle  $pqr$  made by three homologous lines is directly similar to ABC, and its ex-symmedian (homologue of  $A_1$  in ABC) is its centre of perspective with  $A''BC$ ; in other words,  $Bq$  and  $Cr$  touch the circle  $pqr$ , and meet on the circle  $A''BCOA_1B_1C_1$ .

Again, complete the parallelogram  $CABA_0$ . From Euc. 1. 43, *conv.*, it can be shown that  $A_1A_0, B_1C, C_1B$  meet at a point  $G_1$ ; this is the double point of ABC and  $A_1B_1C_1$ ; for the angles  $G_1BA, G_1CA, G_1B_1A_1, G_1C_1A_1$  all equal A. And  $G_1$  lies at the intersection of the two EULER lines OH and  $O_1H_1$ , as may be proved thus: first,  $A'$  lies on  $O_1H_1$ ; for O is the orthocentre of  $AC_1B_1$ , which is equal to  $A_1B_1C_1$ ; therefore  $A_1H_1 = AO = OA'$ ; therefore  $H_1A'$  bisects  $A_1O$ ; and next,  $G_1$  lies on  $A'O_1$ ; for the angle  $OG_1A'$  in the figure ABC is equal to  $O_1G_1O$  in  $A_1B_1C_1$ .

Further, the circles ABC,  $AB_1C_1, BC_1A_1, CA_1B_1$  meet at N, the NEUBERG point, on the EULER line of the first BROCARD triangle. N lies also on the EULER lines of  $A_1B_1C_1, A_2B_2C_2$ , and  $A_3B_3C_3$ . For AN is perpendicular to the EULER line of  $AC_1B_1$ ; and therefore to that of  $A_1B_1C_1$ , i.e., to  $A'O_1$ ; and it is also perpendicular to AN.

The trilinear coordinates of  $G_1$  are given by  $aa = (c^2 - a^2) \beta b (b^2 - a^2) \gamma c$ . It follows that  $AG_1, BG_2, CG_3$  meet BC, CA, AB on the line  $\Sigma (b^2 - c^2) a/a = 0$ ; i.e., on the BROCARD axis, the trilinear polar of N; and A (NBG<sub>1</sub>C) is a harmonic pencil.

The line  $A_0A_1G_1$  corresponds (in a way) to GK, the "symmedian-point axis," and meets it on BC.

**15031.** (ALETROP.)—Résoudre en nombres entiers  $x^{-2} + y^{-2} = z^{-2}$ .

Solution by D. BIDDLE and R. CHARTRES.

Take  $a, b, c$ , any integral values that will serve to represent the sides of a right-angled triangle, such that  $c^2 + b^2 = a^2$ . Divide both sides of this equation by  $a^2b^2c^2$ . Then  $(ab)^{-2} + (ac)^{-2} = (bc)^{-2}$ . The simplest example has  $x = 20, y = 15, z = 12$ .

Taking Euclid III. 36 as the Definition of a Circle, show that the ordinary Definition is a Theorem.

By J. MACLEOD, H.M.I.S.

In the figure the tangents at B, C meet in A. If BO, CO are perpendicular to the respective tangents, BO = CO, and AM bisects BC perpendicularly, all resulting from the evident equality of the tangents.

We can now prove that but one tangent can be drawn at any one point. If possible, at B let there be the two tangents BA, BF.

$$AE \cdot AD = AB^2 = AE^2 + EB^2 + 2AE \cdot EM,$$

$$AE^2 + AE \cdot ED = \dots \dots \dots$$

therefore  $AE \cdot ED = EB^2 + 2AE \cdot EM,$

or  $AE \cdot MD = EB^2 + AE \cdot EM.$

Hence  $MD > EM,$

$$FB^2 = FE \cdot FD = (FA + AE)(FA + AD)$$

$$= FA^2 + FA \cdot AD + FA \cdot AE + AE \cdot AD$$

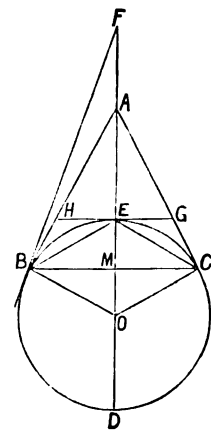
$$= FA^2 + AB^2 + \dots,$$

$$FA^2 + AB^2 + 2AF \cdot AM = \dots \dots \dots$$

Hence  $AF \cdot EM = AF \cdot MD,$  which is impossible, and therefore there can be but one tangent at each point.

At E draw the tangent GH, meeting those at C, B in G, H respectively. The following equalities are evident: —BE = EC, GF = GC, HE = HB. Also  $\angle GCE$  or  $\angle GEC = \angle HBE$  or  $\angle HEB$ , and HE = EG and OE is perpendicular to HG. Therefore OB, OE, OC are equal. Similarly, it can be proved that all radii within the arc BEC are equal. Again, from the equality of OE to OC, and therefore of the rectangle  $AE \cdot AD + OE^2$  to  $OA^2$ , it follows that ED is bisected in O.

By drawing a tangent at D to meet AC produced it may similarly be proved that all radii within the arc CD are equal to each other, and to those in BEC. Likewise those within BD for similar reasons are equal to each other and to the other radii.



**15146.** (Professor NANSON.)—If (A, B, C) is the adjugate of the determinant (a, b, c), prove that

$$(BC, CA, AB) = -(bc, ca, ab)(a, b, c)^2.$$

Solutions (I.) by T. MUIR, LL.D.; (II.) by A. M. NESBITT, M.A.

(I.) The determinant (a, b, c) must mean the circulant  $\begin{vmatrix} a & b & c \\ c & a & b \\ b & c & a \end{vmatrix}$ , which may be denoted by  $\begin{vmatrix} a & b & c \\ a & b & c \end{vmatrix}$ .

Using thrice the fact that any three-line circulant  $\begin{vmatrix} x & y & z \\ y & z & x \\ z & x & y \end{vmatrix}$  is equal to  $(x + y + z)(x^2 + y^2 + z^2 - yz - zx - xy)$ , we have two factors on the left,

viz.,  $\Sigma BC$  and  $\Sigma B^2C^2 - \Sigma A^2BC$ , and six factors on the right, viz.,  $\Sigma bc$ ,  $\Sigma b^2c^2 - \Sigma a^2bc$ ,  $\Sigma a$ ,  $\Sigma a^2 - \Sigma bc$ ,  $\Sigma a$ ,  $\Sigma a^2 - \Sigma bc$ . Now, the first of the former set is resolvable into the first and sixth of the latter set, and the second of the former set is equal to the product of the remaining four of the latter set; in other words, Prof. NANSON'S identity implies two, viz.,

$$\frac{\Sigma BC}{\Sigma bc} = \Sigma bc - \Sigma a^2 \quad \text{and} \quad \frac{\Sigma B^2C^2 - \Sigma A^2BC}{\Sigma b^2c^2 - \Sigma a^2bc} = \Sigma a \Sigma a (\Sigma a^2 - \Sigma bc).$$

(II.) Denote  $(a, b, c)$  by  $\Delta$ . In the determinant

$$\begin{vmatrix} B_1C_1 & B_2C_2 & B_3C_3 \\ C_1A_1 & C_2A_2 & C_3A_3 \\ A_1B_1 & A_2B_2 & A_3B_3 \end{vmatrix}$$

form a new first row by subtracting  $B_1/A_1$  times the second row from the first. This new row will be

$$0, \frac{C_2}{A_1}(A_1B_2 - A_2B_1), \frac{C_3}{A_1}(A_1B_3 - A_3B_1), \text{ or } 0, C_2\Delta c_3/A_1, -C_3\Delta c_2/A_1.$$

Similarly, by subtracting  $C_1/B_1$  times the third row from the second for a new second row, we get  $0, -A_2\Delta a_3/B_1, A_3\Delta a_2/B_1$ . Thus the proposed determinant

$$= \Delta^2/A_1B_1 \begin{vmatrix} 0, & C_2c_3, & -C_3c_2 \\ 0, & -A_2a_3, & A_3a_2 \\ A_1B_1, & A_2B_2, & A_3B_3 \end{vmatrix} = \Delta^2 \begin{vmatrix} C_2c_3, & -C_3c_2 \\ -A_2a_3, & A_3a_2 \end{vmatrix} = \Delta^2 D, \text{ say.}$$

But, if we treat the determinant  $\begin{vmatrix} b_1c_1 & \dots \\ c_1a_1 & \dots \\ a_1b_1 & \dots \end{vmatrix}$  in a similar way, it becomes

$$\begin{vmatrix} 0, & c_2C_3/a_1, & -c_3C_2/a_1, & i.e., & c_2C_3, & -c_3C_2 \\ 0, & -a_2A_3/b_1, & a_3A_2/b_1, & & -a_2A_3, & a_3A_2 \\ a_1b_1, & a_2b_2, & a_3b_3 \end{vmatrix} = -D.$$

**15182.** (G. HEPPLE, M.A.)—The three forces represented by the perpendiculars from the symmedian point to the sides of a triangle are in equilibrium.

Solutions (I.) by R. TUCKER, M.A.; (II.) by LIONEL E. REAY, B.A.; (III.) by R. F. DAVIS, M.A., and H. BATEMAN.

(I.) This is equivalent to proving that forces, acting at  $O$ , proportional to  $a, b, c$  as indicated in the figure equilibrate. Evidently

$$b \cos C + c \cos B = a, \\ b \sin C - c \sin B = 0.$$

(II.) If  $x, y, z$  are the perpendiculars

$$x/a = y/b = z/c,$$

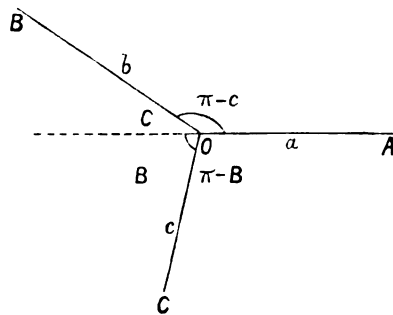
therefore

$$x/\sin A = y/\sin B = z/\sin C;$$

therefore  $x/\sin yz = y/\sin zx = z/\sin xy$ ,

since  $yz = 180^\circ - A$ , and similarly; therefore by LAMÉ'S theorem, the forces represented by  $x, y, z$  are in equilibrium.

(III.) The symmedian point  $K$  of any triangle  $ABC$  is the centroid of the triangle formed by joining the feet of the perpendiculars from  $K$  on the sides of  $ABC$  (MILNE'S Companion, § v., chap. iii., Art. 29).



**15172.** (Professor NANSON.)—Sum to infinity the series

$$\frac{1}{1.2} - \frac{1}{3.4} + \frac{1}{6.7} - \frac{1}{8.9} + \frac{1}{11.12} - \dots$$

Solution by Professor SANJANA, M.A.

Let  $f(x) = x - \frac{1}{2}x^2 - \frac{1}{3}x^3 + \frac{1}{4}x^4 + \frac{1}{5}x^5 - \frac{1}{6}x^6 - \frac{1}{7}x^7 + \frac{1}{8}x^8 + \frac{1}{9}x^9 + \dots$

then  $f(1) =$  the series given, and  $f(0) = 0$ . Also

$$f'(x) = 1 - x - x^2 + x^3 + x^4 - x^5 - x^6 + x^7 + x^8 + x^{10} - x^{11} \dots \\ = 1 - x(1+x) - x^2(1+x) - x^{11}(1+x) - \dots + x^3(1+x^2) + x^8(1+x^2) + \dots \\ = 1 - \frac{(1+x)x}{1-x^5} + \frac{(1+x^2)x^3}{1-x^5} = \frac{(1-x)(1-x^2)}{1-x^5} = \frac{1-x^2}{1+x+x^2+x^3+x^4}$$

Hence, series  $= f(1) - f(0) = \int_0^1 f'(x) dx$

$$= \int_0^1 \frac{(1-x^2) dx}{1+x+x^2+x^3+x^4} = \frac{1}{\sqrt{5}} \left\{ \log \frac{x^2 + \frac{1}{2}(\sqrt{5}+1)x + 1}{x^2 - \frac{1}{2}(\sqrt{5}-1)x + 1} \right\}_0^1 \\ = \frac{1}{\sqrt{5}} \log \frac{\sqrt{5}+1}{\sqrt{5}-1} = \frac{1}{\sqrt{5}} \{ \log(3+\sqrt{5}) - \log 2 \}.$$

**15109.** (Lt. Col. ALLAN CUNNINGHAM, R.E.)—Find the least solution in positive integers of  $x^3 + y^3 = mz^3$ , where  $m = (3\mu - 1)$ , a positive integer  $> 2$ , and  $x \neq y$ ; and  $x, y, z$  have no common factor.

Note by R. W. D. CHRISTIE.

(1) If  $x^3 + y^3 = mz^3$ , then

$$\{(x^3 + z^3 \cdot m) y\}^3 + \{(x^3 - y^3) z\}^3 m = \{(y^3 + mz^3) x\}^3.$$

(2) General Solution of 15109.—

$$(a^3 + 3a^2b - b^3)^3 + \{3ab(a+b)\}^3 = \{a^3 + 3ab(2a+b) - b^3\} (a^2 + ab + b^2)^3$$

for all values of  $a$  and  $b$ .

$a = 2, b = 1$ .— $a = 4, b = 1$  will give solutions of Col. CUNNINGHAM'S example, and another.

(3) If  $a^3 + b^3 = (a+b)z^3$  .....(1),

then  $(a+b)^3 + (2a-b)^3 = 9 \cdot a \cdot z^3, (a+b)^3 + (2b-a)^3 = 9 \cdot b \cdot z^3$  .....(2, 3),

$$(a-2b)^3 + (2a-b)^3 = 9(a-b)z^3, a^3 + (a-b)^3 = (2a-b)z^3$$
 .....(4, 5),

$$b^3 + (b-a)^3 = (2b-a)z^3$$
 .....(6).

(4) Two other general solutions are:—

$$(a) \{a(a^3 - 2b^3)\}^3 + \{b(2a^3 - b^3)\}^3 = (a^3 - b^3)(a^3 + b^3)^3,$$

$$(b) (a^4 + b^4 - 2ab^3 + a^3b - 3a^2b^2)^3 + \{3ab(a^2 - b^2)\}^3 \\ = (a^3 + 3a^2b - 6ab^2 + b^3)(a^3 + b^3)^3.$$

From (b) the common factor  $(a+b)^3$  may be eliminated, but it is left thus designedly to show that when 4 ( $a$ ) is fixed then 4 ( $b$ ) can be obtained by adding fixed constants to the cubes; e.g.,  $a = 3, b = 1$  gives, for 4 ( $a$ ),  $7^3 + 5^3 = 26 \cdot 2^3$ , and consequently, by adding the constants  $b(b^3 + a^3 - 3a^2b), b(a^3 + b^3 - 3ab^2), b(2b^2 + 3a^2 - 6ab)$ , i.e., 1, 19, 11 respectively, we secure  $7^3 + 7^3 = 37 \cdot 2^3$ .

**15119.** (H. BATEMAN.)— $\xi, \eta, \zeta$  are the distances of a point from the angular points of a triangle. Prove that the two points for which  $\xi^l \eta^m \zeta^n$  is a maximum are the foci of the ellipse whose areal equation is

$$\sqrt{(lx) + \sqrt{(my) + \sqrt{(nz)}} = 0.$$

Solutions (I.) by G. F. S. HILLS; (II.) by Professor SANJANA, M.A.

(I.)  $u = \xi^l \eta^m \zeta^n$  to be made a maximum subject to condition

$$a^2 \xi^2 \dots - 2bc \cos A \eta^2 \zeta^2 \dots - 2a^2 bc \cos A \xi^2 \dots + a^2 b^2 c^2 = 0,$$

which is the relation connecting the distance of four points in a plane (SALMON, Conics, p. 134).

Differentiating, &c., we get

$$[a \xi (a \xi^2 - b \cos C \eta^2 - c \cos B \zeta^2 - abc \cos A)]/l \xi = \dots = \dots$$

Now  $\xi^2 = bc \cos A (x-1)^2 + ca \cos B y^2 + ab \cos C z^2, \dots$ ,

formula for distance in areals; therefore

$$a \xi^2 - b \cos C \eta^2 - c \cos B \zeta^2 - abc \cos A = -2abc \sin B \sin C x,$$

on easy reduction: therefore  $\xi^2 x/l = \eta^2 y/m = \zeta^2 z/n$  gives the maximum points, or, substituting value for  $\xi^2$ , and putting  $1-x = y+z$ ,

$$[(c^2 y^2 + b^2 z^2 - 2bc \cos A yz) x]/l = \dots = \dots,$$

which are the foci of  $\sqrt{(lx) + \sqrt{(my) + \sqrt{(nz)}} = 0$ .

[A proof of this latter is, if  $(x, y, z)$  be one focus,  $(x', y', z')$  the other,

$$x'x/a^2 = yy'/b^2 = zz'/c^2 = k^2, \text{ whence } k^2(a^2 yz + b^2 zx + c^2 xy) = xyxz,$$

and centre is  $\frac{1}{2}(x+x') = \frac{1}{2}(x^2 + k^2 a^2)/x, \dots$ ;

but centre from usual formula is  $(m+n, n+l, l+m)$ ; hence, equating these,

$$\text{we have } \{x(a^2 yz + b^2 zx + c^2 xy) - yz(x+y+z)a^2\}/(m+n) = \dots = \dots,$$

whence above equations for foci easily follow.]

[Rest in Vol.]

**14918.** (REV. T. ROACH, M.A.)—If from  $S'$ , the second focus, a line be drawn parallel to  $SP$ , meeting the ellipse in  $P'$  and  $SY$  in  $Z$ , show that  $SP'Z$  is an isosceles triangle.

Solutions (I.) by the PROPOSER; (II.) by A. W. POOLE.

(I.)  $SZ = S'W$ ,

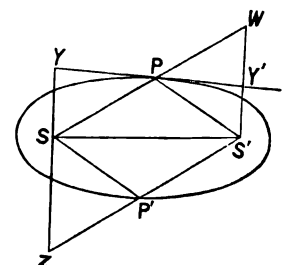
opposite side of parallelogram

$$= SP + S'P = AA'$$

$$= SP' + S'P';$$

therefore  $SP' = P'Z$ ;

therefore triangle is isosceles.





concyelic." Prove that (1) the centre of the circle P'QRS lies on a concentric ellipse; (2) the circle itself envelops the curve

$$(2x^2 + 2y^2 - a^2 - b^2)^2 = (a^2 - b^2)^2 (x^2/a^2 + y^2/b^2);$$

(3) the line joining P with the centre of the circle always touches the curve  $(\lambda x)^3 + (\mu y)^3 = (a^3 - b^3)^3$ , where  $\lambda \pm \mu = (a \pm b)^3$ ; (4) the normals to the ellipse at Q, R, S meet at the same point T; and (5) the locus of T is an ellipse.

**9346.** (Professor NEUBERG.)—Soit, dans le plan d'un triangle ABC, un point D tel que les droites joignant A, B, C respectivement aux centres des cercles BCD, CAD, ABD concourent en un même point E. Démontrer (1) que la droite joignant D au centre du cercle ABC passe par E; (2) qu'entre les angles A, B, C du triangle ABC et les angles BDC =  $\alpha$ , CDA =  $\beta$ , ADB =  $\gamma$  il existe la relation

$$\begin{vmatrix} 1 & \cot A + \tan \alpha & \cot A \tan \alpha \\ 1 & \cot B + \tan \beta & \cot B \tan \beta \\ 1 & \cot C + \tan \gamma & \cot C \tan \gamma \end{vmatrix} = 0.$$

**9799.** Deduce the solution of  $a^2z/ax^2 - a^2(a^2z/dy^2) = 0$  from the expansion of  $\phi(x, y)$  in ascending powers of  $x$  and  $y$ .

#### NOTICES TO CORRESPONDENTS.

It is requested that all Mathematical communications should be sent to the Mathematical Editor,

Miss CONSTANCE I. MARKS, B.A., 10 Matheson Rd., West Kensington, W.

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#### THE LONDON MATHEMATICAL SOCIETY.

Thursday, November 13th, 1902.—Annual General Meeting, Dr. E. W. Hobson, President, in the Chair.

Mrs. A. Stott, Liverpool, was elected a member.

The De Morgan Medal for 1902 was presented to Prof. A. G. Greenhill in recognition of his eminent services to mathematics and to mathematical physics.

The President stated that Mr. Tucker was retiring from the office of Honorary Secretary, and he moved the following resolution:—"That the thanks of the London Mathematical Society be offered to Mr. Robert Tucker for the eminent services which he has rendered to the Society during the thirty-five years in which he has held the office of Honorary Secretary." This resolution was seconded by Dr. Glaisher and carried unanimously. A circular has recently been issued, signed by four past Presidents of the Society, calling attention to the facts that, during his long tenure of the office, Mr. Tucker has grudged neither time nor labour in promoting the interests of the Society, and that it is largely owing to his zeal and devotion that the Society has advanced from a comparatively local beginning to be the representative Society of mathematical science in Great Britain. The circular invites those who concur with the signatories, in wishing to offer to Mr. Tucker some permanent mark of their appreciation of his services, to send subscriptions for that object to Dr. J. Larmor, St. John's College, Cambridge.

The Council and Officers for the ensuing Session were elected as follows:—President: H. Lamb, M.A., F.R.S. Vice-Presidents: R. Tucker, M.A.; E. W. Hobson, Sc.D., F.R.S.; H. F. Baker, Sc.D., F.R.S. Treasurer: J. Larmor, D.Sc., F.R.S. Secretaries: A. E. H. Love, D.Sc., F.R.S., and W. Burnside, Sc.D., F.R.S. Other Members of the Council: J. E. Campbell, M.A.; Lt.-Col. A. J. Cunningham, R.E.; J. W. L. Glaisher, Sc.D., F.R.S.; A. G. Greenhill, M.A., F.R.S.; H. M. Macdonald, M.A., F.R.S.; Major MacMahon, R.A., Sc.D., F.R.S.; A. E. Western, M.A.; E. T. Whittaker, M.A.; and A. Young, M.A.

The newly elected President having taken the Chair, Dr. Hobson read an address on "The Infinite and the Infinitesimal in Mathematical Analysis."

The following papers were communicated:—

Prof. D. Hilbert: "Ueber den Satz von der Gleichheit der Basiswinkel im gleichschenkligen Dreieck."

Prof. W. Burnside: "On Linear Homogeneous Groups."

Prof. H. Lamb: "On Wave-Propagation in Two Dimensions."

Prof. A. C. Dixon: (1) "Summation of a certain Series," (2) "Expansions by means of Lamé's Functions."

Mr. W. H. Young: (1) "On Sets of Intervals," (2) "Note on Unclosed Sets of Points defined as the Limit of a Sequence of Closed Sets of Points."

Prof. M. J. M. Hill: "The Continuation of certain Fundamental Power Series."

Prof. L. Crawford: "A Geodesic on a Spheroid and an Associated Ellipse."

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